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FINANCIAL MANAGEMENT

ALTERNATIVE SOURCES OF FINANCING OF THE SMALL AND MEDIUM SIZE ENTERPRISES IN THE REPUBLIC OF MACEDONIA

Meri Boskoska[1], Violeta Panovska-Boskoska[2]
[1]University "St.Kliment Ohridski" - Bitola, meribb@yahoo.com
[2] University "St.Kliment Ohridski" - Bitola, vpanoska@yahoo.com

Abstract: *The effective managing with a company, to a large extent, depends on the sources of financing of its business activities. The decisions that the entrepreneurs make for financing of the business activities are rather complex and are related to the planning, providing and using of the finances. The establishment and the continuity of the work of the small and/or medium sized enterprises, mainly depends on approachability to the finances that can be obtained from different sources and under different financing conditions.*

The main goal of this paper is to point out the alternative sources of financing that can help the Macedonian small and medium sized enterprises to provide enough capital for improving and enlarging the scale of their productivity, competence, as well as the development of new products and innovations.

In this paper, a theoretical research is presented concerned with the financing of the small and/or medium sized enterprises through analytic description and a synthesis method that will be applied after the content analysis.

The expected results of the research are actually the answers to the following questions:

- *How important are the small and/or medium sized enterprises in the development and the stability of the Macedonian economy?*
- *Which are the additional sources of financing available for the Macedonian small and medium sized enterprises?*

Key words: *small and medium enterprise, alternative financial sources, commercial banks, economic development, economic stability.*

1. INTRODUCTION

Many analysts and policymakers (Albert Berry, 2007, OECD, USAID) recognize the importance of SMEs in economic development, especially for the developing countries. According to USAID (2009) small and medium enterprises (SMEs) are critical because they account for large shares of the total output and employment and are thus a key to the strategic objective of overcoming the poverty.

Risteska (2012) concludes that SMEs have by far big part in the development of the national economy, because of which the governments take different measures, using different instruments and strategies to support them in their development. According to Dickins and Feels (2005) many SMEs are facing difficulties in finding sustainable finances such as long-term loans just because of the high risk connected with the enterprises with small assets. The commercial banks do not want to finance the SMEs because of the risk. On the other hand, the SMEs being considered as with higher risk than the big ones, the SMEs have to pay higher interest rates for the loans from the commercial banks.

Many researchers, amongst whom, Jovanova (2012) say that in the conditions of crisis when the commercial banks are more rigorous in approving the loans, it is necessary to find new ways of financing of the Macedonian enterprises.

The scope of research is covering the explanation of the mentioned objective and will depend on the knowledge and past research made by different authors in the field of entrepreneurship and management of small business, as well as, from analysis of the economic development strategies provided by home and foreign institutions.

This paper contributes to the exciting literature by familiarizing the SMEs with additional sources of funding for their ongoing development and business activities. This is very important to ensure the survival and sustainability of SMEs, something that a country's economy growth and development depend on.

2. IMPORTANCE OF SMEs IN COUNTRY'S ECONOMY DEVELOPMENT

Before we start analyzing the importance of the SMEs within an economy, it is important to define SMEs as a classified group. In most cases the European Commission's definition is the one that is widely accepted.

According to the European Commission an enterprise is concerned to be entity engaged in an economic activity, irrespective of its legal form. This includes, in particular, self-employed persons and family businesses engaged in craft or other activities, and partnership or associations regularly engaged in economic activity.[1] Main criteria to define the SMEs are: number of employees, turnover or Balance sheet total.

Table 1: Company category classification

Company category	Employees	Turnover	or	Balance sheet total
Medium-sized	< 250	≤ € 50 m		≤ € 43 m
Small	< 50	≤ € 10 m		≤ € 10 m
Micro	< 10	≤ € 2 m		≤ € 2 m

Source: http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/sme-definition/index_en.htm

According to the data from the table above, the SMEs can be divided into three categories: middle sized with less than 250 employees, small with less than 50 employees and micro with less than 10 employees. In the Republic of Macedonia the classification of micro, small and middle sized enterprises is regulated by the Trade Companies Law[2] according to which:

- Middle sized enterprises either have up to 250 employees or annual income less than 10 million euros and average assets value less than 11 million euros,
- Small enterprises either have up to 50 employees, annual income less than 2 million euros and average assets value less than 2 million euros,
- Micro enterprises are the ones that have up to 10 employees and less than 50.000 euros annual income.

It can be seen that according to the number of employees, the criteria are as same as the European ones when it comes to the classification of the SMEs, the difference is in the average assets value and the annual income. However, most often is the number of employees that is used as a standard definition when classifying the SMEs.

The level of importance of the SMEs can be measured according to the number of employees and to which extent they take part in the creation of new values in the economy. The small enterprises are considered to be the moving force of the changes in the economy as well as, sources of significant innovations. The research made by Edinburgh Group[3] shows that more than 95% of the total number of enterprises in the world is in the category of SMEs, which employs approximately 60% of the employees in the private sector work. The SMEs play a key role in the employment not only in the developed countries but also in the developing and in the countries with low incomes. The data for the employment between 2002 and 2010 saying that in average MSEs are with 85% of the total number of employees just proves the previously stated. In figure 1 the contribution of the SMEs to the employment in different countries can be seen.

[1] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:124:0036:0041:EN:PDF
[2] Trade Companies Law article 470 Official Gazette of Republic of Macedonia, number 28/04 (change number 84/05;25/07)
[3] Edinburgh Group (2013): Growing the global economy through SMEs, p.8.

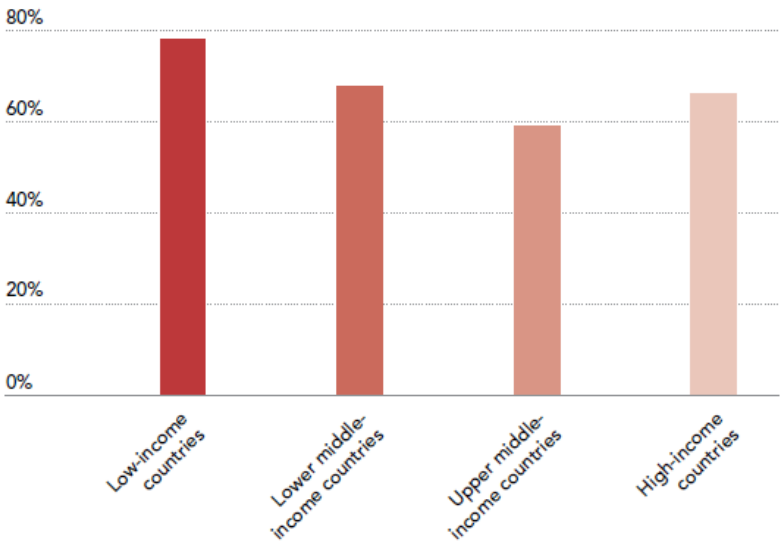

Figure 1: Contribution of SMEs to employment (median values)

Source: Edinburgh Group (2013): "Growing the global economy through SMEs, p.8.

According to the data of the National Office of Statistics of Republic of Macedonia, there were 71290 active business entities in 2013. Enterprises with 1 to 9 employees took 85% of that number. On the second place were the enterprises with no or unknown number of employees (6.2%),then the enterprises with 10 to 19 employees follow with 4.2%,after them were the enterprises with 20 to 49 employees-2.5%; 1.8% of the enterprises with 50 to 249 employees and only 0.3% have more than 250 employees[44]. The number of active business entities in Macedonia for 2013 is presented in Table 2.

Table 2: Number of business entities by number of employees

Total						
	0[1)]	1-9	10-19	20-49	50-249	250 +
71 290	**4 415**	**60 599**	**2 989**	**1 787**	**1 291**	**209**

1) Including business entities with unascertained number of persons employed

Source: www.stat.gov.mk

According to Stojanovska (2014) the sector of small and medium enterprises plays a major role in the Macedonian economy which is shown by the fact that the percentage of employees in SMEs is higher than the one of the big companies, reaching its peak in 2007 with 83%. The percentage of 63% of the SMEs in the GDP shows that SMEs are carriers of the economic growth of Macedonia. This means that SMEs have major impact on the range and the dynamics of the economical development of our country and also they maintain the economical and social stability. We would like to point out here that there is a two-way connection between the SMEs and the economic development. In other words as SMEs influence the level

[4] www.stat.gov.mk. March 2014.

of economic development so the higher level of development stimulates establishing new SMEs as well as strengthening and development of the existing ones.

The small and medium enterprises are the moving force of the development of every national economy. The positive impact of the SMEs is evident through the following: decreasing of the unemployment rate, bigger GDP, higher level of exports and higher level of innovations of the certain country. This is the reason why the government creates such polices to push forward the development of the SMEs sector and to solve many other different problems in this sector.

3. THE PROBLEM OF FINANCING THE SMALL AND MEDIUM ENTERPRISES

Analyzing the problem of financing the SMEs the fact that Macedonian economy is open and it was not immune to the economic crises in 2008, must be taken into consideration. Namely, during the crisis when the businessmen hesitate to invest and when the demand for the SMEs's products drops, they face the problem of collecting their charges which has impact on their liability. In the situation presented before, the enterprises, especially the start-up ones, can hardly find the necessary finances. Being very hard to access financing schemes, made it difficult for the SMEs to plan their long-term development, and postponed the process of establishing new ones-as mentioned previously-which are the carriers of the economic development of Macedonia.

Talking about the sources of financing of the SMEs in Republic of Macedonia, we must say that the commercial banks, as a center of the finance market, are the ones that provide the SMEs with different kinds of loans and thus the banks are the most often and biggest finance supplier. Nevertheless, the banks decide to give loans to highly liable and stable enterprises (lower risk), rather than to start-up, new enterprises (higher risk) just because of the not yet so stable conditions of the global economy. The commercial banks give loans to start-up enterprises if only they are ensured that the business in question brings enough money, so that the loan installments can be paid and the loan as a total can be paid off.

Dimovska and her research that she did back in 2012 in five banks in Macedonia can only prove the previously stated. The research gave answer to the following question: What is the impact of the global financial crisis on SMEs lending in your bank? All of the banks involved in the research gave the same answer, that the global financial crisis makes giving loans to SMEs highly risky as a result of the macroeconomic instability.[5]

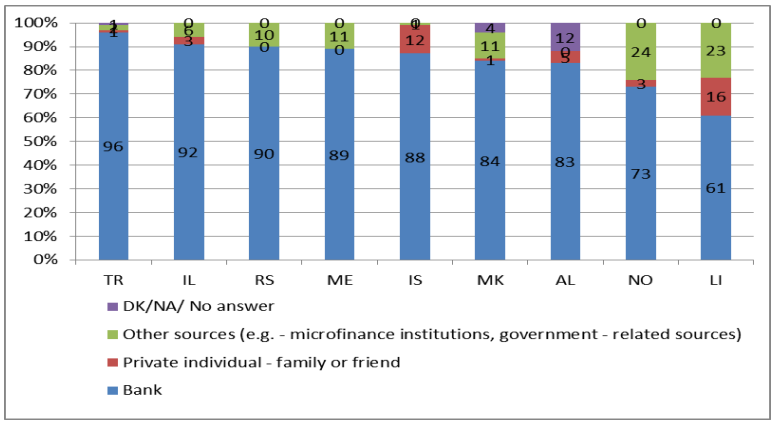

Figure 2: Provider of the most recent loan
Source: European Commission (2013): 2013 SMEs' Access to Finance survey, Analytic Report, Brussels. p.45.

Researching about this question further, the European Commission says that although the Macedonian banks are more rigorous when approving loans, they are still the biggest part of the finance source for the SMEs sector. Namely, in 2011 and in 2013 a very high percentage of the total loans, 84%, were given by the banking sector (Figure 2).

[5] Dimovska, Efimija. (2013).Evaluation of SMEs financing in Macedonia from the "supply side" perspective, CEA Journal of Economics, Vol.8, issue 1, Skopje,p.11.

The fact stands that the entrepreneurs first ask the banks for loans-but the banks are not the sole creditors at the finance market. Further on, an analysis of several alternative sources is presented, sources that have been available to the businesses in Macedonia recently.

4. KINDS OF ALTERNATIVE SOURCES OF FINANCING THE BUSINESSES

The European Commission in the progress report for Republic of Macedonia for 2013, points out that the development of SMEs is obstructed because the SMEs can hardly approach finances and that is actually their biggest challenge. Although there is a certain progress of the Government made by lowering the administrative and legislative barriers, still there are a lot of challenges for the SMEs in providing the support, the innovation and in approaching the finances.[6]

Having into consideration the situation with financing of SMEs in Republic of Macedonia, SMEs should do further research in where and under what conditions they can access the much needed capital. Here, we would like to mention again that finding new sources other than the commercial banks was imposed to the SMEs because of the global financial crisis.

In the recent years the finance sources have diversified and their numbers have enlarged. Thus, for the Macedonian entrepreneurs there are many different sources, such as[7]:

- Business angels' network
- European Bank for Reconstruction and Development (EBRD)
- SEAF1 Macedonia
- Technological development and innovation fund
- Development Foundation "Crimson Capital"
- Sortis Invest

- **Business angels' network -** Business angels are successful entrepreneurs, owners, managers who have capital, knowledge and skills and are ready to invest in sustainable business projects that can make profit fast. The goal is for the business angels to help the start-up businesses financially and in return get either shares of that certain company or a percentage of the profit.
I2BAN is the first official Business angels' network in Macedonia established in 2011 and its goals are:

  - Grouping and gathering the most successful Macedonian businessmen to connect them with the best investing opportunities amongst the new companies,
  - Creating more finance sources for the new companies.

I2BAN puts together the entrepreneurs with the richest people in the country and the region, something that makes the additional finance sources more approachable especially for those entrepreneurs with innovative projects.

In the developed countries business angels are very real and an excellent opportunity for start-up businesses. In the USA $20 billion is invested by the "business angels, while in Europe the number is lower-some $4 billion per year[8]. The Macedonian business angels' network is comprised of 15 home investors that have capital of 40million €.

- **European Bank for Reconstruction and Development (EBRD)** is one of the biggest investors in our region, playing a major role in attracting FDI. So far, the EBRD, s target has been the financing of the private sector and projects that will create employment. EBRD made a strategy for Republic of Macedonia for the 2013-2016 period with priorities such as: attracting FDI, local economic development, efficiency in energetics, sustainability of the integration within the region. Within that framework, EBRD realized successfully two projects: BAS-Business Advisory Services and ECD-Enterprise Growth Program, obtaining help for the home companies to improve their business performances, as well as, developing new managerial skills. Both projects previously mentioned, definitely improve the competence of the home companies[9].

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[6] European Commission (2013): Report on the Macedonian progress in 2013, page 49, Brussels.
[7] http://www.amcham.com.mk/WBStorage/Files/BusinessAngelsINFO.pdf
[8] http://biznis101.com/osnovaj-biznis/pocetno-finansiranje/93-veruvate-li-vo-angeli.html.
[9] http://www.economy.gov.mk/ministerstvo/3740.html, March 2014.

The owners of the small and/or medium enterprises in Republic of Macedonia should have in mind the fact that EBRD improved the financial support for them by making contracts with the commercial banks. EBRD, so far, has made contract with Ohridska Banka - Societe Generale for on-lending to local companies. A loan up to 6 million € will be used to finance energy efficiency investments and a second loan of 1 million € will be provided for competitiveness improvement of SMEs.[10]This credit line project is available for: private enterprises, trading enterprises, as well as for public and/or private companies-providers of local services. The maximum amount allowed for private sector project is 2 million € and for the public sector 2.5 million €.

Also the contract made between EBRD and NLB Tutunska Banka is for 4 million € that will help to improve the economic efficiency of the Macedonian companies. The advantage of this credit line (mentioned previously) for the potential applicants is that the successful projects do not pay out 15% of the loan they got.

- **SEAF 1 Macedonia** is an investment fund that provides not only finance but also business help for the SMEs. 80% of the money in this fund is supposed to be obtained by successful Macedonian entrepreneurs-working in foreign countries, from the international SEAF, as well as from capital and pension funds. This fund is particularly for highly risky investments in the Macedonian companies. But still, time is needed to find potential investors willing to invest part of their capital in Macedonian economy.

- **Technology development and innovation fund (TDIF)[11]** has a goal to: promote and provoke innovations, improve the approachability to finance services and innovations, develop the infrastructure which will lead to innovations and technological development, as well as to establish a strong partnership between universities and research centers on one side and the private sector on the other in Macedonia. This fund provides finances through four financial instruments:

- Co-financing grants for start-up, spin-of companies and innovations,
- Co-financing grants and conditional loans for commercialization of the innovations,
- Co-financing grants for transferring technologies,
- Technical help with business-technology accelerators.

This fund is established and enhances the development of innovative projects that will enlarge the competence and the quality among the small businesses.

- **Crimson Capital** is an international lender in emerging market development by stimulating trade, finance, investments and sales. The services that it provides are as follows[12]:

- Finance for SMEs (debt, equity, trade finance, leasing, factoring)
- SME Development
- Trade, Export and Investment Promotion
- Competitiveness and Restructuring (manufacturing, agribusiness, technology
- services)
- Capacity Building of managers, Consultants and business associations
- Agriculture and Agribusiness (including food processing)
- Loan workouts and Financial Restructuring
- Enterprise restructuring and improvement
- Industrial and manufacturing operations improvement
- Marketing and sales
- Training and train-the-trainer programs

Crimson Capital-Macedonia informs that the foundation is financing projects or companies that have an American partner with at least 25% ownership.

- **Sortis Invest** is a Bulgarian investing and consulting agency for financing projects that mean enlarging the existing business, finding and approaching new market etc. Together with financing concrete/real projects, the Agency offers consulting services concerned with corporate financing, merging and acquisitions.

All these mentioned above sources of financing are only a part of the additional ways of the SMEs in Macedonia to find capital to develop and strengthen the existing businesses or to start a new one.

[10] http://www.ebrd.com/pages/news/press/2013/131218b.shtml March 2014.
[11] http://www.mon.gov.mk/index.php/dokumentimon/formularimon/1676, February 2014.
[12] www.crimsoncapital.org, January 2014.

The entrepreneurs should know that before applying for finance help they have to make a profitable and sustainable business plan, then get informed and analyze the positive and negative effects of each and every possible and available source of finance help. As we mentioned before, in this still fragile and sensitive global finance situation, this is the only way that the entrepreneurs can get the capital they need.

Regardless what type of finance help they choose, the SMEs' owners should have all the necessary information concerning the different kinds and opportunities for financing. They should also be aware of the level of risk-meaning whether the company can or cannot generate income that will pay out the loan in due time. Otherwise the SME can come to apposition of non-liability, not being able to develop as planned, not being able to pay the obligatory installments and eventually lose the business completely.

5. CONCLUSION

The small and medium enterprises play a key role in the economies of all the countries in the world, regardless the level of their development. The importance of the SMEs can be seen in:

- The biggest percentage of employees in the country goes to this sector,
- They have a big share of the GDP,
- High level of innovations and technological development.

Although the SMEs play a major role in the economic development in many countries, they still face problems. If we regard the administrative and legislative procedures as one of their problems, the second one would certainly be the approachability to appropriate sources of financing. Thus this is what the SMEs are facing in Macedonia, too. In order to overcome this problem, efforts are made toward awareness and being better informed about what and how can Macedonian companies choose as a source of financing that are actually available to finance and support the development of investments.

The high risk level that exists among the SMEs is the cause of the entrepreneurs to face difficulties when asking for finance for their businesses. The reality in Republic of Macedonia is that SMEs mainly seek for financing in the commercial banks and they are still dependent on the banks.

Macedonian companies are getting more and more aware of the fact that their own assets and the loans from the commercial banks are simply not enough for developing the technology and investments. So, in order to enlarge the list of possibilities of how to get the financial help, Macedonian entrepreneurs should be better informed and understand the variety of financing sources available now. The alternative financing sources such as: Business angels' network, European Bank for Reconstruction and Development (EBRD), SEAF1 Macedonia, Technological development and innovation fund, Development Foundation "Crimson Capital", Sortis Invest are a good instrument for the start-up businesses as well as for the sustainable development of the existing SMEs.

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www.crimsoncapital.org January 2014

www.ebrd.com

www.economy.gov.mk

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BEHAVIORAL FINANCE AND INVESTMENT DECISIONS

Slađana Barjaktarović Rakočević[1], Nela Milošević[2], Rade Rakočević[3]
[1]University of Belgrade, Faculty of Organizational Sciences, sladjana@fon.bg.ac.rs
[2]University of Belgrade, Faculty of Organizational Sciences, nela.milosevic@fon.bg.ac.rs
[3]Senzal Capital doo, rade.rakocevic@senzalcapital.com

Abstract: *Investment decisions are made in accordance with the situation in the financial markets, the level of portfolio diversification, the results of technical and fundamental analysis, as well as in line with the expectations and preferences of investors and managers. This paper discusses the role of risk in decision-making, and gives the basic concept of behavioral finance and its applications. Adequate management of investment portfolios provides a harmonized relationship between risk and return, and considering the fact that all decisions in the financial markets are made based on predictions and expectations, it is clear that the influence of the irrational should not be underestimated. Empirical evidences proved that there are number of situations in investments and capital market transactions when market participants often act very unpredictably. Behavioral finance is supplement to the standard finance theories by bringing in behavioral aspect into decision-making process This paper represents a theoretical basis for future empirical research on the subject of behavioral finance.*

Keywords*: Behavioral finance, decision-making process, market efficiency, risk,*

1. INTRODUCTION

Global financial markets are influenced by a number of factors: economic processes related to different countries of the world, institutional and political constraints, lack of transparency in operations, information asymmetry etc. However, one of the most important factors refers to the perceptions and reactions of participants in the financial markets. For each investor, doing business in the financial markets is a constant process of decision making. The aim of this paper is to briefly describe the emotional factors that have an influence on the price changes in the market, i.e. on making investment decisions. The analysis of the rational and irrational investment decisions could partly be explained by considering the psychological effects of an investment activity. As Bikas et al. (2013) states in their work, the main difference between traditional and behavioral finance is the fact that traditional finance does not address the question of "why" investors make one or another decision.

Bikas et al. (2013) suggest that investment in financial markets instruments in recent decades is becoming increasingly popular in the circles of individual investors. Communication with people on the other side of the world is no longer a problem, so the information is spread very quickly, and decisions are made in a relatively tense atmosphere. Undoubtedly, investment decisions depend on the type of investment and expectations that are linked to it. However, very often short-term investment decisions are not based on logical arguments, and are more often made on the basis of your current mood or just received information.

In an attempt to explain the decisions and actions of financial investors, a completely new theory has been suggested in the literature which is based on the concept of behavioral finance. Some authors like Bikas and Jurevičienė (2009) and Jurevičienė et al. (2012) have used this theory in order to explain the decisions regarding personal finances and the way in which clients of financial institutions decide on savings.

Behavioral finance is the result of connecting the various sciences (Ricciardi & Simon, 2000): **Psychology** – through which the behavior and thinking is analyzed, i.e. how human behavior is conditioned by the physical and psychological characteristics and the external environment; **Finance** – which explain ways to define the optimal structure of assets and resources; and **Sociology** – which analyzes the impact of sociological factors on people's attitudes and values.

In their research, Jurevičienė et al. (2012) classified behavioral finance as macro and micro-finance. Macro aspect refers to the analysis of defects of market efficiency hypothesis and micro aspect focuses on the behavior and inconsistencies in decision-making of individual market participants. Both approaches separate finance from strictly rational decisions, as well as from mathematical and statistical models, thanks to which, a large number of procedures were explained in the past.

Financial experts have been trying to make an empirical model that will show which factors influence the investor's competence. Graham et al. (2009) have concluded that investors who trade frequently have a more diversified portfolio of those investors who are characterized by passive strategies. In addition, investors with a strong self-confidence feel strongly that their decisions are more accurate, and portfolio of securities better structured.

2. DECISION-MAKING AND RISK

In everyday life, people often find themselves in a situation to make a choice among a range of options and make different decisions, from the mundane, which are not very important, to those of vital importance. Making individual and group decisions is the subject of decision theory which was created in the mid-twentieth century through contributions from different scientific disciplines, economics, statistics, psychology, political science, sociology, philosophy (Hansson, 2005). In the framework of decision theory two perspectives have been developed, normative and descriptive (behavioral) decision theory. Normative theory was formed to meet the needs of the economy and is concerned with how decisions should be made. It describes the behavior of an idealized, fully rational and informed decision maker who is governed by the principle of maximizing their benefit and offers a variety of methods of making good decisions adequate for different circumstances. In contrast to the normative, descriptive decision theory has been developed primarily in the field of psychology and focuses on the question of how decisions are really made. The role of the decision maker is given to a man with a natural cognitive limitations and psychological factors which lead to deviations from the ideal, rational decision-making (Pavličić, 2007).

Decision is the selection of one from a set of at least two options which can achieve the desired objective. Decision theory assumes that the set of possibilities is closed, i.e. their number is limited and they are mutually exclusive. Also, all possible events have to be fully understood and mutually exclusive (Hansson, 2005).

Depending on whether the circumstances in which decisions are made (the state of nature, events) are predictable or not, it is possible to talk about decision-making under three types of conditions - certainty, uncertainty and risk (Peterson, 2009). For all three types of situations normative theory offers models which lead to making rational decisions. It is understood that perfectly rational decision maker always knows what he wants and strives to achieve it governed by the principle of maximizing personal benefit. Decision-making under conditions of certainty refers to the cases when only one state of nature occurs in the implementation of a specific action, and it is known in advance. In this case, the outcome of each selected alternative is known in advance. Based on personal preferences, each option is assigned a number which expresses its importance, utility for the decision makers and it is usually expressed in money. In the event that the probability of occurrence of each outcome is unknown, the decision is made in terms of (total) uncertainty. If the probability of the possible outcomes when choosing certain options is known, the decision is made in terms of measurable uncertainty, that is, in terms of risk. In such conditions, the utility of each outcome is weighted by the probability of its occurrence resulting in a number that represents the expected value of the outcome. Rational decision involves selection of option with maximal total expected value. However, for making specific, individual decisions which are not repeated, the expected value is not a reliable basis for selection. This has been shown by the **St. Petersburg Paradox** which reveals that in terms of risk the values function of money is not always a linear relation with subjective utility, which is attributed to it. This finding implies the use of selection methods based on the maximization of mentioned subjective expected utilities (EU designation of Expected Utility). To calculate its value, the procedure of standard game is used, and it requires ranking the options on the basis of individual preferences, and choosing numerical interval in whose range the values assigned to individual options will be able to move.

In his paper, Virlics (2013) states that if the utility function is linear, it means that the indifference to risk is present, that is, it does not matter whether we choose a certain outcome or a risky action of the same expected value, one outcome of which is better than the certain one, and the other worse. Only in this case there is a linear relationship between the value of money and the expected utility attributed to it. However, in reality, the other two forms of function are much more common. A function that is convex downward reveals an individual who shows aversion to risk and will always prefer a certain outcome to the risky option. Although the majority of people in everyday life act like this, there are people and situations which are dominated by the tendency towards risk. In this case, the utility function is convex upward showing preference to the risky option. Principles of normative theory show how a perfectly rational individual should make decisions in the circumstances of certainty, uncertainty and risk.

However, in everyday life, one often does not have access to all the necessary information related to the set of possible alternatives, states of nature and outcomes. The criteria of normative theory are too strict even when it comes to preferences of real decision makers. The preferences are often time unstable, logically

inconsistent and thereby mutually conflicting. Since the 1970s different studies have been conducted aiming to explain the actual process of decision making. The empirical findings that have emerged from these studies were the basis for the creation of behavioral theory. In addition, it has been found that decision-making is not always defined by utility maximization, but is affected by a number of factors which, among other things, are of emotional nature. Kahneman and Tversky (1979) have defined one of the most important theories explaining the causes of deviations from rational choice under the conditions of risk. Based on a series of conducted experiments, the aforementioned authors have concluded that in humans there is a tendency to overestimate the chances of unlikely events occurring and underestimate the chances of medium and highly likely events occurring. Kahneman and Tversky (1979) assume that in assessing the utility of the outcome there is a value that represents a standard, a reference point. Each outcome is compared to it and is therefore seen either as a profit, which is assigned a positive value, or a loss, which is assigned a negative value. In this way, a function value is formed and is the basis for decision making. It has been shown that the function has the shape of the letter S, and it reveals two important phenomena. First, it seems that people are more sensitive to identical differences in values of outcomes if they are close to the reference point than when they are significantly distant from it. For example, an increase in funding from 1000 to 2000 dinars is perceived as greater than the increase from 10 000 to 11 000 dinars. Another important feature of the value function reveals the existence of the phenomenon of loss aversion – the losses and gains of the same value are not evaluated in the same way, as the losses are viewed as larger. The loss of 10 000 dinars is experienced more intensely than a gain of 10 000 dinars (Kahneman and Tversky, 1979).

Normative decision theory is based on the concept of statistical probability, while in the process of making individual decisions it does not make much sense to rely on statistical probabilities. A solution is offered in the form of the concept of subjective probability, which is distinctive only to a particular decision maker. In order to determine the numerical subjective probability, the lottery method is used (Pavličić, 2007).

Analysis of the decision-making process in economic theory shows that the decision-making process is based on an objective analysis of the investment and the possible outcomes, as well as on the subjective perspective of investors. Neuroeconomics shows that the psychological and emotional impact on the decision-making process can have an informative and very useful role. The analysis of investment risk in terms of behavioral finance explains some of the decisions made irrationally, and the fact that the perception of risk greatly affects the optimistic or pessimistic attitude of the investor opens the door for new research on this topic.

3. BEHAVIORAL FINANCE CHARACTERISTICS

When analyzing investment process, there are studies whish emphasis that investors spend too much time studying investment behavior and not enough time focusing on investor behavior. In spite of what an investment does, it is the decisions of the investor to buy or sell that finally determines success or failure. This fact is the fundamental premise in behavioral finance.

It might be said that the most valuable contribution of behavioral finance can be perceived in better understanding of how investors value assets they would invest in. Asset valuation performed by investors and academics relies on evident factors but, on the other hand, experience has showed that human side is very influential during the investment decision process. Connecting the knowledge of how people make decision with investment process would hopefully enhance portfolio performance.

For a long period theoretical and empirical evidence suggest that capital asset pricing model (CAPM), efficient market hypothesis and other rational financial theories were successful in predicting and explaining events and processes in financial markets. But, in time, more and more anomalies and behaviors has occurred that could not be explained by existing theories at that time. Empirical evidences proved that there are number of situations in investments and capital market transactions when market participants often act very unpredictably. Behavioral finance is supplement to the standard finance theories by bringing in behavioral aspect into decision-making process. Contrary to Markowitz and Sharp, behavioral finance deals with individuals and ways of gathering and using information. Behavioral finance is particularly in evidence in stock market anomalies, share valuation, acquisitions and loss-making projects (Pike and Neale, 2006).

The traditional understanding of EMH is illustrated in the following diagram. The key idea is that in an efficient market, all available information is reflected in the market price of securities.

A critical assumption in the traditional framework is that this information, no matter which form of it is being observed, leads directly to the investment decision. These decisions relate to the purchase, sale, issue of securities, or a decision to continue with keeping the securities in the portfolio.

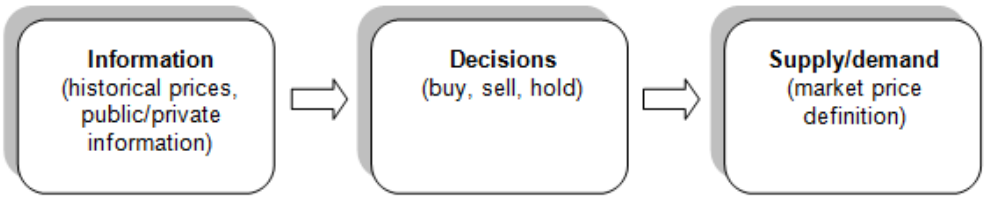

Diagram 1: Traditional model of investment decision-making process

In an efficient market, the market price fully reflects the available information. The only goal of the behavior in this model is the maximization of profits. Buyers and sellers can and do make decisions to optimize their expected return tailored to a particular level of risk.

Diagram 2: Behavioral model of investment decision-making process

In this model there is an additional phase which is located between the available information and the decision to invest. Relevant information, including historical rates, accounting ratios or plans to take over a corporation etc., is inevitably processed by the investors whose behavior is the subject matter of behavioral finance.

Errors in processing affect the investment decisions and, therefore, affect the price in the market. Market prices, defined by supply and demand, can fully reflect the available information, as well as the errors in processing the information.

Nobel Prize laureate in economics for 2002, Daniel Kahneman and Amos Tversky have integrated economy and psychology, and in the process, laid the foundations of behavioral finance. Their work is focused on the process of decision-making under conditions of uncertainty.

They have proven that human decisions are systematically different from those predicted by rational models of decision-making, which is the assumption of traditional economics. Their alternative model, the theory of loss aversion (Prospect theory), provides new insights into the perceived behavior of decision makers. Kahneman and Tversky (1979) have also shown that, by using heuristic shortcuts, decision makers systematically deviate from the principles of probability.

Their work represents a revolution in the field of finance because it has shown that behavioral biases, and in particular the theory of loss aversion, generally gives a better indication of how decisions are made in risky situations.

During the processing of information by investors, there are a few distinctive mistakes (Bodie et al. 2009):

- **Prediction mistakes**: According to the research conducted by Kahneman and Tversky, people attach great significance to recent experiences at the expense of previous convictions (memory bias). According to them, if a company has announced good business results and if a great profit is predicted, the expectations of future price growth are generally too optimistic in relation to the real business of the company. This is manifested in the growth of share prices and a higher P/E ratio, which later leads to a drop in prices and the ratio when investors realize their bad judgment.
- **Overconfidence**: People have it in their character to overly trust in their abilities and the correctness of their beliefs and decisions, and they take actions in the financial markets with too much confidence. This compares to a phrase that there are no bad drivers because they all think they drive perfectly. Excessive self-confidence usually results in more active trading, although according to Barber and Odean's research (2000), it has been determined that 20% of investment accounts with the largest turnover have seven percent lower average returns than 20% of the accounts with the lowest turnover.

- **Being conservative:** Being inert in processing the new information related to the market or companies usually results in overly slow responses to new evidence, causing a delay in trading.
- **The size and representativeness of the sample:** Investors often make decisions on a small sample of information, trying to determine the trend of price movements on the basis of a small amount of information in a short period of time. For example, if a company has published good results in a several quarterly reports, it can be considered as a sufficient signal for investment and can lead to an excessive price growth, although there is a large discrepancy between the market value and intrinsic value of shares. After a certain period, this leads to a shift in the trend since the initial investors' expectations about the company's business trends are usually not met.

And if there was a case in which information is process perfectly, it does not necessarily mean that fully rational decisions would be made. Irrational behavior has a significant influence on investment decisions and the perception of risk and return.
One of the factors that affects rational decision-making is **formulation**, i.e. the way in which relationship between risk and profit, or loss, is formulated. People usually behave differently to risk if it is presented to them with the option of gain, or an option of loss (e.g. tossing a coin and the possibility of gain if the right side is called, or loss if you choose the wrong side of the coin).

Mental accounting is a special type of formulation, which implies that people separate certain decisions in investment, according to the degree of risk. It is very often the case that an investor holds a portion of his portfolio in very high-risk stocks, while having a separate savings account with minimal risk, as a balance. This behavior is manifested in easier decisions to spend the dividend income, which is not the case when it is needed to sell the stocks which have brought the same rate of return, to hold the shares which are making losses (reluctance to realize losses, because at the time of sale they becomes real), as well as to take a greater risk with the realized profit from trade, because it is the earned money and does not mean spending the investor's substance.

Safe decision-making, i.e. investing in well-known large companies, provides an alibi in trade losses, because those investments are considered "safer" than if the money was invested in young and lesser known companies. In this way, loss regret has its justification in the absence of happiness, not in a bad estimate in investments. Furthermore, investing in young companies, through mental accounting, is recorded as the expected and higher return because they carry higher risk.

If rational investors could take full advantage of the irrational investors' errors, then the irrational behavior would have no impact whatsoever on the price movements of stocks, because the rational investors would use any deviation to invest and, in doing so, return the rates to the appropriate level. However, in the behavioral theory there are several factors which limit this possibility:

- **Fundamental risk**: Even if a share is undervalued, it does not mean that the purchase of these shares at the appropriate time is the right choice, because it can happen that the price of the stock continues to fall. It may happen that the purchase of undervalued stocks at the wrong time leads to further losses (even though they are short-term) which can cause a margin call (if it is traded with margin) or that the investors leave the fund which has poor short-term results and has invested in this way.
- **Trading costs**: They are especially conspicuous in the sale of overvalued stocks, the so-called short selling. Some funds or investors do not have the opportunity to trade like this, or can do so only if, in a short time, they buy shares to cover this position, but it carries a high risk of loss.
- **Model risk**: There is always a risk that a wrong model is being used in estimating the value of shares, which gives the illusion that a share is undervalued, but it might actually be its real value. This constant risk limits the trading activity and makes it less attractive.

According to Bikas at al. (2013) traditional finances lies on basic paradigms that portfolio is based on the expected return and risk and is subject to risk based capital asset pricing models, such as CAPM etc. On the other hand traditional finance does not respond to the questions like: why does an investor trades, how does an investor trades, and how does an investor composes portfolios, questions on which behavioral finance tries to give the answers.

4. BEHAVIORAL FINANCE AND THEIR APPLICATION

The emergence of behavioral finance and behavioral economics occurs primarily as a response to those circumstances in making economic decisions which cannot be explained by the postulates of the traditional economy. Postulates of the traditional economy are based on the rationality of market participants when making financial decisions, as well as on the efficiency of the market. A typical feature of behavioral finance is that it uses the findings of social sciences, especially psychology. Psychological studies are based on

limited human rationality, the evident differences found between individuals when it comes to experience, education and expectations, which is a direct consequence of the social and economic status of the individual. Todorovic (2011) points out that behavioral finance, based on the observation and study of the behavior of investors and managers, seeks to add cognitive psychological elements to sophisticated mathematical and statistical models of modern corporate finance.

Behavioral economics can be applied in a variety of areas, especially in modern finance which can no longer be explained only in terms of basic economic principles. Other areas in which behavioral economics is applicable include: organizational economics, public finance and neuroeconomics, and there is also an emerging need for the application of behavioral finance in new areas of psychology.

Behavioral finance is largely successful in explaining the ways in which certain groups of investors behave, especially what kind of portfolio structure they select, and the way in which they trade (Jo and Kim, 2008). Some studies (Grinblatt and Keloharju, 2001; Huberman, 2001; Benartzi, 2001) have shown that ambiguity and familiarity of decisions are the reasons for the insufficient diversification of the investment portfolio. In addition, it often takes fewer resources to investigate local firms than the foreign ones. Guided by this fact, managers prefer local companies' stocks, choosing those with a high expected return. Rationally speaking, the number of transactions should be low because of the high transaction costs. However, the volume of trade on stock exchanges worldwide is extremely high. Best behaviorist explanation for this contradiction is the overconfidence that the investors and portfolio managers have. The hypothesis automatically predicts that people who are more confident will trade more and, consequently, because of transaction costs get lower returns. Several studies (e.g. Shefrin and Statman, 1995) have shown that investors are reluctant to sell assets if, by doing so, they realize a loss or a price which is lower than that at which the assets were purchased. There are two behavioral explanations for this situation. The first explanation implies that investors have an irrational belief when it comes to refunding, while the second one refers to the aversion to loss.

Odean (1999) argues that the attention effect has a great influence on the decision to purchase the shares. It has been shown that individual investors are more inclined to purchase the shares which are designated as "high-attention stock" than to sell them. Barber and Odean (2002) have also come to the conclusion that individual investors typically purchase only a smaller number of shares which have attracted their attention. They create "portfolios of attention" on the basis of several criteria: stocks with above average trading volume, stocks with returns which are well below and above the average, and stocks which are published in the newspapers. Jo (2003) has examined whether managers are considering the psychology and investor's interests when planning the issues of shares. The results of his research have shown that investors prefer companies which are considered to act in a socially responsible way and which attract public attention through marketing campaigns.

Shefrin and Statman (1999) offer numerous behavioral explanations of the fact that investors expect regular dividend payments. The first reason relates to the concept of self-control. Another rational reason for preferring dividends refers to the so-called mental accounting. Shefrin and Statman claim that, by paying the dividends, companies allow investors to avoid regrets for buying a particular stock and for investing their money for those purposes. Baker and Vurgler (2002) argue that changes in dividend payment policies may have a negative effect on the investor's opinion of the company whose shares they have in their portfolio. In addition, their study has shown that it is easier to control the irrational investors than the irrational managers. Heaton (2002) analyzes the consequences of manager's excessive optimism, or a situation in which managers overestimate the likelihood that their company's future performances will be good. Knyazeva (2007) and Yu (2007) have focused on the role of financial analysts in the process of monitoring. They find that the control mechanisms improve the level of connection between managers and shareholders, and give managers an incentive to conduct proper corporate policies. Jo and Kim (2007) argue that the improved transparency in a corporation will reduce the information asymmetry between the different stakeholders, discourage managers to seek self-interest and increase the company's value. In their work, these authors have concluded that the transparency of information is negatively correlated with unethical manipulation and profits, and positively correlated with long-term performances of the company.

The application of behavioral theories has brought about the need to define investment portfolios based on personality and gender. Pompian and Longo (2004) have conducted a study on this topic and came to the following conclusion. Classifying the investors by type, personality and gender, enables the advisors to create programs that mitigate individual bias, encouraging investors to consider long-term strategic directions. Only a few studies have examined the relationship between gender and bias in behavioral finance, and the authors Barber and Odean (2002) have dealt with this phenomenon the most. The conclusion of their study is related to the fact that men have more confidence than women and that it is

reflected in the trading behavior. These authors have found that, over a period of six years, men traded on average 45% more than women. In addition, single men traded 67% more than single women.

Research in the field of behavioral corporate finance is heading in two directions. The first emphasizes that the investors are not fully rational and the markets are not fully efficient, and, therefore, stock prices deviate from their fundamental values. This means that financial managers need to shape the financial and investment decisions taking into account the irrationality of investors. The second approach emphasizes that the managers are not fully rational. Behaviorists in corporate finance consider a postulate in which managers believe that, when making financial and investment decisions, they are working to maximize the fundamental value of the company, but, in reality, they are not doing so because of the psychological traps. Generally speaking, behavioral finance tends to contribute to the reduction of market irregularities, the rational behavior of managers and investors, and the improvement of the quality of investment decisions.

5. CONCLUSION

Although the standard financial theory advocates that investors should have more diversified portfolio, empirical research has shown that very often decisions are made intuitively and according to investors' personal preferences. Real investment strategy should not rely on market efficiency since it is clear that not all the information is publicly available. Furthermore, it often happens that investors direct their attention and expectations to only one type of investment or to specific market instruments. Behavioral finance seeks to explain the way in which market participants make decisions, and to justify the consequences caused by them, aiming to defining a successful investment strategy. The premise of behavioral finance is that conventional financial theory does not take into account the way in which people make complex decisions when having limited information. The proponents believe that one of the reasons for this drawback is the fact that it is relatively easy to acquire data on prices and returns, but it is much harder to study behavior. The aim of this paper is to stimulate discussion and further research in this area, particularly in the context of improving market strategies and proper understanding of the decision-making process in the field of finance.

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BUDGET CONTROL AND FUND ACCOUNTING

Snezana Popovcic-Avric[1], Vule Mizdrakovic[2], Marina Djenic[3]
[1]Faculty of Economics, Finance and Administration, savric@fefa.edu.rs
[2]Faculty of Business in Belgrade, vmizdrakovic@singidunum.ac.rs
[3]Faculty of Economics, Finance and Administration, mdjenic@fefa.edu.rs

Abstract: *In this paper the authors analyse implementation of the fund accounting concept in the process of managing non-profit organisations. Control of budget, that is, funds can be ensured by implementing various concepts, including, inter alia, the fund accounting concept. Although its implementation has a long history in the USA and other developed countries, developing countries start paying more attention to the use of public funds and other resources in non-profit organisations only in later stages of development. The paper will highlight the main advantages and disadvantages of this concept, with a view to considering possible introduction of the concept into official or unofficial financial reporting of non-profit organisations in the Republic of Serbia.*

Keywords*: non-profit organizations, funds, control, accounting.*

1. INTRODUCTION

In the circumstances of crisis, control of utilisation and spending of funds in companies is gaining importance. Increasing efficiency of spending and elimination of spending of funds that do not have long-term effect on productivity and profitability of a company should allow survival of operations of businesses in those circumstances. Companies would thus be able to create profit, which represents the key objective of their foundation. On the other hand, non-profit organisations, being business entities whose main objective is not creation of profit, may very easily get bad publicity of the general public and critics if they do not ensure efficient spending in the challenging economic circumstances. These business entities are established for the purpose of conducting activities, the results of which should meet the needs of general public. Alternatively, the entire social community of a certain country should have benefit from the operations of those entities.

Therefore, unlike companies where utilisation of funds should generate income, preferably much higher, in order to ensure higher business result, non-profit organisations use funds to conduct certain activities that are not supposed to generate income and ultimately profit. Non-profit organisations do not need extended reproduction, as it is the case with business entities, to continue operations because the funds they are spending should not be generated by conducting an activity, but they obtain those funds otherwise. In the challenging economic conditions, financial resources raised by these entities are more limited than in regular economic circumstances, therefore control of utilisation of these funds is more important. In such situations, all government authorities are faced with above constraints, not only economies of developing countries. Accounting of non-profit organisations (fund accounting) is one of the concepts used in the process of control of utilisation and spending of funds in non-profit organisations. In the first part of this paper, the authors will analyse how drawing up the budget can be used in the process of managing the spending in non-profit organisations, while in the second part of the paper the authors will focus on the fund accounting concept in non-profit organisations, its advantages and disadvantages in practice.

2. NONPROFIT ORGANIZATIONS, BUDGET AND CONTROL

Non-profit organisations can be financed by governments and therefore they are called governmental non-profit organisations, or can be financed from other sources, in which case they are called non-governmental non-profit organisations. Examples for non-profit organisations can be: governmental units, universities, hospitals, professional organizations, museums, theatres, voluntary organizations... For instance, in 1989 in the USA, out of 7,000 hospitals in the USA, approximately 90% were non-profit organisations (Forgione & Giroux , 1989). Today, out of 5,273 hospitals, about 73% are non-profit hospitals (Health Forum LLC, 2014). As we can notice, activities and/or business conducted by non-profit organisations depend on the needs of the society, not on the possibility to earn profit, although that intention is changing over time due to introduction of corporate governance in all areas of functioning of one country. Legal and physical entities investing funds in these organisations will not be granted share in the equity of the organisations, as it would

be a case with business entities. On the contrary, these entities will not receive any reward in the form of money; therefore assessment of quality of performance of these entities may not take profit as a basis of assessment. It is also the reason why financial reporting and financial reports of these entities are different from companies. With the above in mind, absence of profit in these organisations does not represent certain form of penalisation or control of funds utilisation, as it is a case with corporate entities; therefore, it is necessary to establish control over managing spending of financial resources otherwise. For instance, limitations in utilisation and control of funds utilisation can be established by persons donating funds, because they wish the invested funds to be used for achieving a specific target, for example, construction of buildings, care of people or granting scholarships to certain individuals, etc. On the other hand, in case of governmental non-profit organisations, control over utilisation of funds is achieved by drawing up the budget.

Considering that public revenues represent all revenues generated through mandatory payments by taxpayers – legal entities and natural persons using certain public goods or public service, as well as all other revenues earned by the beneficiaries of budgetary funds and funds of organisations for mandatory social insurance, it is very important to ensure their transparent monitoring. That is the purpose of the national budget. A budget is a one-year or three-year plan in case of capital expenditures, which shows how the collected public funds will be spent over the observed time period. Beneficiaries of the budget funds can be direct and indirect. For example, in the Republic of Serbia, direct beneficiaries of the budget funds are government authorities and organisations, that is local government authorities and organisations, whereas indirect beneficiaries of the budget funds are judiciary bodies, budget funds, local communities, public enterprises, funds and agencies established by the local government which are financed from public revenues, the purpose of which is defined according to special law, institutions established by the government of local government which are controlled by the founder through direct beneficiaries of the budget funds according to the law regulating rights in terms of management and financing. Furthermore, organisations for mandatory social insurance and beneficiaries of Health Insurance Fund (health and pharmaceutical institutions founded by the government or local government) are also seen as beneficiaries of public funds.

The budget foresees how much money will be collected from citizens and corporate sector during the observed period. It is adopted by the highest representative body, the parliament of a country, province or local self-government. Structure of revenues shows who is responsible for creation of revenues, while structure of expenditures shows economic, social and other goals. The legal act according to which the legislative power, that is, the Parliament, approves expenditures and other expenses, and/or revenues and other income, borrowing and other financial transactions for every year is the Law on the Budget of the Republic of Serbia. This Law also contains stipulations relevant for its implementation. In the event when the budget is adopted for the period of three years, revenues and income and/or expenditures and expenses are disclosed for each year separately. On the other hand, decision on the budget is adopted at the local level. It is the most important local political document, that is, legal act by which revenues and expenditures are foreseen at the level of local community for the period of one year. Moreover, direct or indirect beneficiaries of the budget funds are obliged to prepare a financial plan in line with the guidelines for budget preparation and the guidelines for preparation of mid-term plans and projections within the mid-term framework of expenditures provided for by the Fiscal Strategy. Utilisation of funds of non-profit organisations is naturally controlled through financial reporting and preparation of financial reports which may be official and unofficial.

3. FUND ACCOUNTING AND GOVERNMENTAL ACCOUNTING

As mentioned above, financial reporting related to non-profit organisations is different from financial reporting intended for business entities. For long time professional organisations show intention to unify the global accounting standards which are used by companies, whereas the difference in standards of non-profit organisations is considerably larger. There is also a difference in the financial reporting between government and non-governmental on-profit organisations. The first organisations usually have dual financial reporting, that is, they prepare both mandatory and official financial reports in compliance with the accepted accounting standards (e.g. IPSAS - International Public Sector Accounting Standards) and internal or unofficial financial reports, which allow better control over the utilisation of funds.

On the other hand, non-governmental non-profit organisations commonly only organise unofficial financial reporting, except in special cases. Governmental accounting is usually understood as official financial reporting of governmental non-profit organisations, whereas fund accounting represents a concept which usually refers to internal financial reporting of both governmental and non-governmental non-profit organisations, although it can also be applied to governmental accounting, if regulated so by state regulations. It is commonly considered that this concept cannot serve as the basis for quality control of spending by governmental non-profit organisations, if it is independently used as a concept.

The concept of fund accounting is based on the term “fund” which has been since 1900 referred to as the account in which money is collected for specific ultimate purpose (James, 1950). This concept has been used in governmental accounting in the USA for an entire century (Ingram, 1986). Implementation of the fund accounting concept is usually recommended for expendable fund entities, because other two types of funds (proprietary and fiduciary fund entities) also require implementation of other financial reporting concepts (Jeter & Chaney, 2011). In case of expendable fund entities all collected funds will be spent over certain period, one year or during some other specific period. The purpose of spending these funds must be pre-defined and the funds must be spent exclusively for that purpose. An example for these organisations can be a fund intended for implementation of capital projects, such as construction of a highway or debt service fund created to account for interest and principal payments on long-term debt (Jeter & Chaney, 2011). In addition, debt service fund can have a separate principal account and interest account in which funds can be used only for that particular purpose.

In case of fund accounting there are no revenues, expenses and financial result as measures of successful functioning, but fund resources (inflows), decreases in fund resources (outflows) and change in fund balance. Term “expenses” is not commonly used in fund accounting, because this term is mainly used in the context of revenue generation, that is, in financial reporting of companies each expenditure and revenue must be presented against each other. Bearing in mind that in non-profit organisations revenue does not represent a goal and as such cannot be found, in fund accounting we commonly use the term “expenditures”. This term shows spending of funds which will not lead, as a result, to creating certain production outcome – service or product and it will not be opposed to revenue. However, fund accounting is often used in combination with concepts of accrual accounting and budgetary accounting, in order to ensure better and more efficient funds utilisation control.

4. ADVANTAGES AND DISADVANTAGES OF FUND ACCOUNTING

Advantages and disadvantages of fund accounting are usually classified in four categories (Hoek, 1996):

- economic (efficient allocation of funds),
- financial governance (considering the state apparatus performs different activities, one concept may not meet all requirements),
- political and administrative.

What is frequently mentioned as a drawback of the fund accounting concept is spending of the funds for the particular purpose for which they are earmarked, but to an unnecessary extent. IRS (Internal Revenue Service) in the USA is an organisation which has been criticised for excessive spending. According to Chubin (2013), an official appearing before Congress testified that the disputed conference in California would have cost $ 1million less if it had been held in another city. However, the funds planned for the conference reached the amount of $4.1 million because the funds were simply available and allowed numerous benefits for the conference participants, such as tickets for baseball match and the like (Urbanski, 2013). According to the same source, IRS spent in the period 2010-2012 approximately $50 million for organising about 220 conferences for employees.

Although at first glance misappropriation (inefficient allocation) of funds by non-profit organisations includes use of cash, in practice that misuse very often, almost always, refers first to utilisation of fixed assets. The reason for that is use of cash basis accounting concept which does not see acquisition of fixed assets as acquisition of assets that can be used over longer period, but as outflow of cash funds incurred by acquisition of fixed assets. The above practice would not be the case in financial reporting of companies where outflow of funds would be recognised as purchase of assets that would be later depreciated. Therefore, non-profit organisations need not justify utilisation of fixed assets because those assets technically do not exist in the records (Tanzi & Prakash, 2000). This is the reason why it often happens that state schools and similar institutions in the city centre or at attractive locations are sometimes no longer used or half-empty, because governments simply do not have records how public assets are opportunistically used for present purposes. It is often the case that certain ministries in the government do not even keep track of the fixed assets managed by its organisations.

According to Chubin (2013), the fund accounting concept should no longer be used as it leads to excessive spending and lower control of spending by employees in the U.S. government. The author points out that it is necessary to stop comparing the budgeted inflows of money with the actual inflows and the budgeted with the actual expenditures and start using revenues and expenditures as companies do and, in other words, introduce corporate spirit into these organisations. From the aspect of allocation of funds, it is assumed that beneficiaries of funds will spend all allocated funds as the following year they would otherwise receive lower

amount of available funds. Another reason for spending funds is a possibility that beneficiaries will not later be able to justify the funds allocated. The above practice causes surplus of employees who are still employed, surplus of public procurement or replacement of still functional and usable assets. It is assumed that implementation of the corporate financial reporting would reduce expenditures and number of employees, whereas introducing the reward system for employees for efficient utilisation of funds would increase employees" motivation to use funds economically (Chubin, 2013).

Among arguments in favour of implementation of this concept may include that the problem is not comparing of the budgeted with the actual inflows of funds and expenditures, but inadequate determination of marginal values of available funds. In other words, maybe the problem lies in the budgeting process. After all, fund accounting, as we have proved, refers to the organisations where, as a rule, spending is not continuous (which would be the budgetary accounting concept), but it is time-bound. Accordingly, as it is noted (Reiffe, 2013), the purpose of the fund accounting concept is to separate funds with limited use from the funds where there are no such limitations and to monitor the use of those funds for pre-defined purpose and therefore it is not connected with the determination of the budget amount. Furthermore, implementation of the corporate financial reporting may not automatically cause reduction of expenditures and lead to more efficient utilisation of funds, as it is intended, but might lead to increased revenue, in this case inflow of available funds, in order to enable inefficient spending of funds.

Those criticising this concept stress that it leads to reduced comprehensibility of the information it produces. It is considered that the main stakeholders do not obtain information that would be relevant to them for making business decisions. Further, they state that the concept is much more focused on harmonisation with legal regulations than on estimation of efficiency of funds utilisation and it may conceal unjustified use of funds.

Bearing in mind that the fund accounting concept has long been implemented, objections to this concept have also followed it throughout its use. For instance, in the 1970s, financial problems of New York City became more notable through considerable fall in the sales of city"s bonds in 1974, but it did not affect the rating of the city"s bonds until 1976 (Herzlinger & Sherman, 1980). Many market analysts pointed out at that time to inadequacy of the financial reporting concept because it did not timely warn investors of possible worsening of the bond rating until it became obvious. It was later confirmed that the reasons for worsening of the city"s financial standing resulted from poor internal control and inadequate accounting system organisation.

The research conducted by Ingram (1986) confirmed similar findings, indicating that there is no evidence that governments deliberately apply this method in order to make financial reporting more incomprehensible. The research results show that this concept produces useful information for key stakeholders in situations when investors wish to invest in municipal bonds (Ingram, 1986). Ironically, despite all disadvantages and advantages of the fund accounting implementation, the most important change in relation to improving comprehensibility of financial reports in international, but also local practices would actually be to make these reports more publicly available These organisations are commonly exempt from tax payments, therefore all stakeholders paying tax should be allowed access to the financial reports of non-profit organisations and be able to analyse them. Although according to the law non-profit organisations are obliged to make their financial statements publicly available in almost all countries worldwide, as it is done by companies, they rarely comply with that stipulation so that users of these reports are short of information relevant for business decision-making. (Herzlinger & Sherman, 1980).

5. CONCLUSION

The aim of creation and development of the fund accounting concept is to increase comprehensibility and fair presentation of transactions which are typical for non-profit organisations. Importance of applying this concept is manifested in clear monitoring of funds earmarked for specific purposes, how much funds has been spent and for which purpose and how much is available for achieving the main goal of these organisations. Irrespective of their non-profit nature, financial reporting of these organisations still needs to be economical. Although one of key disadvantages of the fund accounting concept is complexity of information it produces, which is also related to high costs for obtaining such information, use of this concept is justified if the benefits exceed costs. Considering the economic conditions in developing countries, stricter control of spending public funds is highly important. The aforementioned also refers to non-governmental non-profit organisations which are operating based on investment from funds of individuals or organisations because it is important for the owners of allocated funds that funds are used for performing pre-defined activities. We believe that it necessary to apply different concepts in financial reporting in order to ensure that their main functions are met.

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THE CRITIQUE OF INTEGRAL BUSINESS PERFORMANCE MEASUREMENT SYSTEMS

Miloš Milosavljević[1], Nemanja Milanović[2], Nela Milošević[3]
[1]University of Belgrade, Faculty of Organizational Sciences, milosavljevic@fon.bg.ac.rs
[2]University of Belgrade, Faculty of Organizational Sciences, nemanja.milanovic@fon.bg.ac.rs
[3]University of Belgrade, Faculty of Organizational Sciences, nela.milosevic@fon.bg.ac.rs

Abstract: *Integral performance measurement systems have been in a focal point of both scholars and practitioners for more than three decades. In today's business environment which is characterized by tremendous competitiveness and globalization of business, performance measurement becomes a critical success factor. In spite of the fact that performance measurement systems receive significant attention, studies focused on critical perspectives are still at the infantile phase. This paper aims to provide a theoretical overview of upsides and downsides of currently used integral performance measurement systems.*

Keywords*: business performance, performance measurement systems, financial indicators*

1. INTRODUCTION

Integral performance measurement systems have been in a focal point of both scholars and practitioners for more than three decades. Many authors have argued that performance measurement is a key success factor for decision making. From the qualitative point of view, aforementioned statement can be viewed from the prism of paradigmatic maxims such as "what can not be measured can not be managed" or "you get what you inspect, not what you expect."[1] However, the quantitative confirmation to the statement is not easy to provide, regarding the fact that the term – integral performance measurement systems – has been ambivalently interpreted by various scholars (Franco-Santos et al., 2012). The same term is used by Bititci et al (1997). On the other side, scholars simultaneously use the term comprehensive performance measurement system (Hall, 2008; Franco-Santos et al., 2012), business performance measurement (McAdam and Bailie, 2002), and strategic performance measures (Atkinson, 1998; Ittner et al, 2003; Bourney and Widener, 2007).

In spite of the fact that performance measurement systems receive significant attention, studies focused on critical perspectives are still at the infantile phase. This paper aims to provide a theoretical overview of upsides and downsides of currently used integral performance measurement systems. Specific objectives of the study aim to contribute to the current body of knowledge in the area by emphasizing critical points of common integral performance measurement systems. More precisely, the study will address the issues of performance measurement normalization, information optimization, adequate structures of relations among particular performance measures within the system, a synthetic of performance measurement and the issues of design, implementation and development of performance measurement systems.

To the best of author"s knowledge a study of this kind has never been conducted before. The study is a part of the comprehensive study which addresses the issues of design, implementation and usage of integral performance measurement systems.

The remainder of the paper is organized as follows: the second section elaborates on the role and importance of business performance measurement systems, thus emphasizing the potentials of appropriate design and usage. The third section presents a review of most commonly cited integral performance measurement systems both from the point of view of the practical usage and citations in the academic literature. The fourth section provides the set of critiques to aforementioned systems. The fifth, and the last chapter provides concluding remarks, managerial implication and recommendations for further research in the area of business performance measurement systems.

[1] The first one is bind to a management guru Peter Drucker, whereas the second one is attributed to the consultant, Oliver Wright.

2. THE ROLE OF INTEGRAL PERFORMANCE MEASUREMENT SYSTEMS

Modern business environment characterized by ubiquitous competitiveness and globalization, performance measurement becomes a critical success factor. Business performance measurement systems aim to align a variety of organizational activities, processes and resources with overall and specific business objectives and strategy. Simmons (1991) indicates that these systems can support the formulation and communication of business strategy. Determining, structuring and adequate emphasizing of particular performance measures and comparing them to predefined management ambitions makes strategy more specific. Thus, business performance measurement systems enable the lower level of management structures (supervisors) to comprehend business objectives (Drew and Kaye, 2007; Mooraj et al, 1999). Thus, business performance measurement systems are useful to both higher-level (Ittner and Larcker, 2003; Kaplan and Norton, 2006) and lower-level management (Wouters, 2009). Nevertheless, empirical studies are not unanimous regarding the statement that effective measurement system necessarily leads to the achievement of strategic objectives, which is confirmed in the study conducted by Verbeeten and Boons (2009).

Business performance measurement systems also have a controlling function. In its rudimental form, this function was primal and was consisted of diagnostic control, where employees knew exactly what had to be improved in order to increase overall efficiency (Simmons, 1995). Furthermore, each performance measurement system has to connect long-term strategic organizational objectives with comprehensible and measurable determinants, creating the basis for comparison with both external and internal elements. Business performance measurement systems have to facilitate the establishment of standards for inter-organizational and intra-organizational comparison. This function can be defined as diagnostic, as it indicates the degree of the achievement of organisational objectives. Business performance measurement systems set the reliable basis for business decision making process, and subsequent performance management (Bisbe and Malagueño, 2012). A systematic and comprehensive measurement of performance should indicate whether efforts within an organization have effects on the achievement of preset objectives. If these efforts are compatible to predefined objectives, they will be rewarded. Therefore, business performance measurement systems also have the role of evaluating and rewarding employees (Van Veen-Dirks, 2010). An adequate business performance measurement system facilitates proper and rational communication of predefined strategy through an organization as a whole. This function was discussed in a myriad of different studies (Atkinson, 2006; Murby and Gould, 2005; Braam and Nijssen, 2004; Kaplan and Norton, 2004; Kaplan and Norton, 2000). Performance measurement drives asymptotical communication of the vision and mission of an organization. Additionally, performance measurement systems should prevent the appearance of information overload (Großwiele et al, 2012). A proper system has to refine data in order to provide management with the filtrated set of information useful for the decision making process. Effective communication, as a result of proper functioning of performance measurement system, should enable a successful coordination of activities and processes within an organization. Thus, performance measurement system has a communicating and coordinating function in an organization. This is why performance measurement systems have been recognized as an important management tool not only in managerial accounting and financial management, but also in other functional areas of management, such as marketing (Löning and Besson, 2002), operations management (Evans, 2004; Andrews et al, 2001), and human resource management (Bontis et al, 1999).

Scholars and practitioners are currently focused on the usage of integral performance measurement systems, meaning both the implementation and creation of the strategy (Gimbert et al, 2010; Kaplan and Norton, 2008; Bourne et al, 2000). This is especially important noting that 85% managers spend more time considering operational measures of realization than strategic ones. Nevertheless, this function of performance management systems has not been sufficiently investigated, so it will not be a topic of a further discussion in this paper. Performance measurement represents a connection between organizational objectives and results, which leads to business operations optimization. This shifts the focus of activities towards results, supports communication between organizational departments and individuals and creates information feedback regarding objectives achievement. Recent studies indicate the significance of performance measurement systems for formulating and reformulating strategy using “bottom-up” approach (Widener, 2007; Henry, 2006; Tuomela, 2005; Bisbe and Otley, 2004). Performance measurement system enables the creation of an information feedback which limits the communication constraints and determines the base for continuous strategy implementation. Consequently, this leads to long-term approach to objectives achievement and elimination of potential short-term sub-optimizations.

Finally, educational function of performance measurement has to be mentioned (Melnyk et al, 2004). Employees identify measured elements as something of importance for their organization. If something is identified as important, more efforts will be put in a realization of such measures. Naturally, this should stimulate professional training in related areas by continuous improvement and education.

3. A REVIEW OF INTEGRAL PERFORMANCE MEASUREMENT SYSTEMS

The field of measuring business performance still lacks the standardization which affects non-cohesiveness in defining performance measurement systems. Marr and Schiuma (2003) emphasize that there is no single body which would gather and systematize an immense body of knowledge. The diversity and non-cohesive approaches in defining performance measurement systems are also evident. Depending on observed criteria, different authors have given their own definitions of integral performance measurement systems. For instance, Ittner et al. (2003) suggest that performance measurement systems provide information which might advance their chosen strategies and demonstrate a cause-and-effect link between non-financial areas and cash flow, profit, or stock price. This definition indicates strategic nature of the system and the necessity of determining chronological sequence of managerial actions which are based on previously defined performance measures. On the other side, Hall (2008) points out that "comprehensive performance measurement systems include a more diverse set of performance measures, and performance measures that are linked to the strategy of the firm and provide information about parts of the value chain. A combination of various indicators in a functional system is in a focal point of this definition. Both aforementioned definitions are related to a function of performance measurement systems."

Nevertheless, definitions where features of performance measurement system can be also found in literature. Cheng et al. (2007) assert that performance management systems "supports using a wide set of financial and non-financial performance measures". Hence, defined function of integral systems is to provide management with information for strategic decision making by combining financial and non-financial data.

With regards to the typology of integral performance measurement systems, the most influential ones are (similar typology was given by: Garengo et al, 2005; Jamil and Mohamed, 2011; Yildiz et al, 2011):

(1) Performance measurement matrix (Keegan et al, 1989; Fitzgerald et al, 1991),
(2) Performance pyramid (Lynch and Cross, 1991),
(3) Balanced scorecard (Kaplan and Norton, 1996),
(4) Performance prism (Neely et al, 2002),
(5) Performance measurement based on assessment of business excellence (EFQM, 2012) and
(6) Integral performance measurement model for SMEs (Laitinen, 2002).

All the aforementioned systems share similar features. For instance, the base performance indicators are financial indicators, and none of the systems is complete regarding the functional business performance areas.

4. THE CRITIQUE OF INTEGRAL PERFORMANCE MEASUREMENT SYSTEMS

The initial disadvantages of business performance measurement systems were related to selection of one performance measure which is believed to be the best reflection of state and success of organization as a whole or its particular component. This is especially related to aggregate financial indicators, such as profitability (Chenhall and Langfield-Smith, 2007). This phenomenon is defined as a performance measure mono-dimensionality. The advantages of this mono-dimensional approach are its relative simplicity and potentially high inter-entity comparability of achieved results, where financial indicators are still having a stronghold in modern literature as the most relevant measure (Atrill, 2006; Hagos and Pal, 2010; Shim, 2008). In a relatively simple manner, decision makers are able to perform corrective actions based on abovementioned business parameters in order to improve business performance. Nevertheless, the overall performance can not be expressed with single indicator, no matter how well it represents organizational success or failure. This is the reason why organization has to be observed from multiple perspectives, and to make a balance between performance indicators (Bourne et al, 2000)

Further, as a response to performance measurement system based on single indicator or small group of indicators, concepts of multiple measures of performance were developed. Many authors point out that users of such business performance measurement systems are facing the effect of "information overload" (Iselin et al, 2010; Nudurupati et al, 2011). Meyer and Gupta (1994) note that inclusion of additional indicators is not always correlated to previously implemented performance measures, which leads to inconsistent usage of different indicators. The consequence of such management policy is loss of relevance of business performance measurement system (Kennerly and Neely, 2003). Due to lack of unique and developed methodology for their integration and utilization, the practice of unarticulated use of various business performance measures can not be considered a business performance measurement system. Additionally, Lebas and Euske (2007) emphasize that the aim of business performance measurement system is simplification and abstraction of reality, but not the opposite.

Furthermore, the opinion that improving performance of organizational components leads to improving performance of organization as a whole was widely accepted. This set the thesis that efficient work of

individuals and departments inevitably leads to organizational success (Fry and Cox, 1989). The thesis of hierarchical compatibility of performance measures implies that organizational performance measures can be optimized by optimization of local performances. Such approach eliminates the importance of organizational structure complexity as a factor. Nevertheless, this approach is not universal and can not be applied in practice due to fact that optimization of global performance can not always be achieved by optimization of local performance.

Finally, managers are frequently facing unorganized data and information regarding business performance. Current business performance measurement systems have not created mechanism for integrating all relevant information or reliable basis for creating functional relations between particular performance measures. Possible difficulty in establishment of such systems is related to potential suboptimization, meaning that individual performance are partially optimized, without considering their cause-effect relations. Hence, optimal partial performance do not necessarily lead to optimal global performance of an organization.

Despite decades of efforts of academics and practitioners, discussed integral business performance measurement systems show several disadvantages and inconsistencies. The major criticisms of aforementioned systems are based on the following issues:

(1) Performance measure normalization,
(2) Information overload,
(3) Relationships among performance measures,
(4) Integration of performance measures,
(5) Design, construction and implementation of integral performance measurement systems.

Performance measure normalization. In order to create integral performance measurement system, each performance measure has to be uniformly expressed, and normalized. This is very challenging task due to fact that some performance measures are quantitatively expressed, while the others are qualitatively expressed. Even in the case of quantitative performance measures, normalization is not necessarily simple. For instance, some scales are continual, while other can be discrete. Depending on the level of measurement, theory suggests classification of scales into nominal, ordinal, interval and ratio scales. Likewise, data or measures can be classified into nominal, ordinal, interval and ratio data. There are a few papers which investigate performance measure normalization. Even the authors who are making an effort to explain the normalization methodology base their interpretation on logic and common sense rather than on particular findings. Lohman et al. (2004) suggest the normalization methodology which is based on linear scale from 0 to 10. They justify this methodology by high readability and relatively simple interpretation of aforementioned scale.

Information overload. The recent study conducted by Groβwielle et al. (2013) indicates at least two significant aspects of this problem. The first aspect is related to the efficiency of collecting too much information. In particular management has to consider which economically optimal amount of information will be collected, considering the fact that information are not free. Except for a few studies, cost of collecting performance measures information has not been thoroughly investigated so far (Johnston et al, 2002). The second and probably more significant aspect of this problem is cognitive by a nature. This is related to a managers' ability to process the large amount of information. These issues have been in a focal point of both psychologists and human resource managers. For instance, Marois and Ivanoff (2005) point out that human brain, no matter how complex, has a strictly limited capacity for information processing. This also applies to decision makers in companies and other organizations. Information overload causes confusion of managers and can result with a stress or other disorders in decision making process (Bawden and Robinson, 2009). In accordance to the joint effect of aforementioned factors, the objective of integral performance measurement systems should be providing decision makers with optimal quantum (volume) of information.

Relationships among performance measures. Performance measurement science distinguish three types of relationships between performance indicators (Norreklitt et al, 2000; Malina et al, 2007), which can be logical, empirical or hierarchical. According to Groβwiele et al. (2013), logical relationships arise from definitions and mathematical transformations. Theoretically, profit represents mathematical difference between income and expenses which is a striking example of the definition-based relationship. Furthermore, profitability is an incremental mathematical transformation, as it represents the relation between profit and business assets. Empirical relationships are based on reality observations and establish either deterministic or stochastic relationships between performance measures. Deterministic relationships are quite rare in managerial sciences, which is the reason why academics and practitioners are focused on identifying stochastic relationships. For instance, it is stated that the asset turnover is directly negatively correlated to the sales margin. This may not always be the case, but most often it will. Finally, hierarchical relationships are being established in the case of the ranked order of performance measures. Ranking is usually based on the objective relations, although subjectively defined ranking also appears in the practice. The most evident

example of financial hierarchical performance measurement system is DuPont analysis or Economic Value Added™, where all performance measures are hierarchically classified.

Integration of performance measures. Information overload problem solving requires identification of a few synthetic indicators which will represent the actual financial position and earning power of an organization. The solution of aforementioned problem can directly or indirectly lead to new issues and discussion topics, known in literature as the problem of synthesizing performance measure. Synthesizing performance measure can be achieved by various operational techniques. For instance, Franceschini et al. (2007) suggest three approaches:

(1) The concept of relative importance,
(2) The concept of the minimum set of coverage and
(3) The concept of indicator correlation level.

Design, construction and implementation of integral performance measurement systems. Creation of performance measurement system is not one-time process, but the process that should be continually adjusted, in line with changes in external and internal business environment (Beamon and Ware, 1998; Medori and Steeple, 2000). Performance measurement system design, construction and implementation methodology is not uniform. This is why various steps and procedures are needed in order to achieve full functionality of the system. Folan and Browne (2005) stress out that modern design of performance measurement systems requires establishment of documented mechanism for selecting performance measures into integral system. Aforementioned mechanism uses brainstorming for selecting performance measures. Due to subjective nature of this method, Kaplan and Norton (1993) suggest series of workshops and interviews in order to make selection of performance measures more objective. On the other side, Neely et al. (2000) described a pilot process of performance measurement system construction. They suggest incremental changes in aforementioned procedure, which can be described as "the nine steps to performance measurement system implementation" (Neely et al, 1995).

5. CONCLUSION

This paper discusses the role and functionality of the modern integral performance measurement systems. Performance measurement represents a connection between the organizational objectives and results, which leads to business operations optimization. This shifts the focus of activities towards results, supports communication between SBUs and individuals and creates information feedback regarding objectives achievement.

The study finds that modern integral performance measurement systems have weaknesses regarding some of the important criteria for integration, design or functionality of the system. The most important issues are weak possibility of normalizing indicators used within the systems, the information overload and myopia of the system, poor base for demonstration of cause-and-effect relationship between the measures and among the measures and strategic objectives, the lack of a sound base for the integration of financial and non-financial performance measures, and the lack of procedures for the unified design, construction, and implementation of the system. This conclusions sum up the main recommendations for further research in the area. Performance measurement systems have advanced in last three decades, particularly in the area of moving towards the less introvert measures. However, they still lack in the field of uncritical adoption of boilerplate mechanisms which are not applicable in each and every organization.

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SOVEREIGN CREDIT RATING PREDICTION USING FUZZY LOGIC

Aleksandra Jovović[1], Srđan Jelinek[2], Aleksandar Rakićević[3]
[1]University of Belgrade, Faculty of Organizational Sciences, aleksjovovic@gmail.com
[2]University of Belgrade, Faculty of Organizational Sciences, srdjanjelinek@gmail.com
[3]University of Belgrade, Faculty of Organizational Sciences, aleksandar.rakicevic@fon.bg.ac.rs

Abstract: *In this paper, we have used the fuzzy logic approach to predict future credit ratings for countries. The proposed fuzzy model is implemented in MATLAB software. As model inputs we have taken data from the World Bank for 14 countries around the world, for the period from 1996 to 2013. The model is built using historical data and expert knowledge, and then tested for randomly chosen years. Results that are obtained in this way are then compared to the real sovereign credit rating grades.*

Keywords*: credit rating, prediction, fuzzy logic.*

1. INTRODUCTION

Credit rating represents forward-looking opinions about risk due to unexpected changes in counterparty's credit quality. The sovereign credit rating is a credit rating assigned to a national government or another sovereign entity. A credit rating of a country represents its political, social and economic stability. This rating should reflect some basic information about an observed country like riskiness of investment in a particular country, probability of bond issuer default, the ability of a government to reconcile its obligations, Central bank's borrowing cost and similar vital characteristics of a county's creditworthiness. Nowadays, financial markets are unstable and hard to keep track of, so in this study we seek to predict future credit rating assigned to a country by using some basic county's indicators, historical rating grade changes and probability of credit quality change.

When determining which predicting technique to use, analysts look for forecasting method that minimizes forecast errors. Fuzzy logic turns to be one of a new ways for predicting movements of different factors in the economies. It is designed to solve problems in the same way that humans do: by considering all available information and making the best possible decision given the input. It assumes that we have advanced knowledge about entities and movements we are trying to predict.

Data used in this study are explained in Section 2. The same section gives detailed explanations concerning input data selection criteria and data transformation process. Section 3 presents the proposed fuzzy logic model with detailed specification of inputs, outputs, fuzzy rules and overall model structure. The results of the proposed model are presented in Section 4. Finally, Section 5 concludes the paper.

2. DATA

In this study dataset of fourteen countries are taken into account. These counties are mainly chosen by the criteria of the frequent sovereign credit rating grade changes over time. These grades are published by some leading rating agencies like Moody's, Standard and Poor's, Fitch and other. Each of them use their own model based on public and non-public data to determine agency's opinion on government creditworthiness. The analyzed countries are: Argentina, Brazil, Dominican Republic, Estonia, Greece, Hungary, South Korea, Romania, Russia, Slovakia, Slovenia, Turkey, Uruguay, Venezuela. Data sets cover the period from 1996 to 2013.

2.1. History of credit rating grades

Historical credit rating time series used in this paper are published by Fitch rating agency. According to qualitative ordinal scale that Fitch publishes (Fitch Inc., 2011): "AAA" ratings denote the lowest expectation of credit risk. They are assigned only in cases of exceptionally strong capacity for payment of financial commitments. This capacity is highly unlikely to be adversely affected by foreseeable events, "AA" ratings denote expectations of very low credit risk, etc. These ratings are followed by sovereign categories which are considered to be increasingly riskier to invest in. Rating category "D" indicates that a country is in a state of default.

These series of data contain rating of sovereign debt in chronological order. However, they need to be slightly modified to suit to the country-year data format convenient for further manipulation.

For targeted countries that for single year have more than one credit rating grade, provided by Fitch as an opinion on risk of loss due to credit risk, arithmetic mean rounded by fewer is taken as a grade for the observed year. What is meant here by the credit rating mean? If we assume that, each credit rating category can be expressed as a unique integer value instead of a combination of letters, then we can introduce a presumption that the average value of this rank ordered values assigned to letters can be a suitable estimation of credit rating grade. Missing observations of country's rating for some years are handled in such manner that the average value of the credit rating grade between two observations we are familiar with is assumed for observed year.

2.2. Transition matrix

Since Fitch sovereign rating history is used for obtaining necessary data about historical rating grade changes, therefore Fitch's transition matrix is selected as a next very important input parameter further in this process. Transition matrix consists of migration probabilities from one to another credit rating category over the given horizon. It also reflects different trends in the credit quality change across the major credit categories. For the purpose of this study, Fitch's one-year transition matrix is used, with the intention to these migrations match the one-year interval of already mentioned historical rating observations.

2.3. Country indicators

In order to explain the variability of sovereign credit rating some basic financial, health, economy and growth country indicators are taken into account. All of the indicators are mostly official-source data from the World Bank. They were selected in such order that in some way can affect and be related to the country's credit rating grade. In this model are included following indicators:

- Unemployment rate refers to percent of the total labor force that is unemployed. It represents the share of the labor force that is without work but available for and seeking employment. It is assumed that this rate is inverse to credit rating grade.

- Gross Domestic Product Growth (GDP growth) represents the annual percentage growth rate of gross domestic product at market prices based on constant local currency. Here, we suppose that the growth of GDP will raise observed country's ability to meet its obligations.

- Central Government Debt expressed as percentage of GDP. Debt is the entire stock of direct government fixed-term contractual obligations to others outstanding on a particular date. It includes domestic and foreign liabilities such as currency and money deposits, securities other than shares, and loans. It is the gross amount of government liabilities reduced by the amount of equity and financial derivatives held by the government. (World Bank Source, 2013) The bigger the debt in percents of GDP is, the country's financial situation is considered to be worse.

- Under-five mortality rate is the probability per 1,000 that a newborn baby will die before reaching age five, if subject to current age-specific mortality rates. Estimates developed by the UN Inter-agency Group for Child Mortality Estimation. (World Bank Source, 2013) It is believed that countries with lower mortality rates of children and thus probably more developed health system will have healthier economy as well.

- Lending Interest Rate is the bank rate that usually meets the short- and medium-term financing needs of the private sector. This rate is normally differentiated according to creditworthiness of borrowers and objectives of financing. (World Bank Source, 2013) Higher interest rates compensate higher risk of losing money and these high risks are associated with uncertainty of the country's overall economic situation and its creditworthiness.

- Inflation is measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly. The Laspeyres formula is generally used. (World Bank Source, 2013) High inflation may signal country's inability to settle its obligations without inserting the new banknotes into the system.

2.4. Data transformation

After all necessary time series are provided, in order to bring all of the variables into proper proportion, data is normalized. In this study, data standardization or z-score method is used to scale all the variables appropriately. To adjust values in such manner, the mean of the sample mean is subtracted from the raw observed value and divided by its standard deviation:

$$z = \frac{x - \bar{x}}{s} \qquad (1)$$

Bearing in mind the nature of the selected indicators there was a possibility that some of them are correlated. To remove this correlation and thus redundancy present in the input data, Principal Component Analysis is used. Although this procedure will reduce our data set into fewer principal components, some losses concerning described variance in the data will be suffered. A principal component represents the weighted sum of the initial variables and accounts for the share of observed variable's variance.

3. FUZZY LOGIC MODEL

It turns to be that in finance and economics, many phenomena are fuzzy, but are treated as if they were crisp. Fuzzy logic is built on a mathematical logic that attempts to solve problems by assigning values to an imprecise spectrum of data in order to arrive at the most accurate conclusion possible. Knowledge can come from experts, from historical data or from some other source. Fuzzy logic is also often applied by advanced trading models/systems that are designed to react to changing markets. It is already widely applied in finance which led us to decide to use it for predicting future movements of countries' credit ratings.

With the help of fuzzy logic, we can define terms such as "high/low risk of bankruptcy" and "high/low probability of credit rating goes up/down" which will help us define rules and predict future credit ratings more accurately.

The fuzzy model is implemented using the Fuzzy logic toolbox in MATLAB. First, we defined inputs, transfer functions, rules and outputs. Then, output is generated using inputs and rules. The structure of our model is shown on the picture below (Fig. 1).

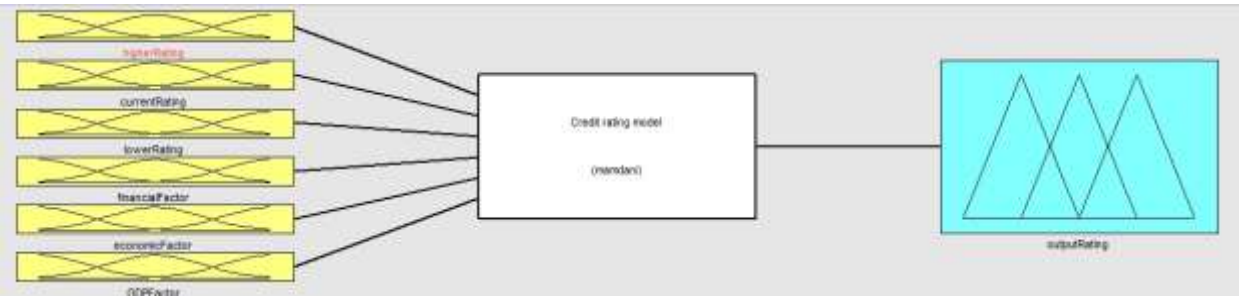

Figure 1: Fuzzy model structure

3.1. Model inputs

We have six input variables in our fuzzy model divided into two major groups. Groups are determined by direct or indirect influence of inputs on the future credit rating of countries.

Inputs that directly influence future credit rating grade are the following:

- Probability of credit rating upgrade (credit rating grade goes up),
- Probability of credit rating downgrade (credit rating grade goes down),
- The probability that credit rating stays the same.

These probabilities are obtained from credit rating transition matrix and depend on possible country's credit rating grade. For each grade, probability that a country's creditworthiness within the credit group will move up, down or stay the same, differs.

Inputs that indirectly influence future credit rating are country's indicators transformed by using statistical tool – Principal Component Analysis. Initial number of indicator variables are reduced on the three linearly interrelated factors that together explain 67.8 percent of the total variance. First of them mostly consists of

two variables – mortality rate and inflation, second is mostly constructed using unemployment rate and central government debt, while third consists of GDP growth rate only. These factors are respectively named:

- Financial factor
- Economic factor
- GDP factor

Every input, in both of these groups, has a numerical value that in general can be considered low, average or high. For each input, we have three membership functions that have a Gaussian shape which role is to map crisp input values into these fuzzy values. As a result of this mapping, initial crisp values are transformed into the degrees of membership to the membership functions. The shape of the functions is same for each of the three functions within the group. The tolerance for these functions overlap here is twenty percent. Minimum and maximum in the input domain are minimum and maximum in our time series data, which are different for every input.

A domain for functions which maps crisp value of an input variable into the value that is considered low is defined using following formula:

$$D_{low} = [a, \quad a + 0.3 \times D + 0.2 \times (a + 0.3 \times D)] \quad (2)$$

where:

$$D - input\ domain$$
$$a = minimum(D)$$
$$b = maximum(D)$$

A domain for functions which maps crisp value of an input variable into the value that is considered average is defined using following formula:

$$D_{avg} = [a + 0.3 \times D - 0.2 \times (a + 0.3 \times D), \quad 0.7 \times D + 0.2 \times (b - 0.7 \times D)] \quad (3)$$

A domain for functions which maps crisp value of an input variable into the value that is considered high is defined using following formula:

$$D_{high} = [0.7 \times D - 0.2 \times (b - 0.7 \times D), \quad b] \quad (4)$$

In the first input group, i.e. group with direct influence, to each of the inputs are assigned three membership functions that represent low, average and high probabilities that a certain outcome presented by that input will occur (Fig. 2). Simplified example may be that if a value of an input variable named probability of credit rating downgrades mostly belongs to the high probability membership function, we can conclude that it is very probable that in next year credit rating for the observed country will go down. Values that correspond to every possible credit rating, and in this model represent values on x-axis, are provided from one-year Fitch transition matrix. On y-axis are degrees of membership to the function i.e. probabilities that the credit rating will indeed go up/down or stay the same, depending on the value on x-axis. Domains for this group of inputs are shown in Table 1.

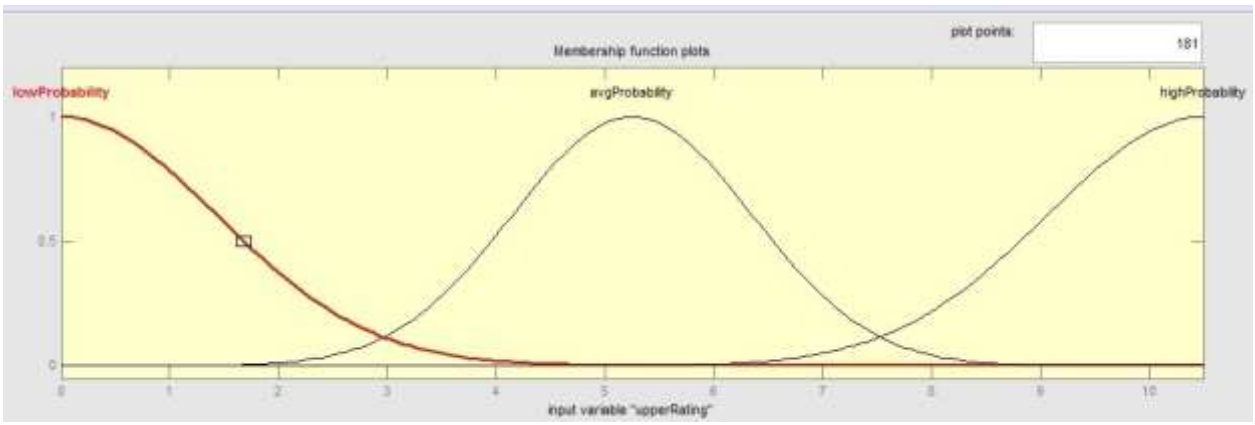

Figure 2: Membership function for rating upgrade

Table 1: Domains for first group of inputs

Name of the input	Domain	Low probability	Average probability	High probability
Higher rating	0 - 10.5	0 - 4.6	1.7 - 8.8	6.2 - 10.5
Current rating	79 - 98.52	79 - 88.1	82.2 - 94.9	89.9 - 98.52
Lower rating	2.19 - 10.5	0 - 5.9	3.7 - 8.8	6.95- 10.5

For the second group of inputs, i.e. group with indirect influence, membership functions represent values that are considered low, average and high values of factors (Fig. 3). Values on the x-axis are observed values of the factors. On y-axis is the degree of which these observed values are low, average or high. Domains for this group of inputs are shown in Table 2. An example, specific for our data set, may be that if value of financial factor is sixty-eight we consider that factor value is high.

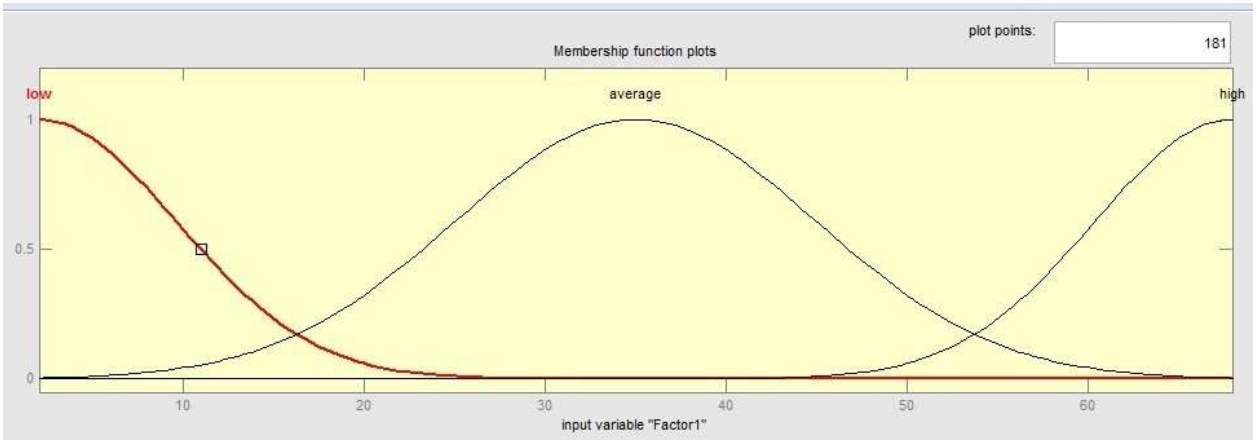

Figure 3: Membership function for financial factor

Table 2: Domains for second group of inputs

Name of the input	Domain	Low value	Average value	High value
Financial factor	2 - 68	2 - 26.9	1 - 59	43.9 - 68
Economic factor	3.2 - 66.4	3.2 - 27.9	1 - 65.4	41 - 66.4
GDP factor	(-10.9) - 18.3	(-10.9) - (-1.1)	(-10) - 17	7.6 - 18.3

3.2. Model rules

Rules are in simple "IF - THEN" shape. "IF" part of the rule consists of several conditions connected with operator "AND". In every rule, for IF part of the rule, we take one out of three possible values for each factor (low, average, high). "THEN" part consists of output taking value that indicates whether credit rating in the next year will go up, down or maintain its current value. Each rule has specific weight. Weights go from 0 to 1, where 0 is no priority and 1 is highest priority, in case that overlaps happens. The model consists of thirty-two rules (Fig. 4). An example of rules that we used is:

IF (upperRating is highProbability) AND (currentRating is averageProbability) AND (lowerRating is lowProbability) AND (Factor1 is low) AND (Factor2 is average) AND (Factor3 is high)
THEN (outputRating is higher) (0.7)

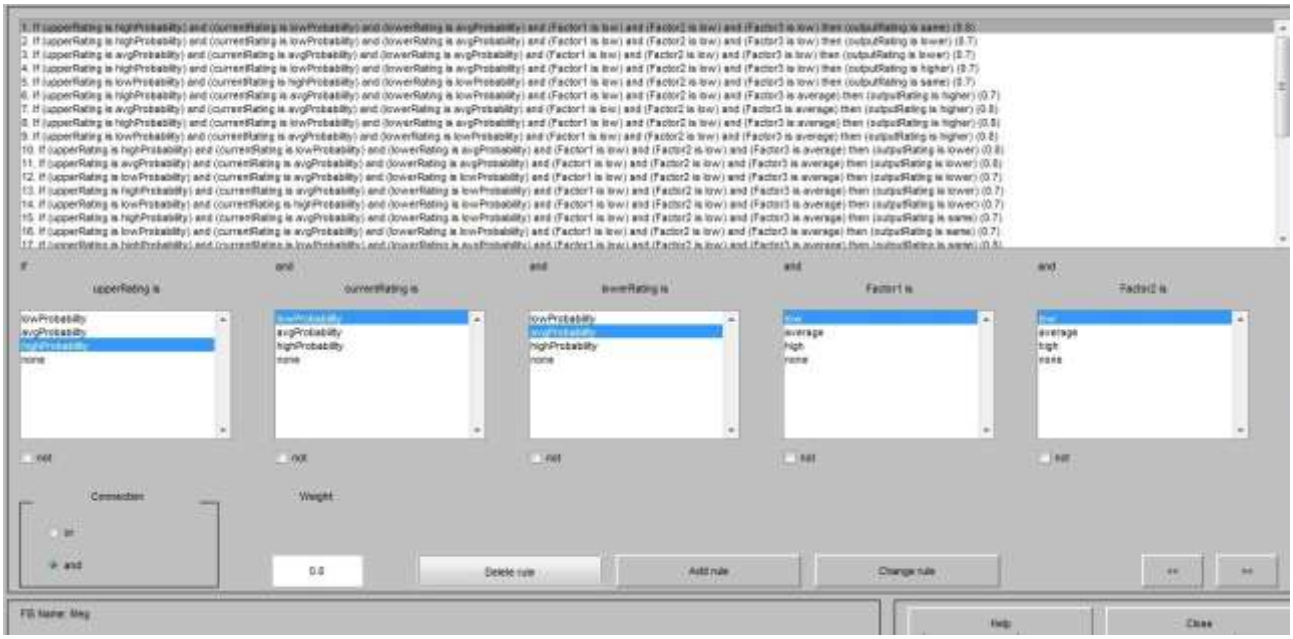

Figure 4: Rules

3.3. Model outputs

We made one output, which represents the future movement of credit rating. The future value of credit rating can be lower, higher or same as a credit rating for the country today. For output, we have three membership functions that have a triangular shape (Fig. 5). Membership functions are not overlapping because we want to achieve crisp output, which will tell us if credit rating will go up, down or stay the same. We also present domain of our output variable (Table 3). We use the centroid method for defuzzyification of output.

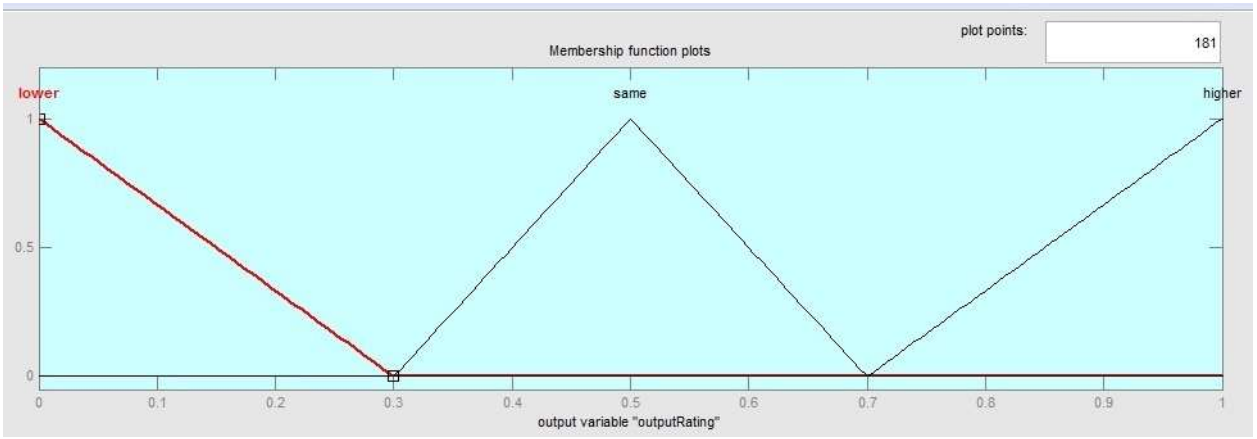

Figure 5: Output

Table 3: Domain for output

Name of the output	Domain	Lower (downgrade)	Same (without change)	Higher (upgrade)
Output rating	0 - 1	0 - 0.3	0.3 - 0.7	0.7 - 1

4. RESULTS

For each country in our survey, we semi-randomly have chosen 3 years within the period from 1996 to 2012. These three years are picked in such manner that in the next year credit rating went up, down or stayed at the same level for each observed country. We took one occurrence of each of these possible outcomes, if such an example existed in the dataset. Then we calculated our prediction for credit ratings for those years, and compared it with real results. We present all of the input values along with the obtained results (Table 4). The last 3 columns of the table are results that we obtained, real results and column which indicates whether we successfully guessed following credit rating grade or not.

Table 4: Results

Country	Year	Upper rating prob. [%]	Same rating prob. [%]	Lower rating prob. [%]	Financial factor	Economic factor	GDP factor	Current credit rating	Our prediction	Real results	Correct / Incorrect
Argentina	1998	8.37	85.02	6.61	9.32	16.34	3.85	BB	Same	Same	Correct
Argentina	2000	8.37	85.02	6.61	8.54	20	-0.78	BB	Same	Lower	Incorrect
Argentina	2009	10.5	79	10.5	10.04	23.28	8.46	CC	Higher	Higher	Correct
Brazil	2001	8.37	85.02	6.61	24.46	25.75	1.31	BB	Same	Lower	Incorrect
Brazil	2003	9.52	86.9	3.58	27.54	30.44	1.14	B	Same	Higher	Incorrect
Brazil	2009	6.99	88.71	4.3	16.71	24.53	-0.32	BBB	Same	Same	Correct
Dominican Republic	2005	10.5	79	10.5	16.85	17.9	9.26	C	Higher	Higher	Correct
Dominican Republic	2008	9.52	86.9	3.58	15.9	16.7	5.25	B	Same	Same	Correct
Estonia	2001	2.98	92.86	4.17	6.48	6.07	6.28	BBB	Same	Higher	Incorrect
Estonia	2004	2.98	92.86	4.17	4.39	5.4	6.34	A	Same	Same	Correct
Estonia	2005	2.98	92.86	4.17	4.3	4.73	8.85	A	Same	Same	Correct
Greece	1999	6.99	88.71	4.3	6.6	40	3.41	BBB	Same	Higher	Incorrect
Greece	2002	2.98	92.86	4.17	4.57	46.48	3.43	A	Same	Same	Correct
Greece	2009	2.98	92.86	4.17	3.32	48.85	-8.76	A	Same	Lower	Incorrect
Hungary	1999	6.99	88.71	4.3	10.02	25.26	3.19	BBB	Same	Higher	Incorrect
Hungary	2001	2.98	92.86	4.17	8.28	22.07	3.17	A	Same	Same	Correct
Hungary	2007	6.99	88.71	4.3	6.48	26.24	0.11	BBB	Same	Same	Correct
Korea	1997	6.99	88.71	4.3	5.44	3.5	4.6	BBB	Same	Lower	Incorrect
Korea	1998	8.37	85.02	6.61	7.23	5.99	-6.85	BB	Same	Higher	Incorrect
Korea	2001	6.99	88.71	4.3	4.74	6.94	3.97	BBB	Same	Same	Correct
Romania	1997	8.37	85.02	6.61	68	9.27	-6.1	BB	Lower	Lower	Correct
Romania	2002	9.52	86.9	3.58	21.94	11.82	5.1	B	Same	Higher	Incorrect
Romania	2008	8.37	85.02	6.61	10.45	6.42	7.93	BB	Same	Same	Correct
Russia	1997	8.37	85.02	6.61	19.23	24.36	1.4	BB	Same	Same	Correct
Russia	1999	8.37	85.02	6.61	39.84	30.38	6.4	BB	Lower	Lower	Correct
Russia	2003	8.37	85.02	6.61	12.7	16.55	7.29	BB	Same	Higher	Incorrect
Slovakia	2004	6.99	88.71	4.3	7.18	20.8	5.06	BB	Same	Higher	Incorrect
Slovakia	2005	2.98	92.86	4.17	5.08	19.61	6.65	A	Same	Same	Correct
Slovenia	2003	2.98	92.86	4.17	5.08	19.61	6.65	A	Same	Higher	Incorrect
Slovenia	2008	3.54	93.43	3.04	3.87	8.86	3.59	AA	Same	Same	Correct
Slovenia	2011	3.54	93.43	3.04	2.5	15.49	0.7	AA	Same	Lower	Incorrect
Turkey	1996	8.37	85.02	6.61	42.61	12.51	7.37	BB	Lower	Lower	Correct
Turkey	2002	9.52	86.9	3.58	27.12	30.07	6.16	B	Same	Same	Correct
Turkey	2004	9.52	86.9	3.58	15.67	26.82	9.36	B	Higher	Higher	Correct
Uruguay	2002	9.52	86.9	3.58	35.68	38.34	-7.73	B	Same	Lower	Incorrect
Uruguay	2006	9.52	86.9	3.58	8.5	27.19	4.1	B	Higher	Higher	Correct
Uruguay	2007	8.37	85.02	6.61	42.61	12.51	7.37	BB	Same	Same	Correct
Venezuela	1999	8.37	85.02	6.61	20.07	17.85	-5.97	BB	Same	Same	Correct
Venezuela	2002	9.52	86.9	3.58	20.19	17.8	-8.86	B	Same	Lower	Incorrect
Venezuela	2004	9.52	86.9	3.58	15.82	22.27	18.28	B	Higher	Higher	Correct

The final performance of the model is shown in the last column of Table 4. We can see that we correctly predicted 25 out of 42 samples. That is 59.52%. We conclude that we have predicted correctly all samples where credit rating is not changing, 18 out 18, with percentage of 100%. Samples where credit rating goes up are predicted correctly 4 out of 14, with percentage of 28.57%. Samples where credit rating goes down are predicted correctly 3 out of 10, with percentage of 30.00%. Therefore, changes in credit rating are harder to predict. This may happen because for each credit rating category the highest probability is that the country will keep its current rating in the next year.

5. CONCLUSION

The importance of a credit rating assigned to a country, as a major indicator of its creditworthiness, is constantly growing. The ongoing economic crisis heightens the need for reducing uncertainty in financial markets.

In this paper, we proposed and tested new fuzzy logic model to be used as a tool for preventing this uncertainty. The leading idea was to approach to the problem from nonstandard angle that uses fuzzy logic as a main tool in our work. Fuzzy logic is relatively young scientific method, and therefore, there is room for

trying to exploit its specific characteristics to our advantage. Since finance itself nowadays is much more fuzzy than crisp, there is a reason more for trying to implement fuzzy logic methodology.

From numerous data sources we obtained some vital country's indicators which variations we suspected can cause credit rating migrations in the time period from 1996 to 2013. We also provided probabilities with which these migrations, according to the transition matrix, may occur for each credit quality class. Finally, historical changes of rating grades are taken into account. After standardization and principal component analysis, all of these input data are transformed into input variables of a fuzzy model. These input values are processed using fuzzy rules based on common sense deduction, expert knowledge and advanced understanding of modeled movements. After the defuzzification process crisp, output rating prediction is obtained.

On a given sample, we managed to predict nearly sixty percent of one-year credit quality migrations. We had more success in predicting situations when credit ratings do not change, but less with predicting changes. Obtained percentage of successful predictions are satisfying, having in mind that there are high probabilities that credit rating will not change in period over one-year, and yet, it does, much more than it is assumed in the beginning with transition matrices. These findings may be of a great interest to investors interested in placement of funds in international market. It provides an opportunity to assess possible future credit risk associated with a country by using publicly available data as a model inputs.

After completing the research, we draw the opinion that this model can be improved in several ways, and that it should be one of the leading goals of our next research on this subject. We suspect the following ways to make the performances of the proposed model better:

- Including more countries and longer time period in our research,
- Changing the rules so they catch more variability in the data (credit rating changes),
- Including more factors in our model,
- Having more strict rules for boundaries of membership functions and domain,
- Changing shape of membership functions.

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ACCOUNTING INFORMATION SYSTEM AS THE SOURCE OF CORPORATE COMPETITIVE ADVANTAGE

Ljiljana Dmitrović Šaponja[1], Saša Gravorac[2], Sunčica Milutinović[3]
[1]Faculty of Economics in Subotica, University of Novi Sad, Serbia, ljiljanad@ef.uns.ac.rs
[2]Faculty of Economics in Subotica, University of Novi Sad, Serbia, sasa.gravorac@ef.uns.ac.rs
[3]Faculty of Economics in Subotica, University of Novi Sad, Serbia, suncica@ef.uns.ac.rs

Abstract: *Accounting information systems feature as vital segments of the organisational structure of any corporate entity. Only a well-organised accounting information system can produce financial reports meeting the needs of numerous users of accounting information contained in them. High-quality financial reports serve as crucial sources of any corporate entity's competitive advantage, given that they contain high-quality information that a corporate entity can use in its operation with the aim of gaining competitive advantage, and are a product of a well-organised and devised information system. This article will look into the issue of organising an accounting information system, quality of financial reports and the information it produces, factors affecting the quality of financial reports and the confidence of the users of financial reports in their contents, and also the consequences of decisions made based on thus produced financial reports, competitive advantage based on financial reports, and its significance for companies' future business operations.*

Key words: *accounting information system, quality of financial reports, accounting information, users of financial reports, business decisions, competitive advantage.*

1. INTRODUCTION

As a part of a corporate subject's organizational structure, accounting function can exist in various forms. It can exist as an independent organisational unit, or a constituent of another organisational unit. Regardless of how the accounting function is organised, it should be set up so as to produce high-quality information that will meet the needs of all users, both internal and external. Accounting staff constituting the accounting function is the vital factor of its successful work, for the human factor plays the dominant role in the quality of any performance, including accounting tasks. The final objective of it all is financial reporting that should meet the needs of numerous accounting information users.

As products of the accounting function, financial reports are not intended only for the needs of the accounting staff, but also of all the stakeholders both within and outside a corporate entity. Information contained in financial reports is used by both accounting staff and other human resources and services of the corporate entity, tax authorities, inspectors and other public bodies. They are particularly significant for meeting the needs of the management, as the foundation of their decisions, and the prerequisite of the corporate entity's successful operation. The given financial reports also contain the sources of a corporate entity's competitive advantage, which create a stable basis of its future development, and are the result of a well organised and conceived accounting information system.

The accounting function and accounting profession in general have often been neglected in domestic business conditions without plausible reason. In numerous situations, accounting staff have faced disdain, the effort they invested has been underrated, and the significance of the information produced by account misunderstood. This is a consequence of inadequate accounting knowledge and the opportunities provided by the accounting information system. Lately, however, this area has seen significant advances, primarily as the outcome of the contemporary market environment where modern corporate entities operate, characterised by expressed instability, dynamic developments and high levels of risk that corporate entities face on a daily basis. The accounting function and staff are likely to get a much more significant role, resulting from contemporary market trends where corporate entities exist.

2. THE ACCOUNTING FUNCTION AS THE DATABASE OF BUSINESS ENTITIES

Operation of contemporary business entities is inconceivable without a well-organised accounting function. Its significance stems from the broad range of data it receives, transformed into information, and distributed to numerous users. The accounting function's role is reflected in accounting, registering and disclosing all the relevant transactions numerically expressible in terms of value within the corporate entity. Accounting is often erroneously identified with bookkeeping (by those inadequately familiar with accountancy), which is, in fact, wrong, as bookkeeping is only a segment of accounting. The view that accounting and bookkeeping are synonymous therefore represents a wrong approach to consideration of accountancy. Accounting is a much broader concept, and, apart from bookkeeping, it also includes (Dmitrović Šaponja, Petkovič and Jakšić, 2011, 10):

1. **accounting planning** – enables presenting the future business operations of corporate entities using monetary units, unlike bookkeeping, which is past oriented;
2. **accounting supervision or control** – aimed at protecting the integrity of a business entity's assets, and providing reliable and timely accounting information to numerous financial report users;
3. **accounting analysis** – a segment of the corporate entity's overall business analysis; and
4. **disclosure** – producing accounting information with the aim to meet the needs of numerous financial report users.

Each corporate entity can be regarded as a business system, with the accounting system as one of the constituents. To enable the corporate entity to function smoothly, all its subsystems must be well connected and mutually compatible. Operating functions are mutually reliant and connected.

As regards the organisational aspect of accounting in a corporate entity, the following two organisational forms of the accounting function can be identified in the corporate entity:

- independent organisational unit and
- constituent of another organisational unit, mostly the Finance Department.

Depending on the size of the corporate entity, the accounting function can be organised as centralised or decentralised. In current business condition, when the national economic system comprises a large number of small and medium sized corporate entities, they often do not organise this function within, but rather outsource service of professional accounting agencies, which they entrust with keeping accounting records for a certain remuneration.

The modern-day business and economic practice has seen the emergence of new forms of organisation in accounting, based primarily on cost-effectiveness in the organisation of accounting, these new forms being (http://www.vikrevizija.hr/usluge/organizacija-racunovodstva.html, accessed April 10, 2014):

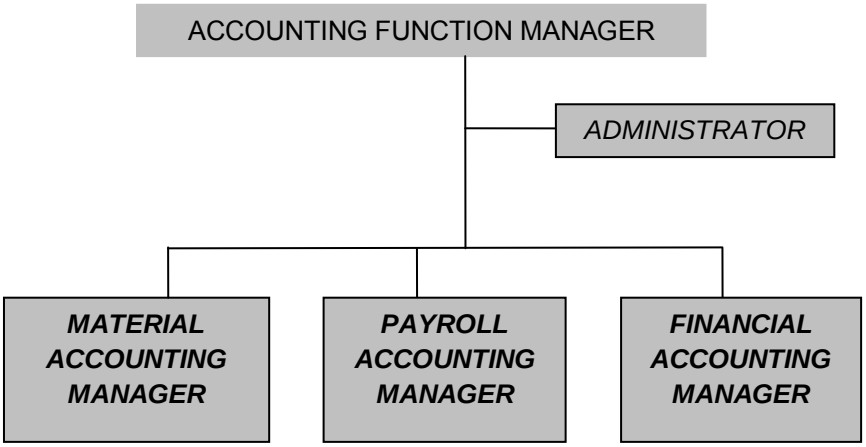
> in-house accounting service,
> outsourcing the services of accounting agencies,
> combination through outsourcing third persons and part-time work.

The in-house model of organising the accounting function means that the accounting function is within the corporate entity itself, performing all the tasks as required by the corporate entity, employing qualified staff, and featuring as a constituent of the corporate entity's organisational structure. The outsourcing-based organisational model of organising the accounting function is almost dominant nowadays, in view of the increasing number of small and medium-sized corporate entities, who would find it cost-ineffective to organise their own accounting service, and therefore use the services of professional accounting agencies, who keep records of their operations and perform all the accounting operations for them, charging appropriate fees. The third model of approach to organising the accounting function includes hiring accountants who are retired, or employed in another corporate entity, to perform the accounting tasks.

In order to fully accomplish all the tasks set before it, the accounting function must employ appropriate human resources. The staff are the core and essence of the accounting function. Professionally trained and educated staff can perform the tasks set before them with high-quality performance. An additional requirement is constant additional training of the current staff, which is an indispensable prerequisite for successful performance and functioning of the accounting function. At this point, it must be stressed that the

accounting staff are the foundation for successful performance of the tasks set before the accounting function. When performing tasks set before them, accountants should adhere to strict ethical requirements of professionalism, effectiveness and efficiency. This will contribute to the reputation of the entire profession, which has been somewhat compromised over the past period.

One of the forms of organising the accounting function within a corporate subject may be:



Graph 1: A model of organising the accounting function (www.vus.hr/Nastavni%20materijali/Osnove%20menadzmenta/12.%20Poslovne%20i%20procesne%20funkcije%20u%20poduzecu.pdf, accessed April 15, 2014)

Graph 1 shows only the core, or the basic organisational structure of the accounting function. Each corporate entity, in accordance with its needs, divides this structure so that the accounting function can fully perform the set tasks.

The prerequisite for successful operation of every corporate entity is good cooperation between all three above mentioned systems of the business entity. Their close cooperation results in the fulfilling the corporate entity's objectives. As a constituent element of these three systems, the accounting function monitors the movement of the total assets at the corporate entity level, and performs the accounting control of operations of all the organisational units in a corporate entity. This requires the accounting function to cooperate closely with other functions that it provides with necessary data on the other hand, while drawing the necessary data on the other. A well organised accounting function should provide data that are a prerequisite for economic and cost-effective operation of the corporate entity. Such an accounting function will supply information required by the management for successful operation, that is, provide the management of a corporate entity with the following information, which are not only prerequisite for high-quality business decision making, but also a prerequisite for the corporate entity's survival (http://web.efzg.hr/dok/OIM/inacinovic/PRED%20Organizacija%20poslovnih%20funkcija.pdf, accessed April 25, 2014)

- periodic performance in production;
- movement of assets
- sources of finance
- results of annual operation.

All the aspects of considering the accounting information are supposed to enable accomplishing the overall objective of this system, which is to establish a connection between the users of accounting information and the effects of earlier made business decision. This is due to the fact that each business decision is made based on relevant information that should result in certain effects.

3. FINANCIAL REPORTS – THE FINAL PRODUCT OF THE ACCOUNTING FUNCTION

The main products of the accounting function are financial reports, which are to supply high-quality and relevant accounting information to numerous users of accounting information. To provide financial reports that will be a reliable representation of corporate entity's state, it is essential for information used for producing those reports to be reliable, relevant, and based on appropriate documentation.

These financial reports meet the needs of numerous users of financial reports. The most significant users of financial reports definitely include managers, who base all their business decisions based on these. Only reliable and high-quality accounting information can feature as a basis for making relevant business decisions. Based on data contained in financial reports, managers analyse operations, identify weaknesses, identify the level and dynamics of cost fluctuations, etc. Although these data are historical, they feature as basis for predicting the corporate entity's future operations. There are other users of accounting information, equally significant, who should be neglected, such as: the employees and trade unions, the in-house services, business partners, banks and other creditors, government bodies, etc. Information contained in financial reports must meet the required quality characteristics, for only such information serves as a reliable basis for business decision making.

To be qualitatively adequate, information contained in financial reports must possess the following characteristics (Dmitrović Šaponja, Petkovič and Jakšić, 2011, 17):

1. **truthfulness** – means obtaining information from reliable accounting documents, for only such information serves as a reliable basis for high-quality business decisions;
2. **usefulness** – which means that accounting information must be reliable, i.e. accurate and impartial on the one hand, and adequate on the other, meaning that they must meet the users' requirements and requests;
3. **comprehensibility** – this is information that do not require substantial time for interpretation, and are tailored to the user's level of knowledge; if accounting information is not adapted to users for whom it is intended, it is practically useless, which means that the same information will be presented in a certain way to the management, and differently to the corporate entity's expert services:
4. **cost-effectiveness** – all the information yielding benefits that exceed costs; to be useful, the use of accounting information must produce effects much higher than the costs of its production.

All information must be tailored to the user, i.e. that the same information will be presented differently to different users. Regarding the central tenet of this article, which is considering the role and significance of accounting information for the purpose of business decision making, the table below will show what kind of information is required by individual levels of management:

Table 1: Relation between accounting information system and various users

Management LEVEL	**Character of Accounting Information**
Top management	Accounting information tailored for the purpose of strategic planning
Middle-level management	Accounting information for management control
Operative management	Accounting information contained in analytical records

Source: Dmitrović Šaponja, Petkovič and Jakšić, 2011, 18

The domain of a corporate subject's top management includes strategic planning, which means decisions pertaining to the corporate subject's long-term business objectives, i.e. decisions of strategic importance for business operations, considering the effects of numerous business alternatives. The middle-level management uses accounting information aimed at management control, considering the achieved results and effects compared to the plan. The operative, or junior management uses analytic records, relying on data from bookkeeping to the greatest extent.

4. COMPETITIVE ADVANTAGE THROUGH THE PRISM OF THE ACCOUNTING INFORMATION SYSTEM

A corporate entity's competitive advantage stems from its ability to create value for its customers exceeding the expenditure that the corporate entity invested in the process of creating this value. The greater the difference between the created value and costs incurred in creating this value, the better the given corporate entity's competitive position. To reach this goal in the appropriate direction, it is necessary for products and services provided by the corporate entity to be completely adapted to buyers' demands and requirements, and to continuously research and monitor changes in the buyers', i.e. consumers' demands, and adapt on time through producing commodities in accordance with their needs, performing this task better than its competition.
When a business entity has gained a good market position and, consequently, achieved significant competitive advantage, it must constantly be ready to enhance and adapt its production and services to consumers' demands, as competitive advantage is not a permanent category, which, once achieved, remains in force forever. Actually, corporate entities should continuously improve their effectiveness and efficiency in order to maintain and retain their competitive position. To keep competitive advantage, it is necessary to take into account the impact of a whole range of factors: the essence of competition is managing financial, material and information resources, based on the knowledge and skill of innovating and preserving the distinctness of the achieved advantage; then, the choice of the appropriate market and products on which a corporate entity will capitalise its competitive advantages in the most acceptable manner, and finally, the choice of competitors in order to target the competing suppliers that will provide us with a great opportunity to demonstrate our advantages in the consumers eyes, and thus gain consumers' favour. If each of these factors is taken into account, we can literally expect a significant improvement in quality and retain competitive advantage.

In the context of the analysis of competitive advantage, we shall analyse Figure 1, which shows the correlation between financial performance and competitiveness:

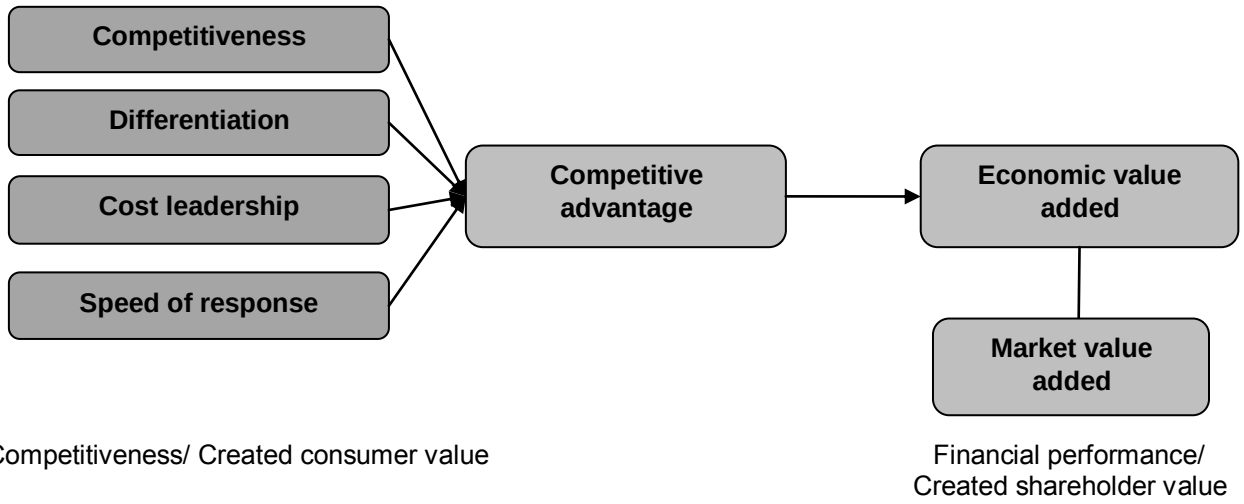


Figure 1: Financial performance and competitiveness
Source: Todorović, 2003, 486

Addressing the task of analysing competitiveness and sources of competitive advantage, Figure 1 shows that four factors are decisive for achieving competitive advantage: competitiveness, differentiation, cost leadership and speed of response. Based on achieving competitive advantage by means of these factors, economic value is gained, and very quickly transformed on the market into market value added. Thus, growth in market value creates prerequisites for the best and highest-quality competitive position possible.

To secure survival in the contemporary business environment, a corporate entity must work daily on creating and building its own competitiveness. The increasingly dynamic, complex and turbulent milieu requires making business decisions containing a growing strategic component, thus imposing the inevitable question: How to achieve it? Although the answer to this question is complex and requires further elaboration, it can be pointed out with a high dose of certainty that this is virtually impossible without a well-organised and constructed accounting information system.

Accounting-based planning primarily refers to choosing a corporate entity's business objectives and forecasting the avenues of achieving them. This indicates that planning permeates all the activities of a business entity – both those related to long-term objectives (of strategic character) and those of operative character. It is these decisions of strategic character that should support finding and achieving a corporate entity's competitive advantages. The aims of accounting-based planning are achieved through the business decision making process, coordination, direct management control, and staff motivation. In addition to strategic objectives, the account-based planning also defines the corporate entity's operative goals, viewed both on the level of the business entity and the level of individual organisational segments, which enables the management to maintain control of the achievement and take timely corrective actions in order to remove possible diversions from the planned goals. This indicates that and accounting information system provides information both on planned values and the current state, which shows the extent of realisation of the devised plan.

If the accounting information system is to enable the corporate subject to find and create competitive value and raise the efficiency of overall business operations, the information that it produces, as the platform for business decision making, must be true, timely, useful and cost-effective. This implies that account information contained in financial reports as the final product of the accounting information system is of high quality, meaning that they can meet their users' needs.

Besides financial information, an increasing significance for achieving competitive advantage in contemporary business environment is gained by non-financial information. This stems from the fact that the sources of competitive advantage in the contemporary corporate setting should increasingly be sought in knowledge and intellectual resources available to corporate entities, given that people are the asset in whose heads is stored the strongest source of competitive advantage. People, with their knowledge and experience, constitute the fundamental factors of a business entity's progress and development.

Another vital factor through which accounting information systems influence competitive advantage is the model of its organisation. The earlier mentioned modularly organised accounting information system is less efficient compared to integrated information systems. The essence of the integral accounting information system is reflected in the fact that once entered into the system, a piece of information is used in all further instances of processing. This is also its key advantage in relation to the modularly organised accounting information system, in addition to the possibility of online data entry. Thus constructed, interaction of accounting models enables the business activity of one cycle to initiate changes in other cycles automatically, which is the core advantage of thus devised accounting information system.

5. CONSLUSION

Appropriately organised and well systematised accounting policies should result in high-quality financial reports. This implies good internal organisation of the accounting function, its proper position in the organisational structure of the corporate entity, and well chosen and professional accounting staff. Only in cases when all these elements combine can a high-quality and reliable financial report be expected.

Through financial reports, the accounting function confirms and establishes its position as the main information system in a corporate entity, as it is the hub of information used by all the stakeholders interested in the performance of a given corporate entity. Financial reports produced by the accounting function are the chief source of information for all interested users, which requires a high quality of reports to be provided by the accounting function.

The existence of corporate entities in modern-day market conditions implies a well-organised and conceived accounting information system. Its good organisation and existence is what constitutes competitive advantage. Only the corporate subjects that manage to provide stable sources of competitive advantage can expect to survive in the forthcoming period. This indicates that competitive advantage is a *conditio sine qua non* of market existence and survival of corporate subjects in the global corporate setting.

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FINANCIAL REPORTING IN CONTEMPORARY BUSINESS CONDITIONS

Veljko Dmitrović[1], Milica Latinović[2], Tijana Obradović[3]
[1]Faculty of Organizational Sciences, University of Belgrade, dmitrovicv@fon.bg.ac.rs
[2]Faculty of Organizational Sciences, University of Belgrade, latinovicm@fon.bg.ac.rs
[3]Faculty of Organizational Sciences, University of Belgrade, tijana@fon.bg.ac.rs

Abstract: *Dynamic changes embodied in globalization and development of information technology, as well as a loss of confidence caused by the global financial crisis significantly affect the accounting information system, ie. the accounting profession, and therefore on financial reporting. International Accounting Standards / International Financial Reporting Standards as the language of business should facilitate the harmonization of financial reporting of companies around the world. The emergence of the web as a result of acceleration of the transactions, and thus increasing the volume of information. Changes in the field of documentation and reporting procedures on the one hand and the growing expectations of stakeholders for appropriate financial reporting in the contemporary conditions, on the other hand. Without standards for the exchange of information through web accounting profession has long been burdened by inefficient reporting process based on a variety of different software applications (pdf, xls, html, doc) which are usually incompatible with each other. At the end of the nineties appeared XBRL - extensible business reporting language for the exchange of structured business information that is widely accepted. XBRL is the financial reporting led to the Internet and facilitate communication with information from the financial statements to numerous users.*

Keywords*:* accounting information system, financial reporting, information, International Accounting Standards / International Financial Reporting Standards, XBRL standard

1. INTRODUCTION

Accounting information system if it is well organized should present the relevant information from the financial statements of financial position, asset and profitable position, ie. on the effects of activities of the company. In the twenty-first century, it faces with many challenges and opportunities. Financial statements establish communication between the information generated within the accounting information system and the many different users of the information. Conceptual Framework and International Accounting Standard 1 (as it provides the core structural elements of financial statements that are required for all companies when creating financial reports throughout the world) are very important elements in the function of harmonizing financial reporting. The effects of management decisions are looked at from the point of impact to moving the performance and value of companies, periodically are reviewed and evaluated through the financial statements and the specific economic analysis. Mentioned was made much easier due to the application of modern information technology. Online exchange of information is carried out with the XBRL standard based on XML - standardized business language for transmitting data over the Internet. This paper will discuss the importance of professional legal regulation in the financial reporting and business intelligence within the XBRL International Standards.

2. SIGNIFICANCE OF REGULATORY FRAMEWORK IN THE FINANCIAL REPORTING PROCESS

Throughout the world, many companies prepare and create financial statements for external users. Though these financial statements may look like similar from country to country, but there are diversities due to different social, legal and economic circumstances. Mentioned different circumstances have led to the use of different definitions of the constituent segments of the financial statements, such as the assets, liabilities, equity, income and expenses. They have resulted in the use of different criteria for the recognition and measurement in financial statements. That is why the International Accounting Standards Board has the task to reduce the differences with effort to harmonize regulations, accounting standards and procedures relating to the preparation and presentation of financial statements. The Board focuses on the harmonization of financial statements that are compiled to provide information relevant for decision making in the economic sphere.Thus prepared financial statements meet the common needs of most users. Economic decisions are made by almost all users, for example:
(Conceptual Framework for Financial Reporting (2014), p.3-4.),

- To decide when to buy, hold or sell a share in the capital,
- To assess the stewardship or responsibility of management,

- To assess the entity's ability to pay and provides other benefits to its employees,
- To assess the safety of the amount lent entity,
- To determine tax policy,
- To determine the profit and dividend distribution,
- To prepare and use national income statistics, and
- To regulate the activities of the entity.

Mentioned Board is aware that the state institutions of various countries for their own purposes may establish different or additional requirements. The above mentioned requirements should not affect the financial statements that are published in the interests of other users. In accordance with the accounting model based on recoverable historical cost and the maintenance concept of nominal financial capital financial statements are usually prepared. The conceptual framework is drawn up so as to be applicable to a range of accounting models and concepts of capital and its maintenance.

The purpose of the conceptual framework is:
- To assist the Board in the development of future IFRS as well as the review of existing IFRS,
- To assist the Board in promoting harmonization of regulations, accounting standards, procedures relating to the presentation of financial statements by providing a basis for reducing the number of alternative accounting treatments allowed by IFRS,
- To assist national bodies responsible for setting standards in the development of national standards,
- To assist persons who prepare financial statements in the application of IFRS, as well as in addressing issues that have yet to become the subject of IFRS,
- To assist auditors in forming an opinion about whether the financial statement in accordance with IFRS,
- To assist users of financial statements in interpreting the information contained in the financial statements prepared in accordance with IFRS, and
- To those who are interested in the work of the IASB with information about its approach to the formulation of IFRS. *(Conceptual Framework for Financial Reporting (2014), p.4.),*

Base of the conceptual framework makes the target of general-purpose financial reporting. Providing financial information about the company is a point of general purpose financial reporting. The information obtained from the reports are the benefits to all stakeholders ie. customer (lenders, existing and potential investors and other creditors).

Since the yield (dividend, the increase in the market price, the payments for principal and interest) that investors expect from investing in debt instruments or the purchase, sale and holding of equity instruments depend on the decisions of investors (both existing and potential). Expectations of lenders, investors and other creditors are depending on their assessment, dynamics, amount and perspective future net cash inflows to the company. As noted, investors need information on which they will be able to estimate the future cash flows of the company. Necessary information in good part they take in general purpose financial statements. They are actually the primary users of the information from mentioned financial statements.

The financial statements provide information in order to be able to assess the value of the company by investors, lenders and other creditors. General purpose financial statements do not provide the full necessary information to them. To make a proper business decision should be supplied with relevant information from other sources also, such as the perspectives of enterprises and the economy, the political climate, general economic conditions, etc.

In the process of developing standards of financial reporting The Board strives to provide the required information for the largest number of primary users. Information about financial position, ie. the economic resources of enterprises, the effects of transactions that change the company's resources are useful for decision making.This is so because they are the basis for identifying financial strength (liquidity, solvency, the need for additional financing) and weaknesses of the company. Information on the results of operations help many users to understand the yields that the company realized with its available resources. Also, this information shows how management do their activity of efficient and effective using of company resources.

For the evaluation of past and future capability of the company, for the accumulation of net cash inflows are important information about the result of the firm. Also, the company's ability to cumulate the future net cash flows provide information on the company's cash flow because from them we can see how the company spends cash, borrow, how pay off debts and other indicators that can affect both the liquidity and solvency. Assessment of financing activities and investing, liquidity and solvency provide information on cash flows (for more details see Conceptual Framework for Financial Reporting, Chapter 1).

Information from the general purpose financial statements to meet many users must be relevant, useful, credible, verifiable, comparable, timely and understandable. (for more details see Conceptual Framework for Financial Reporting, Chapter 3).

Accounting information system of the company has a duty to provide financial reporting for which quality and relevance is with management of the company directly responsible. The key assumption for making quality business decisions is the quality of information. This is why the need to improve the quality of financial reporting becomes more and more important.

International Accounting Standard 1 - Presentation of Financial Statements (IAS 1 below) provides the basis for presentation of general purpose financial statements, sets general requirements for the presentation, gives guidelines for their structure and makes minimum requirements for their content ie. prescribe the basis for presentation of financial statements that is it's main goal. It applies to all general purpose financial statements.

A complete set of financial statements under IAS 1 includes: a report on the financial position at the end of the period, a report on the profit or loss and other comprehensive income for the period, statement of changes in equity for the period, cash flow statement for the period, notes comprising a summary of significant accounting policies and other explanatory information, comparative information relating to the previous period and a report on the financial position at the beginning of the previous period when an entity applies an accounting policy retrospectively or makes a retrospective restatement of items in its financial statements or when it reclassifies items in its financial statements. (IAS 1, paragraph 10) The above-mentioned set of financial statements is otherwise called the Annual financial statement.

However, under the new Law on Accounting regular annual financial statement entities that apply IFRS include: balance sheet, income statement, statement of other results, statement of changes in equity, cash flow statement and notes to the financial statements. Micro-entities prepare a regular annual financial report that includes a balance sheet and income statement. Regular annual financial statements of other entities (political, trade union organizations, foundations, chambers, churches, etc.) includes a balance sheet, income statement and notes to the financial statements.

It is evident that the professional and legal regulations is in conflict as far as the name of mandatory annual financial statements. In Serbia, the prevailing is legislation. Association of Accountants and Auditors of Serbia as a member of the International Federation of Accountants (IFAC) has translated IAS / IFRS in 2009. provided that translated the five new IFRS which came into force on 2013th (four of them), and one will come in 2015th. Translation of these standards The Ministry of Finance published in the Official Gazette No. 35 until March 27th of 2014. (no sooner), and very important professional titles and certificates accountants are canceled and they are actually crucial, because only a true certified professionals should be involved in the accounting profession because of the objectivity of financial reporting.

For recognition, evaluation, presentation and disclosure of items in the financial statements big companies apply International Financial Reporting Standards. Medium-sized enterprises can use International Financial Reporting Standards or International Financial Reporting Standards for Small and Medium Enterprises. Small enterprises can use the International Financial Reporting Standards for Small and Medium Enterprises. Micro enterprises can use Regulation issued by the Minister of Finance or International Financial Reporting Standards for Small and Medium Enterprises.

In Serbia until July 2013. valid was the Law on Accounting and Auditing (Official Gazette 46/06, 111/09 and 99/11) who was sorting companies into three groups, to large, medium and small, according to the criteria: average number of employees, operating income and average value of commercial property, which is replaced by the new Accounting Act of 16th July 2013. (Official Gazette of RS, no. 62/2013). companies are divided into four groups, in large, medium, small and micro, which show the following table:

Table 1: Types of enterprises

Legal entities are classified according to size	Applying the criteria of the Law on Accounting and Auditing	Applying the criteria of the Law on Accounting
Large	1.163	552 (0,46%)
Medium	2.971	1.283 (1,07%)
Small	116.285	9.649 (8,01%)
Micro	-	108.935 (90,46%)
Total	120.419	120.419 (100%)

Source: IFRS and Current Regulations (2013)

From the table it is evident that Serbia has at the most micro enterprises (90,46%), at least large (0,46%).

3. FRAMEWORK FOR BUSINESS REPORTING BY INTERNATIONAL STANDARDS XBRL

The use of XBRL standards (eXtensible Business Reporting Language) is of great importance to the business of each company and the perspective of its use are very wide. Regulatory bodies (institutions that have the authority to prescribe certain standards of conduct in the collection of certain information, for example: Commission for securities, stock exchanges, tax authorities, insurance companies, banks, etc.) are commonly used until now classical methods of reporting based on a paper form or unstructured electronic methods of HTML (Hypertext Markup Language) or PDF (Portable Document Format) format. Each regulatory body ("a collector of business information") may prescribe the use of electronic and other structured methods in relation to XBRL (eg. Private electronic methods developed for their own use). In our business environment just mentioned is already present. In a particular required format regardless of whether the data is structured or unstructured single entity (or other applicant data) can transmit business information to data collector. The aforementioned diversity present in the world indicate a need of unification of business reporting.

Recent way of financial reporting is on the website, these are due to the presence of certain experiments in the implementation of possible variations in the development stages. By analyzing we got an answer that there are many different varieties of reporting that companies show on their web sites. Accordingly, interested parties can gain an impression at first glance that there are no clear rules in the presentation of financial statements on the Internet in terms of what exactly is allowed and what should not be allowed in the preparation and presentation of annual financial statements on the Internet. The SEC (Security Exchange Comity) in the United States specifically provides for uniform application of legal rules in the work process, regardless of whether it is implemented in hard copy or electronic technology, in his act that deals with working with securities of values.

The technology which allows precise setting and standardization of new features is based on the use of special software tools standard XML (Extensible Markup Language) - the language created by the W3C (World Wide Web Consortium). XML allows you to create web pages that include identifying information about the items on the Internet such as statements, currency, orders, invoices and similar. International standards, XBRL was also formed on the same model, based on XML language, the protocol developed by the General Accounting Board. The study of comparative financial web site in relation to paper reporting documentation showing that a number of companies on their web site show only the summary information, others do not want to present a complete financial statement.

There is the fact that new technologies, and therefore the implementation of the XBRL standard brings new challenges and new risks (Audit and Control Implications of XBRL, The Canadian Institute of Chartered Accountants, Information Technology Advisory Committee, Toronto, 2002).

Many accounting organizations are set reasonably question how big a business risk is if the business decisions use information from reports prepared using XBRL. The analyzes showed that the risk of errors related to the accuracy of the mappings balance sheet items and the appropriate uses of the related taxonomy.In case the information for the purposes of the financial statements in XBRL methodology are included, there is a need to apply additional controls to ensure that the data are of high quality, accurate and possess the required integrity. The use of XBRL technology does not mean that it will also be prepared and printed financial statements. Companies can choose that a method of financial reporting financial document that has been prepared in accordance with the taxonomy ISA (International Accounting Standards) to be published and posted, and only on the web site. Legislator allows mentioned in the world. From the aforementioned it follows that by analysts and others interested in business analysis can run their own analytical processes of such published data and prepare their comparative report, connect them with information obtained from other companies and shape within a new business report. With the technology of XBRL the mentioned process can be automated and used for retrieval of data from a variety of sources periodically for analysis management.

In the near future, XML will require control data transfer, which is based on the operations of the supply chain. Using the Internet in the process of automation of operations of exchange and transfer of data to be performed manually (including processing purchases, payments, invoicing, delivery, etc.) business environment is expected to adapt the XML standard needs of different activities to almost instantly reduce the total cost of operations.

Since XML exponentially affect the acceleration of business iterations and anyone who wants to start their own business should pay attention to this fact. Regular reporting in addition to shareholders at the same time provide information for decision-makers and others involved in the business chain. In this context, the decision making community (so-called XBRL) was established, which is an adaptation of XML technology for the chain of business information. It is believed that the business process designed to technological solution XBRL reporting has a key advantage over conventional current mode of reporting that is now compiled and distributed. XBRL allows the shortened time period of preparation and low cost of preparation, provides simplified access to information, the ability to cross information by expanding the analytical capabilities as well as better conditions for investment decisions.

In order to timely protect against possible shock of the financial markets it is necessary to examine developments in global business practices in recent years to conclude that measures should be taken. The most appropriate illustration can give us the case of Enron (big American energy giant was formed in 1985th, before all the gas, and then with electricity, which is the middle in 2001st had about 21,000 employees). Enron's was accounting fraud with poor corporate management and much more. The collapse of Enron implies a total systemic failure of American institutions of capitalism.

Enron's management misled the board of directors. Failed their tasks: internal audit function, external auditors, their lawyers, business printed reports. In other words, American institutions of capitalism that are being advertised and imposed all over the world as it should be operating all are easily betrayed at Enron. The greatest failure of American free-market capital and a direct failure of the SEC is actually Enron. SEC as a government "watchdog" was required to provide adequate and timely disclosure of relevant corporate information, he just not succeeded.

Bankruptcy of Enron and WorldCom accounting is concerned about the workers and small shareholders on the adequacy or inadequacy of GAAP (Generally Accepted Accounting Principles) and a GAAS (Generally Accepted Auditing Standards). The main problem and a potential cause of accounting scandals at opinion of a specialist after numerous analysis is reflected in the quality, or low-quality business disclosure of financial results and the quality of audit reports. Enron was applying the method to mark-to-market accounting for all aspects of their business while reporting to the SEC and public disclosure to analysts of securities. His reporting to the SEC was not objective.

After the accounting scandals of Enron and WorldCom, the U.S. Congress adopted a special law called the "Sarbanes-Oxley Act." This act introduces a new strict rules to protect investors by improving the accuracy and reliability of corporate disclosures. XBRL standard allows many customers to compare the financial performances of the company as opposed to a group of companies. Registered confidence of working with XBRL standard is fully in accordance with the requirements arising from the "Sarbanes-Oxley Act"-a.

The new system of trust should provide SEC with tools for checking to oversee corporate reporting and control their compliance with the criteria defined in the said Act. The tools that have been developed along with the XBRL standard facilitates comparison of the information obtained, and it is considered and expected to be able to eliminate fraud in a timely manner (early acceptance of income, inadequate capitalization of expenses, excessive reserves relating to income, inadequate management of income, etc..). XBRL is characterized by proliferation and the ability of their access to information.

Indicia including XML and XBRL will enable accounting systems to accumulate data from different databases in a concise reporting entities and translate the information needed to create all the elements in internal or external report. XML increases the speed of the internal and external shareholding reporting.

XBRL can optionally be used for that connection ie. linking of selected documents and reports back to the store such data on the disk of the new user, and the operation can be no security risk that should identify which management uses such information. Risk refers to the possibility that the link be exploited and compromised by hackers or others. In this case, additional security measures should be consider, and clear configuration used quality "firewall" with which network and server protect against unauthorized entry and measures such as the use of cryptography data from XBRL methodology. Clear attitude on the safety and security of financial settlements developed using XBRL has to have every accountant and auditor. Must remain the same as in the case of other traditional financial statements of the general a security approach and core control, only the protection technology to be adapted to new technological opportunities.

Application of new technology solutions can include the necessary accounting files that will be digitally signed or individual signed - such files within a document provided by the client by the auditor.

The first implementation of XBRL standards were achieved by the Commission for the Securities, the stock market, banks, tax and customs administration. The first implementation of the current conditions XBRL have accepted a variety of business organizations, auditing and accounting agencies, software for accounting and business intelligence, as well as individual analysts and investors.

At the global level, XBRL is implemented by the SEC (Security Exchange Commission), American Institute of Certified Public Accountants (AICPA), the Australian Prudential Regulations Authority (APRA) (first developed a program for the collection of regulatory data in XBRL). National Tax Administration of Japan leads the world in the application of the XBRL reporting standard and the Tokyo Stock Exchange (Tokyo Stock Exchange) in Asia. The current situation regarding the implementation of XBRL Europe show the following table.

Tabel 2: Progress in the implementation of XBRL standards in Europe

Country/Sector	Banking Sector	Business Sector	Tax sector	Sector of statistics	Regulators of securities markets	Insurance sector	Other: stock market, private sector
Belgium	Obligatory submission	Obligatory submission	Obligatory submission	Obligatory submission	A project with the mandatory filing in Spain, two projects are underway	Two projects are underway (EIOPA XBRL SOLVENCY II). Many projects are in the preparation	Ten projects ranging from reporting at the local level in Spain to water resources management projects in the Netherlands.
Cyprus	Obligatory submission	Voluntarily submission					
Denmark		Obligatory submission	Voluntarily submission	Voluntarily submission			
Finland	Voluntarily submission	Voluntarily submission					
France	Obligatory submission						
Germany	Voluntarily submission	Obligatory submission	Obligatory submission	Obligatory submission			
Ireland	Voluntarily submission	Voluntarily submission	Voluntarily submission				
Italy		Obligatory submission		Obligatory submission			
Lithuania	Obligatory submission						
Luksemburg	Obligatory submission			Voluntarily submission			
Nederland	Voluntarily submission	Voluntarily submission	Obligatory submission	Voluntarily submission			
Norway	Voluntarily submission						
Poland	Obligatory submission						
Spain	Obligatory submission	Obligatory submission					
Sweden	Voluntarily submission	Voluntarily submission					
Switzerland		Voluntarily submission					
Great Britain		Obligatory submission	Obligatory submission				
Estonia		Obligatory submission					

Source: *Gilles, M. (2012).*

Most European Union countries, as can be seen, permits or provides for the implementation of XBRL. There are between five and seven million of financial statements in this format in Europe. Regions of the world where the fastest developing XBRL are USA, Japan, Europe, China and Australia.

4. CONCLUSION

At the beginning of the twenty-first century is increasingly question whether the current system of financial reporting appropriate to the era of modern information technology. The globalization of business and accounting response to it have caused the development of global financial reporting tools, as well as global regulators that promote the development and improvement of the quality of financial reporting. The development of information and communication technology makes a major changes in the financial reporting process and the exchange of business information. The development of communication and information technology has enabled the relocation of financial reporting on the Internet. Thanks to the aforementioned business information is now available to everyone, anytime and anywhere. For this purpose, dominant is usage of the International standard for the exchange of business information XBRL.

Its application brings all participants in the financial reporting supply chain advantages such as cost savings for preparation, processing, disclosure and in time. XBRL does not require changes in existing accounting standards, or require companies to disclose more information. XBRL enables automated exchange of information between different business applications while dramatically reducing human involvement.

Benefits of XBRL reflect the savings in cost and time by automating the process. Completely redefine the accounting practice of applying XBRL, increasingly require a high level of analysis with a view to ensuring adequate informational support in decision making. XBRL is a relatively new and software support on which it relies, and may cause some problems of compatibility of software applications. XBRL as each standard has a limited life cycle, and probably will in future pass under appropriate changes. Because XBRL entirely relocated financial reporting on the Internet raises the question of information protection and security.

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RECOGNITION VERSUS DISCLOSURE IN FINANCIAL REPORTING

Aleš Novak[1]
[1]University of Maribor, Faculty of Organizational Sciences, ales.novak@fov.uni-mb.si

Abstract: *Empirical evidence from the academic literature on capital market effects of recognition on the face of the primary financial statements versus disclosure in the notes to the financial statements is not straightforward. Therefore, the purpose of this paper is to contribute to the recognition versus required disclosure debate in the standard-setting context by exploring possible reasons for perceived differences between the recognised and disclosed amounts. Since in our opinion the preparers of the financial statements take less care about disclosures relative to recognised items, demonstrated auditors' greater tolerance for misstatement in disclosed amounts and allowed substantial non-compliance with disclosure requirements even in strong enforcement regimes, we believe that all these arguments strengthen the case for the general preference for recognition in the standard-setting context.*

Keywords*: disclosure, disclosure framework, efficient market theory, financial statements, notes, recognition*

1. INTRODUCTION

The question whether share prices reflect amounts disclosed in the notes to the financial statements and those recognised on the face of the primary financial statements similarly is of interest to standard-setters, regulators, financial statements preparers, auditors and hence also for academics.

Efficient market theory (EFM) suggests that the markets adopt a substance over form approach and incorporate all publicly available information, irrespective of the mode of disclosure, i.e. whether the amount is disclosed on the face of the primary financial statements or in the notes.[1]

But some (value relevance) empirical research suggests that under certain conditions note disclosures are less strongly associated with market values (of equity, i.e. share prices), as for example Bernard and Schipper (1994), Aboody (1996), Davis-Friday et al. (1999), Davis-Friday et al. (2004) and Ahmed et al. (2006). One of these conditions is if investors inappropriately undervalue disclosed amounts either through lack of expertise or due to the cost of processing note information. Secondly, recognition may imply greater relevance[2], in which users correctly assign lower weight to disclosed amounts (Jifri and Citron, 2009, p. 124).

On the other hand, some more recent empirical results of Jifri and Citron (2009)[3] suggest that, for particular classes of firms (firms engaged in R&D); the market perceives recognised and disclosed amounts equivalently, which is consistent with the efficient market hypothesis (EMH).

We can thus conclude that the empirical evidence from the academic literature on capital market effects of recognition versus disclosure in the notes to the financial statements is not straightforward. Therefore, the purpose of this paper is to contribute to the recognition versus required disclosure debate in the standard-setting context by exploring possible reasons for perceived differences between recognised and disclosed amounts. The paper has the following structure: it begins with recognition and disclosure as financial reporting concepts (Section 2); proceeds with limited attention and processing power (Section 3), explores auditor behaviour related to recognised and disclosed numbers (Section 4), while Section 5 concludes the paper.

[1] It is worth noting that some disclosed items in financial reports are not recognised—and likely never will be—because they cannot be expressed in numbers or, more narrowly, in currency units. Examples include the qualitative description of accounting policies, a summary of inputs to the calculation of a recognised number, and a sensitivity analysis (Schipper, 2007, p. 301).
[2] Relevant financial information is capable of making a difference in the decisions made by users. Information may be capable of making a difference in a decision even if some users choose not to take advantage of it or are already aware of it from other sources. Financial information is capable of making a difference in decisions if it has predictive value, confirmatory value or both (IASB, 2010, paragraphs QC6-7).
[3] Paper exploits the unique UK regulatory framework in which accounting for goodwill moved from note disclosure to balance sheet recognition. According to Jifri and Citron (2009, p. 125) paper adds to the literature in a number of ways. Firstly, it studies the recognition vs. disclosure issue in a new context, that of goodwill accounting. Secondly, it investigates whether the relative importance of recognised and disclosed amounts varies by type of firm, specifically whether or not firm engages in R&D.

2. RECOGNITION AND DISCLOSURE AS FINANCIAL REPORTING CONCEPTS

Although there is no extant academic theory of accounting or standard setting, both world's most important standard setters, namely the International Accounting Standards Board (henceforth IASB), which issues International Financial Reporting Standards (henceforth IFRS); and the Financial Accounting Standards Board (henceforth FASB), the accounting standard-setter from the USA; articulate their theory of accounting and standard-setting in their conceptual frameworks[4] (Barth et al., 2001, p. 78).

On the 28 September 2010 the IASB and the FASB announced the completion of the first phase of their joint project to develop an improved conceptual framework for IFRS and US generally accepted accounting practices (GAAP). That actually meant the issuance of Chapter 1 *The objective of financial reporting* and Chapter 3 *Qualitative characteristics of useful financial information* of the improved conceptual framework. Chapter 2 will deal with the reporting entity concept. Chapter 4 contains the remaining text of the IASB's *Framework for the Preparation and Presentation of Financial Statements* that was published in 1989.

The project's overall objective is to create a sound foundation for future accounting standards that are principles-based, internally consistent and internationally converged. The improved framework builds on existing IASB and FASB conceptual frameworks. Since this conceptual framework project is conducted in phases, as a chapter is finalised, the relevant paragraphs in the IASB's Framework (1989) will be replaced.[5] When the conceptual framework project is completed, the IASB will have a complete, comprehensive and single document called the *Conceptual Framework for Financial Reporting*.

Paragraph OB3 of the IASB's Conceptual Framework for Financial Reporting from 2010 (henceforth Framework 2010) states that ~~"~~the objective of general purpose financial reporting is to provide financial information that is useful to existing and potential investors, lenders and other creditors in making decisions about providing resources to the entity."

As a basis for a theory of required disclosures, however, it is viewed that the objective of providing decision-useful information as insufficiently discriminating, in at least two ways. First, that objective is too general to be helpful in ruling out items from further consideration. For example, the provision of decision-useful information would be consistent with requiring disclosures to reduce information asymmetries between investors and managers (that is, forcing the dissemination of information that management already has), and it would be consistent with requiring disclosures that mandate the collection and dissemination of new information (Schipper, 2007, p. 303).

Second, objective in Chapter 1 unfortunately also does not help with the distinction between recognition and disclosure (Schipper, 2007, p. 303). This difficulty applies elsewhere in the IASB's Framework 2010 as well: recognition is specifically defined in paragraphs 4.37-4.39, but disclosure is not. In addition to defining and describing recognised items, it states that disclosure is not a substitute for recognition (paragraph 4.37) and provides recognition criteria (paragraph 4.38): An item that meets the definition of an element should be recognised if:

a) it is probable that any future economic benefit associated with the item will flow to or from the entity; and
b) the item has a cost or value that can be measured with reliability."

In contrast to the detailed treatment of recognition, IASB's Framework merely discusses disclosures (without defining them) and provide some examples[6]. That discussion is not definitive with respect to the question of

[4] A conceptual framework could be seen as an attempt to operationalize the accounting theory (Higson, 2003, p. 62). Davies et al. (1999, p. 53; in Higson, 2003, p. 63) define a conceptual framework as a statement of generally accepted theoretical principles which form the frame of reference for a particular field of enquiry. In terms of financial reporting, these theoretical principles provide the basis for both the development of new reporting practices and the evaluation of existing ones. The IASB's framework can be interpreted as a given, external set of high-level principles or norms, which reflect fundamental value judgments made by the Board. In the IASB's regulatory context, decisions regarding the identification, definition and hierarchy of these high-level principles are made in the political sphere, that is, after considering constituents' views (Fülbier at al., 2009, p. 462). Solomons (1986, p.116; in McKernan, 2007, p. 173) identifies defence against politicization as one of the key functions of conceptual framework for financial reporting. If there is a sound conceptual framework then the basis for the standard-setting decisions can be more widely understood, not only by politicians but also by other market participants, and hopefully will make the actions of the standard-setter more defensible (Boyle, 2010, p. 301).

[5] FASB's conceptual framework consists of Statements of Financial Reporting Concepts (SFASs). On 28 September 2010 FASB actually issued SFAS No. 8 that replaced SFAS No. 1 *Objectives of Financial Reporting by Business Enterprises* and SFAS No. 2 No. 2 *Qualitative Characteristics of Accounting Information*.

[6] For example, the current IASB's Framework in paragraph 4.41 states that the financial statements also contain notes and supplementary schedules and other information. For example, they may contain additional information that is relevant to the needs of users about the items in the balance sheet and income statement. They may include disclosures about the risks and uncertainties affecting the entity and any rights and obligations not recognised in the balance sheet (such as mineral reserves). Information about geographical and industry segments and the effect on the entity of changing prices may also be provided in the form of supplementary information.

what disclosures are, conceptually, expected to achieve in the communication of decision-useful information. However, the discussion in the Framework is indicating that recognition is a special case of disclosure, restricted to items that meet certain criteria, that is, disclosures in the notes differ from recognised items because disclosed items fail one or more of the recognition criteria. That yields following inferences. First, because recognition is subject to special criteria, and because IASB's Framework state that disclosure and recognition are not substitutes, it is evident that disclosure and recognition are not financial reporting alternatives—they are not intended to serve the same purpose. Second, items that meet the definitions of financial statement elements but fail one or more of the recognition criteria should be disclosed, and the most likely criterion to matter for this distinction is reliability[7] (Schipper, 2007, p. 303).

One rationale for relegating amounts to the footnotes is that the information is less reliable due to significant uncertainty associated with measurement of the amount (Johnson and Storey, 1982). For example, opponents to expensing stock compensation often argued that the estimates arising from Statement of Financial Accounting Standards (SFAS) No. 123's *Share based payment* and IFRS 2 *Share based payment* fair-value method are unreliable (Malkiel and Baumol, 2002). Under this rationale, reliability can determine information location.[8]

However, standard setters may determine information location for other reasons (Bernard and Schipper, 1994). Despite the fact that Schipper (2007, 302) stated: "It seems implausible that a standard setter would not require the recognition of highly reliable items unless those items do not meet the definitions of financial statement elements", former FASB members have indicated that the decision to allow disclosure rather than recognition has been driven by political pressure in some cases (e.g., Beresford, 1997). This suggests that information location decisions can be influenced by considerations other than those described in the conceptual frameworks.

On the other hand, the concept of limited attention and processing power (Section 3) and auditor behaviour related to recognised and disclosed numbers (Section 4) in our opinion strengthen the case for the preference for recognition in the standard-setting context.

3. LIMITED ATTENTION AND PROCESSING

Paper by Hirshleifer and Teoh (2003) represents a step towards bridging what appears to be an increasingly wide gap between the views of many accounting and finance researchers (specifically, the views of 'hard core' believers in market efficiency) and the views of just about everyone else in the world with respect to the perceived efficiency of capital markets (Lambert, 2003, p. 387).

Their approach departs from theories in assuming that investors have limited attention and processing power. Limited attention is a necessary consequence of the vast amount of information available in the environment, and of limits to information processing power. Attention must be selective and requires effort (Hirshleifer and Teoh, 2003, p. 339).

In their model, owing to the limits to investor attention, the information that is presented in prominent, easily processed form is assumed to be absorbed more easily than the information that is less prominent, or that is only implicit in the public information set. Thus, (some) investors neglect relevant aspects of the economic environments they face. Although inattention maybe seems foolish as inattentive investors lose money by ignoring aspects of the economic environment, but if time and attention are costly, such behaviour may be reasonable (see Barth et al., 2003 below).

[7] We agree with Schipper (2007, p. 311) that there is no general agreement with regard to either the construct of reliability itself or its measurement. Some appear to believe that reliability is the ability of information to be vouched to, or confirmed by, an external archival source. Others appear to believe that reliability means the item's measurement is characterized by a high degree of consensus among independent measurers (a notion that subsumes the first idea of reliability). Still others appear to believe that reliability refers to precision of measurement (which is related to but differs from the consensus-of-measurers notion of reliability). Because attempts to explain what reliability was intended to mean in the standard-setting context have proved unsuccessful, the IASB and FASB sought a different term that would more clearly convey the intended meaning. The term *faithful representation*, the faithful depiction in financial reports of economic phenomena, was the result of that search. The IASB and FASB claim that term encompasses the main characteristics that the previous frameworks included as aspects of reliability, so the term reliability disappeared from the IASB's Framework 2010. For more on qualitative characteristics in the IASB's Framework 2010 see Novak (2013).

[8] The evolution of stock option accounting in the framework of U.S. GAAP from the initial adoption of SFAS No. 123 to the passage of SFAS No. 123R encompasses three reporting environments for stock option expense: (1) voluntary note disclosure, (2) voluntary income statement recognition, and (3) mandated income statement recognition (Frederickson et al., 2006, p. 1089). Frederickson et al. (2006) find out that mandated income that mandated income statement recognition, as required by SFAS No. 123R, leads to higher user assessments of reliability than either voluntary income statement recognition or voluntary note disclosure, options allowed under SFAS No. 123. Users view voluntary note disclosure as the least reliable reporting alternative.

The paper develops a theoretical model in which a nontrivial fraction of investors are ‗inattentive' (unsophisticated) and either miss important information disclosures entirely or systematically misinterpret their implications. In such a world, accounting measurement rules, earnings management activities, and discretionary disclosures have an impact on stock prices even when these features bear no relation to the underlying cash flows of the firm (Lambert, 2003, pp. 387-388).

Moreover, these features have an impact despite the existence of ‗attentive' investors who have the ability to ‗see through' them.[9] The paper derives a link between reporting and disclosure decisions and stock prices, and goes on to analyse how sophisticated managers would make reporting and disclosure decisions to exploit the inability of the market to price their firms ‗correctly', thereby increasing the stock prices of their firms (Lambert, 2003, pp. 387-388).

One of the conclusions Hirshleifer and Teoh (2003, p. 380) make is that limited attention may help explain why investors are insufficiently sceptical of firms that are positioned to conceal liabilities, such as off-balance sheet contractual provisions, for example operating leases.[10] Limited attention may also help explain, without appealing to political or contracting constraints, certain peculiarities in the structure of accounting rules. In the age of information technology, it has become cheaper to require detailed reporting of numerous transactions (for a given level of resources devoted to auditing). Actual accounting reports differ from such a standard in ways that, from a pure reporting perspective, seem either irrelevant or harmful. For example, accounting rules permit aggregation, which ‗throws away' information. A limited attention approach suggests that even from a pure reporting perspective, aggregation can make sense, because investors may have trouble processing disaggregated information. Similarly, redundancy can be helpful when different presentations ease the processing of that information for different uses.

Similar theoretical paper by Barth et al. (2003) compare disclosure with three types of recognition: aggregate recognition with disclosure, separate recognition, and aggregate recognition without disclosure. They assume that investors decide whether to acquire accounting expertise. In doing so, investors trade off the cost of expertise acquisition against informational benefits they obtain from understanding disclosures. They assume that the expertise acquisition is costly because understanding disclosures requires accounting expertise beyond that needed to understand recognised amounts.

If information is disclosed only in the notes, users of financial statements have to expend time and effort to become sufficiently expert in accounting to know (a) that there are items that are not recognised in the financial statements, (b) that there is information about those items in the notes, and (c) how to assess the note disclosures. Because gaining that expertise is costly, some users of financial statements, i.e. those whose perceived expertise acquisition costs are higher than perceived informational benefits, will not become accounting experts. Therefore, information that is merely disclosed may not be fully reflected in share prices.

When comparing the disclosure regime with the separate recognition regime, they find that recognition always increases price informativeness. This is because in this regime recognition results in the disclosed amount being freely available to all investors. However, when aggregation is a part of recognition, as it is in the aggregate recognition with or without disclosure regimes, the results are more complex. In particular, in the aggregate recognition with disclosure regime, they find that recognition of an accounting component that results in a higher (lower) quality recognised amount does not always result in greater (lower) price informativeness.

Lambert (2003, p. 399) agrees that individual investors cannot possibly process everything or even pay attention to everything that is of potential relevance to the valuation of the firm. In such a world, summary statistics can be of value, even if their role is to reduce economic search costs and is unrelated to psychology reasons. The big questions are: how important are these effects, and what factors influence their importance?

[9] Model assumes that since the attentive investors all have full information, they all calculate identical expected values. Inattentive investors are assumed to calculate the wrong expected value relative to the expected value calculated by attentive investors. Moreover, all inattentive investors calculate the same wrong value. Inattentive investors are assumed to utilise the same value for the residual variance of cash flows as do attentive investors. As a result, they trade just as aggressively based on their (incorrect) assessment of firm value as do attentive traders based on their correct assessment. In what sense are market prices inefficient in this equilibrium? They are inefficient in the sense that the price is not the same as it would be if everyone was attentive (Lambert, 2003, p. 392).

[10] Under the operating lease, the lessee does not recognize any lease asset or liability in the balance sheet. Nevertheless, in contrast, it is obliged to disclose future expected rental payments in the notes to the financial statements. For operating leases having initial or remaining non-cancellable lease terms in excess of one year, the following information shall be disclosed in the notes to financial statements: future minimum rental payments required as of the date of the latest balance sheet presented, in the aggregate and for each of the five succeeding fiscal years, and the aggregate for the periods beyond five year. The usefulness of only a lump-sum amount disclosure beyond five years is in our opinion questionable. For more on lease accounting see Novak (2011).

4. AUDITOR BEHAVIOUR RELATED TO RECOGNISED AND DISCLOSED NUMBERS

Paper by Libby et al. (2006) examines whether auditors are willing to tolerate more error in disclosed numbers than in recognised numbers, which should reduce the reliability of disclosed numbers. They report two experiments that examine audit partners' willingness to tolerate misstatements in recognised and disclosed amounts.[11]

Results from the experiments indicate that auditors require much greater correction of misstatements in recognised amounts than they do for the same amounts that are only disclosed. Debriefing data indicate that this effect is intentional. Even though recognition increases expected client resistance to correcting the misstatement, auditors view recognised misstatements as more material than disclosed misstatements and indicate a willingness to pressure the client more to correct recognised misstatements. Recognition also increases the amount of time auditors expend making a correction decision.

These results suggest that auditors believe their misstatement-reduction responsibilities vary between recognised and disclosed amounts, at least in part because they view misstatements in disclosed amounts to be less material. To the extent that financial markets and contracts rely less on disclosed numbers, setting higher materiality thresholds for disclosed numbers could be viewed as consistent with current accounting and auditing guidance. Therefore, allowing more misstatement in disclosed amounts in such circumstances may be a rational response by auditors to the lower risk of litigation or reputation loss associated with disclosed amounts (Libby et al., 2006, p. 535).

However, the lower reliability produced by auditors' greater tolerance for misstatement in disclosed amounts may reduce the overall quality of information available to users. It is unclear whether such an effect was intended by regulators, particularly in cases in which disclosure has been allowed as a political compromise. These results have potential implications for the interpretation of prior research, and for accounting standard setters and auditing regulators (Libby et al., 2006, p. 535).

From a financial-reporting research perspective, the results from Libby et al. (2006) indicate that prior findings of reliability differences between recognised and disclosed amounts may be caused, in part, by differences in the extent of misstatement reduction provided by auditors. Thus, accounting standard setters' information-location decisions may to some extent be ‗self-fulfilling prophesies' with respect to information reliability. Accounting regulators might consider whether an unintended consequence of relegating information to the notes to the financial statements is that the reliability of such information could be reduced by the interpretations and actions of auditors.

Similarly, decisions to require recognition may have a positive effect on information reliability because recognition encourages auditors to require correction of detected misstatements[12]. In addition, Bischof et al. (2011) demonstrate that required disclosures are not adequately enforced and that, in their case banks, get away with substantial non-compliance with disclosure requirements.

5. CONCLUSION

In the framework of literature on capital market effects of recognition versus disclosure we support Jifri and Citron's (2009, p. 123) conclusion that further research should investigate the extent to which market assessment of recognised versus disclosed amounts depends on the accounting item in question, its method of valuation and processing through books of account as well as the characteristics of the firm. For example, empirical results from Bratten et al. (2013) suggest that recognized and disclosed amounts are not treated

[11] One experiment reports data from 44 Big 4 audit partners, and varies whether a misstatement relates to stock-compensation expense that is recognised or disclosed. The other experiment reports data from 33 Big 4 audit partners, and varies whether a misstatement relates to lease liability that is recognised (as a capital lease) or disclosed (as an operating lease). In both experiments, they hold constant the company's economic circumstances, the sign, quantitative materiality, and certainty of the misstatement, and client opposition to correction of the misstatement (Libby et al., 2006, p. 534).

[12] It is also important to note that the effect of information location on post-audit misstatement depends on its effect on both managers and auditors. Libby et al. (2006) held constant the amount of pre-audit misstatement, and demonstrated that auditors tolerate more misstatement in disclosed amounts, which produces greater post-audit misstatement in disclosed amounts. Pre-audit misstatement may not be constant in practice. Since recognised amounts may be more important in valuation and contracting, client managers may face greater incentives to create pre-audit misstatement in recognised amounts than in disclosed amounts. Alternatively, managers may create more pre-audit misstatement in disclosed amounts in anticipation of more lax auditing. A useful direction for future research is to better understand how information location affects the extent of pre-audit misstatement.

differently by capital market participants[13] in the leases setting in which the disclosed amounts (in the notes to financial statements) are *reliable* and the disclosed information is *readily identifiable* and *easily processed*. However, in our opinion, for non-sophisticated users of financial statements the information location in any case indeed matters.

Since different stakeholders try to influence the information-location decisions (recognition versus disclosure) by the standard-setters by considerations other than those described in the conceptual frameworks, it seems that they believe that the information location in practice really matters. Our paper suggests a couple of reasons for the perceived differences between recognised and disclosed amounts. We believe that the relegation of amounts to the notes to the financial statements generally reduces informativeness of financial reports, especially for non-sophisticated users, and reduces the reliability of financial information. In our opinion, the preparers of the financial statements also take less care about disclosures relative to recognised items because the inadequate auditor pressure. Libby et al. (2006) demonstrated auditors' greater tolerance for misstatement in disclosed amounts, while Bischof et al. (2011) revealed that sometimes the preparers get away with substantial non-compliance with disclosure requirements, even in Western European countries with supposedly strong enforcement regimes. All these factors in our opinion strengthen the case for the general preference for recognition in the standard-setting context.

Therefore, it should not come as a surprise that currently the note disclosure problematic is receiving a lot of attention in the accountancy community. For example, European Financial Reporting Advisory Group (EFRAG) and the national standard-setters of France Autorité des Normes Comptables - ANC) and the UK (Financial Reporting Council FRC) in July 2012 issued a discussion paper titled *Towards a Disclosure Framework for the Notes*. It emphasises that a Disclosure Framework should contain a clear definition of the purpose of the notes, which should drive what (financial) information should be included in the notes and what belongs elsewhere. FASB launched the Disclosure Framework project back in July 2009 and in July 2012 issued Invitation to Comment – Disclosure Framework, a document very similar to the joint discussion paper of EFRAG, ANC and FRC.

In addition, the IASB formally added a short-term initiative on disclosure to its work programme in December 2012 as a part of its response to its Agenda Consultation 2011. The objective of the initiative was to explore opportunities to see how those applying IFRS can improve and simplify disclosures within the existing disclosure requirements (Deloitte, 2013).

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THE ROLE OF FINANCIAL INFORMATION IN THE EVALUATION OF STRATEGIC MATTERS IN BANKS

Snežana Knežević[1], Aleksandra Stanković[2]
Aleksandra Vukčević Zec
[1] Faculty of Organizational Sciences, snezana.knezevic@fon.bg.ac.rs
[2] Faculty of Hotel Management and Tourism, aleksandra.stankovic@kg.ac.rs

Abstract: *Given that today's banks operate in circumstances that characterize the dynamic changes in the environment, utilizing a certain strategy of an organization is much more complex work than just creating the strategy. The authors choose this topic because of the increasing importance of financial information to create competitive advantages for banks in the current business conditions globally. Significant insight into the accounting information of strategic importance can be achieved just by estimate based on published financial statements. Analytical framework that can be applied to the published financial statements of competitors should be treated as part of the assessment of competitive advantages for banks. This type of financial analysis should include the monitoring of trends in sales of banking products, profit levels, structure of the assets and sources of funding. Through the integration of information which strategically oriented management accounting provides from the environment and the bank itself, it generates information that can serve to improving the quality of strategic financial decision. In this context, it is important to have continued cooperation of management accounting with senior management, corporate and competitive strategy, as well as with other functions represented in the organizational structure of the bank.*

Keywords*: bank, financial information, competitive advantage, strategic management accounting*

1. INTRODUCTION

Financial statements can provide data about the summary of economic information. Financial analysts determine the appropriateness of management forecasts which imply the choice of accounting methods and calculation and are focused on the analysis of the cash flows and transparent disclosure in the notes to the financial statements, so that conclusions and judgments made on the basis of financial analysis adequately reflect the economic realities of actual financial performance of the bank. Analyst reports can provide information to investors about whether the financial decisions of the bank are valid or whether managers overestimate the economic performance of banks in order to protect their personal business interests and increase their bonuses.

Important role in that process has the internal control as an essential support in controlling financial flows and financial reporting service which should provide specific reports for liquidity management (see more Knežević, Djurić & Dmitrović, 2012a). Sources of risk in banks are contained in their assets and liabilities. Therefore, it is impossible to manage risks in banks without quality financial reporting. Accounting reports, meaning that information contents are prepared as a basis for decision making and their customers are the carriers of management and decision making bodies. The financial statements as carriers of accounting information on the financial position of the entity at the end of the period, the overall result of the entity for the period and cash flows of the entity are used for making economic decisions by wide range of users.

Efficient asset management is particularly important for long-term survival and development of the bank in the market in which it operates [see more about techniques for measuring the efficiency in banks (Knežević, Marković & Barjaktarović Rakočević, 2012c).

In the first part the emphasis will be placed on the link between the process of financial decision making and accounting as a source of information, in the long-term, while in the second part it will be evaluated more strategic aspects of financial performance of the bank.

2. FINANCIAL DECISION MAKING IN BANKS FROM THE STRATEGIC POINT OF VIEW AND ACCOUNTING

Since every decision can only be as good as its information base, the quality of bank management decisions also depend on the extent to which it can successfully optimize decision-making basis. Information thus becomes the strategic resource management. In addition, the information system is intended to serve primarily inclusion, storage and distribution of relevant information. In other words, information systems are expected to provide the right information available at the right place at the right time. Adequate management information system in bank basically consists of two related parts: accounting and reporting.

Ongoing challenge faced by managers, consultants and researchers is how to harmonize the functional activity and discipline with each other and at the same time to support corporate strategy. Part of the burden of adjusting strategy and management accounting, including management control and performance measurement refers not only to the dynamic nature of the strategy in different contexts, but also to the spread of different views and strategies for academics and practitioners. For optimal information funding decision is that bank management needs to build accounting that would be a leading instrument. Accounting as main source of information in banks should provide the following information:

- What is the bank's earnings in certain activities;
- What is the interest in specific transactions with customers;
- Which, how much and where the related costs for banking services arise;
- Which contribution to the result of banks certain types of businesses, groups of customers or business units have;
- Which structure of operations show profit profile and risk profile;
- Which business conditions have effects on the level of results;
- What is the relationship between profitability flow and cash flow in the bank and so on.

In defining the strategic direction of the bank, it is necessary to include the following essential elements (Djurić, Knežević & Barjaktarović Rakočević, 2011):

1. Definition of profile of the bank;
2. Analysis of the macroeconomic environment;
3. Projection of future business activities and identification of the target of operating results.

The concept of strategy implies the use of formal information management systems. Achieving the goals requires analyzing information in the process of decision making. If a strategic decision is structured and planned venture it will draw significant attention. It is necessary for management to proactively identify internal and external strategic opportunities and threats, without denying the possibility of strategic innovation. It is assumed that managers formally analyze the competitive advantage and meaningful assessment of the distribution and use of resources, as part of a development strategy. Formal information systems will provide such analysis. Strategic management accounting is a good tool for managers to make sound business decisions (see more - Knežević, Milosavljević & Dmitrović, 2010).

Strategic goals of the bank can be the following:

1. Long-term profitable business with an adequate protection of capital;
2. Growth of market share;
3. Growth credit portfolio;
4. A long term implementation of the social responsibility concept.

From management accounting strategic orientation is expected strong information support that will enable the implementation of preventive measures aimed at eliminating ineffective results in the bank. It is essential that the bank has the ability to successfully manage unplanned changes in funding sources, for which the accounting estimates are necessary, which suggests that the bank is adequately responding to market changes.

Dynamic changes in the external environment are the main reasons for the necessary changes, which require closer cooperation between strategic managers and management accountants, especially in the monitoring and analysis of the costs, as well as their design, especially in the business environment which is characterized by risk and uncertainty. In addition, it is very important and powerful information support in the area of measuring the profitability of individual banking products and changes related to key customers of the bank.

Strategically oriented management accounting is a multipurpose information resource oriented towards management and future, and focused on strategic business units. Simmonds (1981) has defined and described that strategic management accounting focused on the comparison of companies with rivals. He advocated the collection of information necessary to determine the share of the market, price competition, cost and scope. A bank that follows the market share can measure the extent to which it win or loses competitive position.

Given the fact that the strategic development of the bank is directly connected with the plans of the bank, it is important to note that strategic planning directly depend on information management accounting. In other words, there must be a high degree of coordination between planning and reporting.

Bearing in mind that the market environment has become more dynamic and competitive, in order to operate successfully banks are forced to continuously improve their activities in terms of having more accurate predictions of future operations. However, banks can no longer allow themselves to have any inconsistency between anticipated revenues and expenditures. With the growing importance of the budgeting process in the banks, the need for more detailed reporting system is on the rise.

In the strategic analysis of competitors of an observed bank, it is necessary to answer to the following questions:

1. Who are the strongest competitors?
2. Whose strategic actions largely affect the observed bank so that special attention needs to be given to their activities?
3. What are the goals of past strategy of competitors?
4. What are the objectives of the current strategy of competitors?

Benchmarking is based on the idea that own business is compared with the strongest competitors in order to be able to use the obtained knowledge in attempt to improve own business.

The market justification of certain market undertake includes identifying information about own customers and suppliers, competition and trends in the industry in which it operates. It is necessary that analyze current and anticipated future competitors.

Strategic planning is the process of defining the strategy of the bank, as well as the decision making process in order to enable the implementation of approved strategies. Crucial issue of each bank is to define the direction which the bank should follow. Based on the strategic plan operational plan is carried out, which is usually focused on a period of one year. Organizational activities are undertaken in order to design various interests, including bank, specific authority, and institutional pressures.

The strategic plan of the bank consists of two parts: qualitative and quantitative. The qualitative part of the analysis includes the analysis of macroeconomic scenario, the SWOT analysis, the bank's mission, strategic direction and action plan, which should enable the achievement of defined plans. Quantitative methods include the application of financial models into strategic financial management of the bank. The chosen strategy of the bank is to be then translated into a set of objectives (Djurić, 2010). In the context of strategic planning it is necessary to mention the concept of the Balanced Scorecard, which reflects the intention to maintain a balance between short-term and long-term objectives between financial and non-financial measures as well as between the backlog and leading indicators. Hence, the point is that the management takes the bank towards achieving strategic goals. The central queston for the bank management is “how well are we doing”?

In assessing the commercial bank performance it is essential to define the criteria from several aspects (Knežević, Barjaktarović Rakočević & Djurić, 2011):

First – financial perspective: revenue management, market share, profitability capacity, asset management;

Second – a client's perspective: to win the client before others, customer profitability, customer retention, special financial services;

Third – internal business process perspective: creating information systems, information support for management, maintaining the quality of the business;

Fourth – perspective for learning and professional development of managers: knowledge and development of managers, teamwork, policies for stimulating and rewarding.

It is important to mention the role of the banking controlling which is used for adequate information communication in the bank, so that the variance between the strategic and operational objectives and the results achieved will be as small as possible.

From strategically oriented management accountant is expected to anticipate the financial aspect of business events and create a business vision using bank management accounting information.

For an adequate cost management it's necessary to have evaluation of alternative strategies or plans that display all costs. In order to design appropriate information model of strategic management accounting for banks involve various experts: management accountants, experts in planning and analysis, financial and other bank managers, experts in information technology and more. Monitoring the activities of competitors, especially in the domain of actual performance management team of the bank may make positioning of the bank in the future in relation to competitors.

Significant support for improving business performance of strategic business units is expected from the marketing manager. Marketing surveys estimate future outcomes and results in order to facilitate decision making on different options of cost estimates which are in line with corporate objectives. Managers involved in managerial accounting are trying to identify the cost structure of competition and based on that determine the prices of banking products taking into account to offset the inflationary effects of the variables observed. Adequate assessment of price competition begins with an analysis of costs and continuing analysis of the impact of possible changes in prices of other competitors in the financial market, which requires accounting analysis. Afterwards, a scope of market influence is considered. Of course, competitive advantage is not possible to express as a single variable, but rather as a group of indicators that show competitive picture that will serve the strategic managers to monitor whether the bank is moving in the right direction. The possession of information about the costs of competitors allows the bank to recognize when a competitor is trying to change the relative competitive position, for example to management prices.

In many areas related to the environment there is increased interest in transparent calculations and analyzes that often include in addition to economic and financial calculations. At the level of the business system so-called accounting for environment is identified as a segment of financial accounting as well as a segment of the strategic orientation of management accounting. Social responsibility is particularly important for the bank's reputation in terms of increase of financing of environmentally sustainable projects, funding projects that increase energy efficiency and more. For this purpose predictive information is necessary, both financial and non-financial.

3. STRATEGIC MANAGEMENT OF THE FINANCIAL PERFORMANCE OF A BANK

Banks are entities in the financial markets and the overall financial system of the economy and thus banks have become directly or indirectly trigger and control mechanism of the financial system, without which the process of reproduction was virtually impossible. As specific financial institutions banks are at the central point of the financial system, because of the function they perform and the relative magnitude of financial resources that is on their accounts.

In banking, as well as in many other industries, business reputation is particularly important and this significantly affects the overall financial performance. For each bank, regardless of how the bank is present in a particular market, the biggest threat is the loss of business reputation. Safety of a bank is a basic prerequisite for the acquisition and preservation of its long-term reputation in the public. One of the parameters of safety of a bank is its assets, or assets that it has in the performance of its business activities and the realization of the target performance – profitability, solvency and liquidity.

For the implementation of the strategy that leads to the achievement of financial performance targets it is necessary to solve the three generic questions:

1. Which dimensions of performance does banking institutions tend to develop?
2. How will the goals be properly set?
3. What rewards and / or penalties should be linked to the achievement of performance standards?

Strategic management of bank performance can be represented as the activity of management bank solvency in order to define the optimal relationship at two levels: maximizing yield and meeting the demands of regulatory institutions that are focused on preserving the stability of the banking system, while minimizing risk to the business.

Directing the bank's business activities towards the realization of the strategic performance of the bank is a very complex process, because of contradictions of objectives of shareholders and depositors of the bank. Information horizon of management accounting in the function of the realization extends to the following strategic objectives of the bank:

- Identify opportunities and weaknesses of competitors in terms of cost components (cost banking products), the relative share of the market and the level and structure of fees and commissions;
- The trend of expanding or narrowing the scope of the bank's domestic and international markets in the field of financial indicators;
- Comparison of actual strategic goals and objectives with planned, types and causes of deviations and taking corrective measures to eliminate the negative deviations.

Performance measures play a critical role in the organization, in order to check how efficiently the banking institution achieves its goals, as well as identifying necessary improvements. For the analysis of financial performance (see Table 1), it is necessary to perform financial projections of the balance sheet and the income statement with expected trends and calculate of the following indicators of business (Djurić, 2010).

- Net profit / Average assets - Net profit / Average shareholders's equity - Operating and other expenses/Interest income - Operating and other expenses/Net non-interest income - Operating and other expenses/Assets - Net interest income/Interest-earning assets - Net income from interest and fees/Interest-earning assets - Interest income/Interest-earning assets
- (Interesed earned – Interesed expensed)/Total assets - Interest-earning assets/Total assets - Average interest rate on interest-earning assets - Average interest rate on interest-earning liabilities
- Total capital/Total assets - Primary capital/Total assets - Deposits and other accounts up to three months/Shareholder's equity
- The growth rate of total assets - The growth rate of interest-earning assets - Loan growth - The rate of growth of deposits - The rate of growth of income - The rate of profit growth
- Total loans/Deposits - Liquid assets/Total deposits - Liquid assets/Total assets - Liquid assets/Current liabilities - Liquid assets/Deposits up to three months - Liquid assets/Risky off-balance sheet liabilities and total deposits - Gross advances/Deposits and other accounts
- Cash generated from operating activities/Net profit
- (Current deposits – Previous deposits)/Previous deposits - (Current loans – Previous loans)/Previous loans - Debts/Net worth - Non-performing loans/NPLs and discount - Regulatory capital/Risk-weighted assets - Sales/Number of bank employees - Profit before tax/Number of bank employees - Net interest income/Average assets earned from interest - Provisions for loan losses/Average loan portfolio - Operating and other expenses/Total expenses - Operating and other expenses/Net income from interest and fees - Operating and other expenses/Net other financial income - Overheads/Total operating income - General expenses and provisions for losses/Average total assets - Operating expenses/Average assets - Regulatory capital/Risk-weighted assets - Provision for loan losses/Average loan portfolio - Provision for loan losses/Average total assets - Reserve for loan losses/Gross loan portfolio

Table 1. Financial indicators for banks

From a strategic point of view market share analysis of banks in individual segments is significant. Besides, the analysis of the strategic business plan is important to the bank in terms of the level of investments in information systems, and from a spread of branch expansion, in order to be possible to make a realistic assessment of future growth and strengthen the market position of the bank.

From strategic management accounting series of indicators related to the competitive position are expected, with particular emphasis on market leaders, close and slow competitors. The reduction in market share shows a loss of competitive position of the bank, with implications for future reduction in profits, while increasing market share points to improve the competitive position of the prospects for increased profitability in the future.

Changes such as new cost allocation methodology, new approaches to estimating the value of money and greater participation in the budgeting process initiated intensive communication between managers and accountants. The focus of banks today is productive budget oriented product profits and reduced costs. Different information systems are used for a variety of organizational levels. For example, the five-year budget plan and five-year profit forecast sales trends are used to support systems executives *(Executive Information System*s), while on the other hand, the administrative-level control system for the preparation of the annual budget and capital investment analysis for sales management use management information system, while at the same organizational level in the analysis of profitability, costs and sales by region using decision support systems (*Decision Support Systems*). Accounting information system is part of a management information system (*Management Information Systems*) and has the characteristics of bank information systems, which produce a variety of information for different purposes (see more – (Stanković, Mitrić & Knežević, 2012); (Stanković, Knežević & Mitrić, 2013).

Financial information is also an important source of information for reporting on risk management - liquidity risk and for identify the strength and weakness of banks and banking partners for the future and for benchmarking own performance.

Effective reports supported by adequate banking software of the operating risk for the bank provide managers with detailed information for strategic decision making. Such reports are useful for the board of directors, executive committee, operational risk managers and executive risk managers and they have early-warning character. Strategic management accountants need to be oriented towards learning new skils (Coad, 1996).

Information from published balance sheet can be used for calculation of Herfindahl–Hirschman index. According to the regulatory provisions of the Federal Reserve System (Fed) the degree of concentration determined by the Herfindahl–Hirschman Index is calculated as the sum of squared share of individual bank in the overall category which is observed (assets, deposits, loans) with the value of the 1,000 points at the low concentration level, the value of 1001-1800 in moderate concentration, a value above 1,800 shows the existence of strong competition. By calculating this indicator it is possible to compare the degree of concentration of the banking sector in Serbia with the average of, for example, Central and Eastern Europe, or Southeast Europe.

Information from the financial statements may serve as sources for the application of various quantitative methods such in research as:

- I-distance method – measuring the efficiency of banks (see – (Knežević, Jeremić, Žarkić Joksimović & Bulajić, 2012b));
- Correlation and regression analysis (see – (Knežević, Marković & Živković, 2013));
- Data and Envelopment Analysis – DEA (see – (Knežević, Marković & Barjaktarović Rakočević, 2012)).
- DEA Windows Analysis Approach for Mesuring the Efficiency of Serbian Banks Based on Panel Data (Savić, Radosavljević & Ilievski, 2012).

4. CONCLUSION

Significant insight into the accounting information of strategic importance can be achieved based on evaluation of published financial statements. Analytical framework that can be applied to the published financial statements of competitors should be treated as part of the assessment of competitive advantage. This type of financial analysis should include monitoring sales trends, profit levels, as well as assets and liabilities of the bank. Accounting of competitors and strategic prices are the most widespread application of strategically dimensioned management accounting. Strategic management accounting is an evolutionary, systematic process that is constantly evolving and adapting and changing according to the changes in the bank and environment, as a function satisfying changing information needs of the business and financial decision-making strategic orientation.

An important piece of information for the assessment of competitors' costs can be obtained in part by the follow-up of technological innovations, which have important information about investing in research and development. Long-term orientation of banks towards investments implies that the bank as a profit and economically oriented institution continually seeks new opportunities to improve the competitive position and to increase awareness of the cost of competitors. Trends of competitors should be followed through systematic data collection about their development. Trend analysis of competitors involves measuring the current achievements of a bank to be able to predict future actions and achievements of competitors.

In certain countries accounting has very high application in performance evaluation of competitors based on published financial statements.

It is first necessary to create conditions for the proper integration of the system of management accounting in the information system of the bank, and then assign a strategic dimension to it. Banking institutions should measure output that are exact, and all other output that have an impact on the bank. It is important to use tools of management accounting for strategic decision making in banks.

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MUNICIPAL BONDS AS A MODEL OF PROJECT FINANCING OF INFRASTRUCTURE PROJECTS

Ljiljana Zipovski[1], Slađana Benković[2]
[1]Banca Intesa a.d, Beograd, Serbia
[2]Faculty of organizational sciences, University of Belgrade

Abstract: *The development of the capital market in Serbia came to a sudden stop directly affected by the outbreak of the global financial crisis, i.e. since the last quarter of 2008. The bank-centric ambient and insufficient development of diversified investment instruments in Serbia, due to systemic risks which Serbia is facing, requires further consideration of new models of business investments, particularly in the field financing long-term infrastructure projects. This paper highlights prospects of financing infrastructure projects using municipal bonds, taking into consideration advantages and disadvantages of this type of financing and pointing on potential dangers and opportunities of this model of project financing. The improvement of cooperation between local governments and competent state institutions is a prerequisite for the realization of options and potentials for the development of municipal bonds as securities to finance infrastructure projects.*

Key words: *municipal bonds, project financing, infrastructure projects, municipal bond risks, Serbian financial market*

1. INTRODUCTION

In the past fifteen years, many states worldwide welcomed the project financing as the driving force for rendering various services related to the improvement of infrastructure. The UK government, a pioneer in this field, and a country whose experience in financing projects of great social-economic importance, from private funds in early „30th of the last century, made a significant contribution in accepting, adjusting and implementing the concept of project financing of infrastructure projects at all levels in the countries worldwide.

It is commonly stated that project financing is the form of financing which includes the community as well. Thus the comprehensive analysis should cover economic costs, revenues and benefits on one side, and risk to be accepted by all participants involved in the realization of the project, on the other side, in order to finalize it within the foreseen timeframe. Only under such circumstances one may say that the project realization is certain.

Project financing has numerous advantages in relation to direct i.e. corporate project financing. However, these benefits are often visible only after careful analyzing and smart financial engineering. The organization of project realization, its legal structure and financial plan should reflect the nature of the project, since different elements such as risk, expected profitability, eligibility of participants, requests and amounts of collaterals related to securing the borrowed financial assets with financial institutions, then the ability to achieved tax savings, financial situation of the project sponsor, expectations of the Government of the domicile country, expectations of local self-governments, and many other factors may influence the delivery of the project.

It is often stated that project financing may be defined as "founding of an independent project company, financed by the capital of one or more sponsors and without the right to compensation based on granted loans for the purpose of investing capital in assets (East Asia Analytical Unit, 1998). The project financing is most often used for new, independent, complex infrastructure projects with a high-level of risk and huge discrepancy of information available. Likewise the stakes of the sponsor"s capital are decreasing, and the burden of financing is provided in the form of tranches of syndicated loans.

Parallelly, the issue of municipal bonds is often stated as one of the source of financing the development of infrastructure of local governments. Therefore the purpose of this paper is to point out on potentials of municipal bonds as the source of financing of infrastructure projects through the concept of project finance. Furthermore, this paper is also to underline constraints of the issue of municipal bonds, which is the exact reason why this concept has never took root sufficiently as a concept of obtaining additional funds in Serbia.

The paper is divided in several chapters. The *Chapter I* is dedicated to the role of banks in project financing of infrastructure projects, the *Chapter II* elaborates on municipal bonds as a model of project financing of

infrastructure projects, while the *Chapter III* provides a brief overview of options which municipal bonds offer as an alternative model of financing. The next chapter presents experiences which other countries in the region had in using municipal bonds as the source of project financing, followed by the chapter giving the review of revenues. The last one is reserved for concluding remarks.

2. ROLE OF BANKS IN PROJECT FINANCING OF INFRASTRUCTURE PROJECTS

During the phase of initial overview and structuring of project financing, leading banks i.e. banks-loan-providers, became the project insiders in working with project sponsors. At the same time they became accountable for loan financing by means of overall syndicated loans by attracting other banks which became members in loan syndication (Gatti et al, 2008). As the respective loans do not include the indemnity clause, i.e. they relate to financing of Project Company with or without limited support from the sponsor, the loan syndication itself (deriving from syndication of the capital of financial institutions which fund the project) is in many way responsible for operational risk. By assigning the project a higher l*everage*, the operational risk must be reduced to an acceptable level. This is exactly where one of the key advantages of project financing lies– it is possible to allocate a specific risk of the project (risk of project realization and operational risk, risk of generating revenue and risk of adequate pricing, and risk of political influence and expropriation) to those participants who deal best with them (Brealey et al, 1996).

As for credit lines intended for project financing of infrastructure projects there is no significant correlation between the use and project closure timeframe. The issue related to liquidity of this model of project financing is mainly the consequence of inevitable reliance on cash flow of the project, expected higher *leverage ratio*, and volatile level of risk immanent in certain stages of the project.

There are many reasons behind “pros and cons“ for both loans and bonds when considering project financing as the model for financing infrastructure. Thus Yascombe (2010) points to the fact that credit risk associated with investment in project, in particular the one referring to a long-term projection of inflation, cannot be curbed with bank arrangements; however, when it comes to the issue of bonds, on specific markets they can be derived based on inflation index (inflation-indexed bonds). Additionally, money collected through the issue of bonds may be withdrawn in bullet, whilst with the loan arrangement it may not be the case.

At the same time, loan arrangements may be rather flexible when it comes to repayment of borrowed funds, and in case of refunding of assets collected by means of bond issue, it is provided by repurchase i.e. c*all* option. Furthermore, banks are very prudent is controlling all changes which refer to the project agreement and project company whilst creditors bond buyers control only large-scale cases which have a considerable impact on coverage of cash flow of the project or security.

It is true to say that due to the fact that obtaining financial resources from financial institutions such as banks is often dependent on situation on the capital market and level of financial resources needed for financing infrastructure projects. Thus, during 2013 the banking sector in the whole Europe and even in Serbia shows a dramatic decline in lending activity of economy. Namely, in the first eleven months of 2013, lending decreased in net amount of EUR 0.9 million which is 9% compared to December 2012 (NBS, 2013). In the circumstances of moderate lending activity, evidently reduced risk appetite, and high share of NPL (Non-performing loans) of commercial banks in Serbia, the question is to how to finance infrastructure long-term projects. This at same time implies the need for new, i.e. alternative models of project financing.

Table 1. Indebtedness of local governments of the R Serbia by creditors as of June 30, 2011

in EUR 000

Number	Name of creditor	Total amount	Repaid amount	Outstanding amount
1	EIB	265,000	510	264,490
2	EBRD	208,087	40,822	167,265
3	Banca Intesa a.d, Beograd	106,024	25,442	80,582
4	AIK banka a.d, Niš	54,630	5,220	49,410
5	Unicredit Bank Srbija a.d, Beograd	25,343	6,070	19,273
6	Komercijalna banka a.d, Beograd	13,501	1,027	12,474
7	Hipo Alpe Adria Bank a.d, Beograd	12,334	2,499	9,835
8	KBC banka	6,508	89	6,419
9	Republic of Serbia Development Fund	4,221	0	4,221
10	Others	3,563	885	2,678
11	Erste bank a.d, Novi Sad	2,176	97	2,079
12	Raiffeisen bank	3,205	1,937	1,268
13	Bank Austria credit ansalant AG Vienna	1,355	507	848
14	Vojvođanska banka a.d, Novi Sad	2,071	1,493	579
15	JP Vodoprivreda Ćuprija	956	569	387
16	NLB Continental banka, Novi Sad	580	325	255
17	CrediAgricolbanka	547	382	165
18	Agrobanka AD Beograd, filijala Zaječar	152	118	34
19	VB leasing	26	14	12
	TOTAL:	**710,282**	**88,006**	**622,276**

Financing local self-governments has a small stake in placements of majority of commercial banks. Consequently financing local self-governments is out of focus, thereby undermining the necessary understanding of financing local governments in relation to banks (Peteron George, Fellow Senior). However (Kovac, 2011)a more flexible cash flow of bonds is detrimental in favor of bonds relative to bank loans, provided bonds are used for financing the entire sums of capital payments only upon maturity. Thus, if needed or intended, the repayment of the respective sum will be financed using a financial instrument from a new issue of bonds and that way liabilities based on payment may be „renewed".

Although commercial banks in Serbia after long cooperation with local governments" structure gained knowledge on needs for financing development and capital projects, in particular throughout the crisis period, the empirical research showed that long-term projects are still beyond their focus. The above stated may be proved from the Table 1,which shows high share of international financial institutions, much as 70% financing local governments in Serbia compared to commercial banks, state fund, and other creditors. The main reason for this is steep prices i.e. high interest rates, and limited potential for investment in large projects.

3. MUNICIPAL BONDS AS A MODEL OF PROJECT FINANCING OF INFRASTRUCTURE PROJECTS

Municipal bonds belong to a special category of bonds issued by public bodies in order to finance projects related to goals of local government development. It is important to note this type of financing as bonds are structured the same as project bonds. Municipal bonds refer to bonds issued by public entities such as states, governments, provinces, local governments to other entities, for financing costs of business or specific projects. This type of bonds can be sold by public offering to small investors or specific institutional investors.

According to some managers this type of funding predates not only project financing through bond issue but the very project finance in general. As a matter of fact, the US municipal bond market has existed and developed over 100 years and in the meantime became the largest market. The market expanded due to the fact that interests are tax-free (which decreased funds the market accounts) and it is usually issued for a relatively low value, which makes them particularly suitable for small-scale projects. According to (Daher,

1997)municipal bonds are an important segment in the US bond market and are a primary source of financing local infrastructure. The development of emerging markets will be a great challenge as in those markets borrowing by local governments is largely restricted to bank loans.

At the same time it is to be emphasized that other countries began to use this type of instrument as well, for instance Eastern European countries (Poland, Check Republic, Bulgaria, Hungary, Estonia and other) and countries in South America (Brazil, Argentina, Columbia, and other) most often issuing them on European market.

Instruments of this type may be grouped in the following categories (Gatty, 2008):

- General Obligation bonds (GOs),
- Project Revenue bonds and
- Dedicated revenue bonds.

General obligation bonds (GOs) are securities where debt service is guaranteed with full trust and credibility of the issuer, which depends on its power to define the tax environment and related liabilities, from which the borrowed funds will be repaid eventually.

Project Revenue bonds are bonds with debt serving as a loan, guaranteed i.e. secured by cash flow generated by the project itself. The main difference between these bonds and project revenue bonds is that the issuer is a public entity instead of SPV. Bonds are often named after the sector for which funds are collected; so there are bonds related to the airport revenue, highway revenue, hospital revenue, sports revenue, water and sewer revenue, bonds related industry revenue etc. Funds collected from the issue are transferred by a public entity to a private company for the purchase of the plant or facility, and the generated revenue will be later used to repay the borrowed funds through the issue of bonds.

Finally, *dedicated revenue bonds* present a special category of bonds where a debt is guaranteed with a specific cash flow generated through public entity revenue. In depth, this cash flow is not tied to any specific project but revenues generated from taxation, such as for instance production and selling of alcoholic beverages, cigarettes, fuel, gas and the like where a public entity is the party with the right to dispose of collected funds or to transfer them to higher level of administration.

The categorization of municipal bonds according to timeline and from the aspect of purpose (Fabozzi, 2008) is divided to:

Short-term municipal bonds, typically sold to receive funds based on tax or revenue from the sale of bonds issue.

Long-term municipal bonds for financing:

a) Long-term capital projects, such as: schools, bridges, roads and airports, and
b) Long-term budget deficit arising from ongoing operation.

(Peteron George, Fellow Senior) emphasize two models of lending to local governments which needs to be addressed: (i) bank loans, used for financing investments in Western Europe to a largest extent during XX century and still being the primary source of financing and (ii) municipal bonds, as the ground of indebtedness of North America. According to them, emerging countries should build and strengthen credit markets by selecting features of both models and encourage competition in a fair way between lending by banks and bond issue.

4. MUNICIPAL BONDS AS AN ALTERNATIVE MODEL OF INVESTMENT

In order that municipal bonds reach potential foreign investors easily, one of the preconditions is determining / assigning rating by international credit rating agencies, such as: Moody"s, Standard&Poor"s and Fitch.

At the end of 2010, the credit agency Standard&Poors improved the credit rating to the RS from BB- to BB, as it was assessed that the RS will be able to meet all criteria in future in order to receive the candidate statues for accession to the European Union.

Following the improved credit rating of the RS, local self-governments Kraljevo, Novi Sad and Valjevo were the first in Serbia to receive the credit rating from the international credit rating agency Moody"s, which was

the impetus for the issuance of municipal bonds. In fact, issued bonds by virtue cannot have a better credit rating that the domicile country of local governments.

This is supported by the review of credit ratings of municipalities in Serbia assigned by Moody"s in 2010 as shown in Table 2 ((Moodys, 2010).

Table 2. Credit ratings of municipalities in Serbia assigned by Moody"s in 2010

Name of the local self-government	Credit rating level
Novi Sad	Ba3
Kraljevo	B1
Valjevo	B1

The assigned credit ratings are the result and appraisal of budget performance of local governments and direct limit of debt exposure, as well as limited flexibility from the aspect of profit and loss and high infrastructure needs. In fact, managing the expenditure side of the budget is a „bottle neck" for a vast majority of local governments in Serbia, which additionally resulted from the global financial crisis to the detriment of income side, i.e. shortening of own sources of financing, and aggravating adequate management of finances of each town in particular.

Novi Sad was assessed as a town well managing the budget, which was argued by stable operating margin especially in 2009, when costs and expenditures were considerably cut in order to amortize the drop in business revenue by 8%, as the result of upcoming recession. It was suggested that the town recorded no direct debts and had sound cash reserves which provided for covering of budget deficit in 2009.

According to (Moodys, 2010) the credit rating B1 assigned to Kraljevo is reflecting a flexible strategy of implementation of investing in infrastructure, which ensured balanced budget performances and keeping the debt level three years behind. In the process of assessment regarding the assigned credit rating to Valjevo (Moodys, 2010) it is stated, inter alia, that the credit rating demonstrates adequate budget and debt policy management of the town in the last four years, with a balanced debt level and adequate management of debt servicing.

Eventually, in case of analyzing arguments made by the credit rating agency Moody"s, one might conclude that the issue related to credit risk and liquidity risk management was a key and decisive factor in assigning credit ratings to above stated local governments.

From an empirical standpoint risks were recognized from the perspective of institutional investors acting as underwriters and/or agent, to which municipal bonds issued in Serbia are exposed to at pricing, in the period of reviewing the issue of first Serbian municipal bonds. Municipal bonds expose investors to common risks related to investments: credit risk, interest rate risk, call risk, liquidity risk, and unique risks – risk structure and tax risk as stated by (Fabozzi, 2008) in specific relating to most developed US market. Basic risks recognized in Serbia, in the process of preparing for the issue of municipal bonds in the municipality Pančevo in its initial phase included interest risk, credit risk, liquidity risk, currency risk and regulatory risk, all together influencing the country risk, as calculated according to the equation below:

$$\sum (\text{interest risk} + \text{credit risk} (\sum \text{liquidity risk} + \text{currency risk} + \text{regulatory risk}) * \rho_0) \quad (1)$$

P_0 – 100% weight value

- Interest risk directly correlates with pricing from the aspect of the commercial bank acting as underwriter / agent relative to alternative source of lending to local governments in the form of loan approval. A pricing aspect is defined mostly in the recognized risk, in particular in the part related to establishing risk appetite the value of which is reflected in the invariable portion of total price i.e. margin. A high percent of invariable price indicates that this type of placement is more risky compared to lending to local governments.
- The credit risk has been also recognized particularly with local governments which have no assigned credit rating. However, the existence of the credit rating is not a sufficient factor which local institutional investors will follow and take as key i.e. decisive factor; this is supported by the fact that Kraljevo and Valjevo have not issued municipal bonds.
- The Liquidity risk is considered as *primus inter pares* among risks. Actually, the majority number of local governments is facing budget deficit i.e. balance deficit. Under global financial crisis, local

governments are directly hit by drop in revenues from current operations, which resulted in taking more active role in cost cutting, in order to maintain current liquidity. The liquidity related issue means that the underwriter / agent may project cash flow in their own balances when paying out coupons, with quarterly, semi-annual or annual dynamics. The liquidity risk is related to the non-existence of secondary market of municipal bonds on organized market, and thus disabling institutional clients, i.e. pension funds, investment funds, insurance companies and individuals to approach it.

Finally, a stable macroeconomic environment with sound movement of local currency inflation movement within bounds of targets set by the central bank, and strong fiscal policy and existence of secondary market where municipal bonds were traded, are vital for the development of this segment of securities. Limitations recognized for the development of this instrument are insufficient knowledge, uncompleted institutional framework, complex issuing procedure and the risk of failure in case of issuing through public issue.

Issuing municipal bonds in Serbia may probably be intended exclusively to known investors i.e. commercial banks, and partially to institutional investors. Listing on the organized stock exchange market would provide access to a wider range of investors, which is a direction to follow in future. The issue related to currency risk and pricing of municipal bonds, in case of closed circuit of investors, is one of the essential topics. Bearing in mind this concerns deals with long-term maturities over five that is ten years, the pricing of placements for this type of securities requires a significant pricing approach, in particular if the potential investor is a business bank. In fact, the question of lending vs. municipal bonds in the trend of reducing credit rating of Serbia will go definitely in favor of lending due to much favorable price.

Basic advantages of municipal bonds have been recognized in: (i) option to issue bonds in tranches, (ii) importance of transparency and option for citizens" to follow the development of an infrastructure project, (iii) long-term maturity of lending, (iv) and flexibility of financing to suit needs of citizens.

Nevertheless, there are significant potentials in: (i) harmonization of institutional framework under the competence of state institutions of the National Bank of Serbia, RS Ministry of Finance, Securities Commission, Belgrade stock exchange, to provide for development of alternative platform and decreased of set limits, (ii) broader investment base of institutional clients, insurance companies, pension and investment funds, and citizens on primary market, by way of which the dispersion itself would significantly influence price reduction of securities and (iii) monitoring the price of own debt and call option to additionally encourage secondary market.

Lastly, as potential threats may be observed lack of skilled personnel in local governments, lack of transparency immanent to Serbia in transition, lack of confidence of citizens and other institutional groups as well.

5. EXPERIENCE OF OTHER COUNTRIES IN THE REGION WITH MUNICIPAL BONDS AS A SOURCE OF PROJECT FINANCING

Experiences from the Region related to issuing municipal bonds are important especially in Croatia, Serb Republic, Romania, Hungary and Bulgaria. However, these experiences largely refer to the period of high rates of lending activity of listed countries, and the fact that this concerns in which this instrument developed before the outbreak of global financial crisis. Experiences from regional countries i.e. their local government units are different: with different currency marks, different dynamics of repayment, different purposes, and existence of secondary trade channels.

Municipal bonds of the city of Rijeka, Croatia were issued before the start of global crisis in three tranches, between 2006-2008 totaling EUR 24.5m and a 10 year-maturity. The secondary trade is enabled through the national Zagreb Stock Exchange with the purpose of issued municipal bonds to develop sports and culturally oriented projects.

Municipal bonds of the Serb Republic have been actively supported by local business banks, insurance companies, and citizens through secondary trade on Banjaluka Stock Exchange. The citizens, in fact, recognized the option of alternative instrument investing with higher yield than offered by traditional savings in commercial banks.

Table 3. Issued municipal bonds in surrounding countries between 2006 and 2011 by Bloomberg

Issuer	Nominal amount of issued municipality bonds	yield	Issue date	Maturity date	Secondary market
Croatia					
Rijeka	EUR 24.574.513,0	4,13%	28.06.2006.	18.07.2016.	Zagreb Stock Exchange
Republic of Srpska					
Srbac second emission	KM 1.000.000,0	3,00%			Banjaluka Stock Exchange
Jahorina, Pale	KM 15.000.000,0	6,00%			Banjaluka Stock Exchange
Novi grad	KM 2.000.000,0	3,13%			Banjaluka Stock Exchange
Gradiška second emission	KM 7.000.000,0	3,00%			Banjaluka Stock Exchange
Romania					
Foscani	RON 28.000.000,0	ROBOR3M + 0,9%			Bucharest Stock Exchange
Hungary					
Budapest	EUR 10.000.000,0	EURIBOR6M + 4,1%	27.01.2010.	27.01.2025.	Not listed
Bacsalamas Varos Onkoroman	CHF 3.713.000,0	CHFLIBOR3M + 1,35%	11.03.2008.	11.03.2023.	Not listed
Budapest	CHF 9.230.000,0	CHFLIBOR6M + 0,4%	04.10.2008.	30.11.2026.	Not listed
Budapest	CHF 12.382.000,0	CHFLIBOR6M + 2,2%	31.03.2006.	31.03.2031.	Not listed
Budapest	CHF 3.311.260,0	CHFLIBOR6M + 2,2%	31.01.2007.	31.01.2022.	Not listed
Csorvas Varos	CHF 943.000.000,0	CHFLIBOR3M + 1,0%	19.03.2008.	19.03.2023.	Not listed
Gyon Gyios Varos	EUR 2.952.000,0	EURIBOR6M + 4,75%	22.02.2010.	15.12.2024.	Not listed
Herend Varos	EUR 551.000,0	EURIBOR6M + 5,0%	24.02.2011.	31.03.2026.	Not listed
Bulgaria					
Vama	EUR 6.000.000,0	EURIBOR6M + 4,45%	25.06.2010.	30.06.2020.	

According to Romania"s experience, the driving force of municipal bonds listed on the local Stock exchange, as shown in the table above, was the increasing autonomy of local governments and a 17-year maturity. This market considerably developed on respectable stock exchange"s listing municipal bonds of the city of Bucharest on the London Stock Exchange in the amount of EUR 500m.

The main feature of issued municipal bonds of Hungary and Bulgaria is lack of listing on stock exchanges.

6. DISCUSSION

This paper explored municipal bonds in Serbia as an alternative model of project financing of infrastructure projects. We came to the conclusion that the state i.e. the Republic of Serbia partially enabled access to potential domestic investors through regulations. The proof is evidenced by changes (Public debt law, 2011)on one side, by which citizens as clients are enabled to invest in municipal bonds issued in Serbia. While on the other side as determined by the central bank"s bylaws (Decision on more detailed conditions and maximum amounts of voluntary pension fund assets investment and manner of investing such assets abroad, 2011) the defined limits curb investments of pension funds, since the level of cca. EUR 5m for the value of issue is a rather high threshold for circumstance on Serbian municipal bond market, as this instrument is in its infancy.

We have also concluded that the option to access organized secondary market is only general, as the (Law on capital market, 2011) stipulates that the issuer of municipal bonds is not bound to list them on the market, thus denying potential access to citizens as clients, which leads to another conclusion that the only potential investors are actually business banks from the banking sector of Serbia.

Municipal bonds could potentially enhance and improve infrastructure projects and development of local governments. As we are expecting the downward trend in rates on FX and dinar savings of citizens to continue, the placements of which are burdened with a tax treatment of 15%, municipal bonds for citizens, tax-exempted, would be an alternative instrument of investment. The basic risk in Serbia pertaining to municipal bonds is identified in political risk as frequent changes of government indicates instability in the horizon of “received mandates”, and that potential investors perceive the state to be a “bad boss” in managing financing at a local level.

In circumstances when the credit rating agency is lowering the credit rating to the Republic of Serbian, as it was the case on January 17, 2014, when the Fitch agency announced the downgrade of credit rating from BB- to B+, the rated local governments cannot hope for potential investors with acceptable price, meaning more competitive price, than if the local government decides to take up a commercial loan from business banks. Until the mid-2014, another four local governments are expected to make a public invitation at the territory of Serbia.

In line with the previously stated, prospects for development of municipal bonds market are limited, on one hand due to the slowdown of credit function of commercial banks is Serbia as the result of discouraging legal frameworks. Further directions of the research should lead towards monitoring and analyzing the alignment of regulatory framework of competent state institutions, towards lifting existing restrictions which curb development of these securities, and monitoring the trend which implies reduction of bank-centric economy in Serbia, on one hand, and development of alternative instruments of capital market, on the other.

At the same time the cooperation of local governments and state institutions need to be enhanced in order to realize options and potentials in implementing development of a new alternative instrument for financing infrastructure projects.

7. CONCLUSION

A new source of financing in the form of municipal bonds in Serbia has not seen its light conceptually as this type of instrument was first time issued in the period of global financial crisis. Apart from this, another aggravating factor was a dramatic fall in banks‟ lending activities because of which the new instrument was not considered as an alternative to loans alongside business banks. A case in a point is the local self-government Užice. Namely, the offered price of the loan was far more favorable than of formerly granted loans, and also better relative to the price offered for a municipal bond.

The limiting factor for alternative financing of capital and development projects through municipal bonds requires both institutional and legal frameworks, in order to finance much-needed finance projects. Listing on organized markets and ability to access provided not only to business banks and institutional clients, but citizens as well, in one of essential conditions. The role of the underwriter in cooperation with a local government could considerably „animate“ citizens in local governments if this instrument is offered through local branches, provided the issuer offers the guarantee for issued securities. Main weaknesses of municipal bonds versus loans may be noticed unambiguously in costs and complex procedures. Furthermore, listing municipal bonds on local stock exchanges entails services related to preparation of project documentation, costs of listing, marketing costs, and substantial formalities than it is the case with loans.

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HEDGE FUND MANAGEMENT COMPANIES AND DATABANK TRANSPARENCY

Selena Totić, Aleksandar Đoković, Nemanja Milenković

Faculty of Organizational Sciences, Belgrade selena@fon.bg.ac.rs

Abstract: *Research in the field of transparency of hedge fund industry has been extensive in the last decade. However, most of the studies focus on transparency of hedge funds' performance measures. Our approach is more general, since we are studying the overall transparency of big management companies, in order to find patterns in their behavior. We use concepts of transparency scores and answer densities to see if management companies have uniform policy in disclosing information and thus attracting investors through databanks. The results proved that transparency was mostly individual portfolio manager's decision and that it was difficult to relate it to specific investment strategy that management company applied. Moreover, through answer densities we found that low transparency regarding specific questions, was common for all strategies and all management companies.*

Keywords: *hedge funds, transparency, strategies, information disclosure, answer densities*

1. INTRODUCTION

When it comes to hedge fund industry, whose size is rapidly growing[1] in the last decade, the accuracy and availability of information, as well as precise measurement and reporting are of an extreme importance. Given that there is no sole definition of hedge funds, as a starting point we will adopt the following one: "Hedge funds are privately organized, loosely regulated and professionally managed pools of capital not widely available to the public" (Lhabitant, 2004). The key points in this definition are private nature of hedge funds and low availability to public. Since hedge funds are only open to a limited range of professional or wealthy investors who meet the criteria set by regulators, they are exempted from many regulatory requirements that govern the ordinary investment funds. Among these the most important ones are investment freedom and reporting requirements. Mainly, hedge fund managers may use every type of financial instruments, from cash, equities, fixed income to the most sophisticated derivative products. They are even allowed to invest in illiquid assets. Moreover, as opposed to mutual funds and long only funds, they may combine "long" and "short" positions and use unrestricted amounts of debt financing (leverage). In order to focus on investments and performance, rather than on cash management, hedge funds usually impose some restrictions, such as lock-up periods, gate provisions and minimum notice time to restrict redemptions in periods of market stress. Their primary goal is to achieve target returns irrespective of current market conditions (therefore they are called absolute returns). For this, hedge fund managers are rewarded through incentive scheme that combines management and performance fees. Management fee is usually 2% of the assets under management, whereas performance fee is typically 20% of the annual hedge fund profits. Since high fees are very attractive, in order to ensure that managers will behave in best interest of their clients, most hedge funds request their manager to invest huge portion of their personal wealth alongside other investors. Moreover, there are often limiting restrictions on payment of performance fee, such as high watermark[2] and/or hurdle rate[3].

From the regulation prospective, hedge funds are free of any type of disclosure of its holdings and positions. However, in the wake of latest financial crisis, increasing calls to reform the financial regulatory system of hedge funds were heard from government authorities and investors worldwide. New regulations should tackle the area of registering, reporting, disclosures and prudential requirements for either hedge funds or hedge fund managers and oversight of new risk regulator. While registering is already well established in markets such as UK and USA, financial industry largely opposes applying bank-like capital rules or mutual fund-like investment restrictions. In favor of the latter goes that hedge funds attract capital of high net individuals and institutions through private placements and these investors are likely to be educated enough to assess the risk of their investing decisions, thus not in a need of regulatory supervision. Nevertheless,

[1] Current estimate of hedge fund industry assets under management (AuM) ranged is $1.75 trillion managed by over 10000 funds (http://www.eurekahedge.com/news/Eurekahedge_Jul_2012_Global_Hedge_Funds_Key_Trends.asp)

[2] High watermark is the highest net asset value (NAV) of a fund up to date. If the NAV of a fund declines throughout the year no performance fee will be payable to investment manager.

[3] Hurdle rate is the level of return that the fund must achieve in order to charge performance fee.

hedge fund managers recognize the need for improved transparency and increased self regulation. In line with this in 2009., The Asset Managers' Committee ("AMC") issued a comprehensive Report that sets a new standard of best practices to answer the call of the President's Working Group on Financial Markets ("PWG") to reduce systemic risk and foster investor protection. This report should serve as self-regulation guidelines for hedge funds and also investors' guidelines for due diligence of hedge funds. The first key area stressed in this Report is disclosure and the greater transparency of information provided to investors. The regulatory response comes in 2011., in the form of Directive on Alternative Investment Fund Managers (AIFMs) published in the Official Journal of the European Union which "aims at establishing common requirements governing the authorization and supervision of AIFMs in order to provide a coherent approach to the related risks and their impact on investors and markets in the Union". The Directive presents the huge step from fairly regulated hedge fund markets in EU towards bank-like regulation framework. Among `the set of new rules regarding authorization, leverage management, supervision, of a special interest for this research are transparency requirements and marketing of units or shares of EU alternative investment funds (AIFs). According to the Directive, AIFM are obliged to disclose to investors the following: description of the investment strategy and objectives of the AIF; description of the procedures by which the AIF may change its investment strategy or investment policy; the identity of the AIFM, the AIF's depositary, auditor and any other service providers and a description of their duties and the investors' rights; a description of the AIF's valuation procedure and of the pricing methodology for valuing assets, including the methods used in valuing hard-to-value assets; a description of the AIF's liquidity risk management, including the redemption rights both in normal and in exceptional circumstances, and the existing redemption arrangements with investors; a description of all fees, charges and expenses and of the maximum amounts thereof which are directly or indirectly borne by investors; the latest net asset value of the AIF or its latest market price of the unit or share; the identity of the prime broker and a description of any material arrangements of the AIF with its prime brokers and the way the conflicts of interest, etc.

By taking a closer look to regulation and the current state of hedge fund transparency, one can easily draw the parallel between new disclosure requirements and "data vendors" requirements, such as TASS/Tremont, Hedge Fund Research and Eurekahedge. Moreover, the decision of a hedge fund to market its shares or units is similar to decision of disseminating information through the aforementioned databanks. The analysis of databank transparency can serve as a good marker of how far away are hedge funds of prescribed disclosure policies. In addition, it illustrates the willingness of hedge fund managers to reveal certain information to potential investors. The focus of this study is to actually interpret the lack of specific information that managers omit when delivering data to databank vendors. In this aspect, we try to explain what investors can infer from the missing data that they obtain from database vendor. We concentrate on management companies managing more than thirty hedge funds while implementing different strategies.

Given that hedge funds are businesses, like any other type of business in order to attract clients they need to market themselves. However, since advertising in hedge fund world is not allowed, the hedge fund managers can promote themselves either through the word of mouth, investors meetings, conferences, or through specialized database vendors who sell this information to qualified investors. Form the visibility point of view, releasing frequent information about their business through database vendors is the best and easiest choice for hedge fund managers. Still, the question is how accurate and transparent is the information provided in this way. Many studies have attempted to quantify the level of hedge funds transparency and database transparency, but most of them mainly focus on level of performance transparency.
Anson (2002) gave an interesting comment on transparency – "Hedge fund transparency is like pornography – it is hard to describe, but you know it when you see it." For Anson there are three main reasons for which investors seek transparency. The first reason is for risk monitoring purposes, in the sense that investors want to be sure that hedge fund managers are operating within stated risk levels. The second one is the risk aggregation, so that investors can be aware of the total risk of their investment portfolio with respect to industries, economic sectors and markets. The third reason for which investors seek transparency is to see if the managers are really following the strategy they claim to apply. With respect to latter, Gibson and Gyger (2006) were investigating the style consistency in the hedge fund industry and showed that the investment style of some managers depart through time from their reported styles. Mackey and Melton (2010) analyzed if hedge funds followed their stated strategy as well. Goltz and Schroder (2010) conducted a comprehensive study of hedge fund managers and investors on current hedge fund reporting practices. They found out that from investors' point of view information disclosure was inadequate, especially disclosure regarding information about fund's liquidity and operational risk exposure. Moreover, the survey proved that 92% of all industry practitioners believe that the quality of reporting is strongly related to fund's overall quality. Liang (2003) investigated the discrepancy, and thus accuracy of hedge fund returns across different databases. He found out that audited funds had a much lower return discrepancy than non-audited funds. Bollen and Pool (2009) investigated the presence of misreporting in the hedge fund industry and demonstrated that approximately 10% of returns in the used databases were distorted.

Since hedge fund reporting to database vendors is voluntary it may cause different types of database biases. Self selection bias is strongly related to manager's decision in terms of reporting to databases or not. For example if the hedge fund is well performing and wants to attract new capital, it will incline to report to database. On the other hand, if hedge fund is poorly reporting, he doesn't have an incentive to report to database. However, in many cases well established hedge funds do not want to report because they already achieved their business goals, or already have investors who want to enter the fund, or do not need additional capital. From the previous, the conclusion might be that databases tend to have average performing funds because of self- reporting bias. Aiken and al. (2010) conducted a study in which they made a comparison of the non-reporting hedge funds and reporting hedge fund performances and evidenced that on average self-reported hedge fund returns were positively biased. Grecu and al. (2007) investigated why funds stop reporting their performance data. Their findings prove that hedge fund returns significantly worsen towards the end of the reporting lives, which suggests that funds cease to report because of their poor performance. In the study we will examine the database transparency from the perspective of completeness of information provided by hedge fund managers. The focus will be on missing data in database and the reasons for their non-disclosure. This will be related to different strategic management concepts that hedge fund managers apply. The study relies on research of Lumbers (2012) in which the set up for measuring database transparency, as a percentage of non-answers with respect to total number of answers, is introduced.

2. DATA AND METHODOLOGY

This research is based on the data provided by Eurekahedge Europe and Eurekahedge North American hedge fund databases, as available in August 2011. At this point in time, European database of hedge funds contained 4783 funds, whereas North American database contained 5102. Each hedge fund was supposed to give information regarding basic details, fund details, management details, unique identifiers, fees and redemption schedule, industry focus, countries, service providers and profile and strategy description. The maximum number of answers for each fund is 92, but often differs across funds. For the purpose of this research we excluded data provided by Eurekahedge and also questions on which hedge fund managers cannot answer with certainty, thus ended up with 48 column variables in our research.
Since the main goal of our research is to analyze the behavior and consistency of management companies with respect to their willingness to communicate their information to investors, we took the sample of companies that manage more than 30 hedge funds. The basic information about management companies and hedge funds that they manage is given in the Table 1.

Table 1. Basic information about management companies

Management company	Number of funds under management	Number of live funds	Number of dead funds	Number of strategies applied
RAB Capital plc	108	34	74	7
Gartmore Investment Management plc	100	54	46	4
Henderson Global Investors	62	42	20	6
Sinopia Asset Management	62	58	4	2
Amundi Luxembourg SA	55	40	15	5
Marshall Wace LLP	51	51		1
Polar Capital LLP	48	35	13	3
Superfund Asset Management	46	46		1
Martin Currie Investment Management Ltd	39	39		1
York Capital Management LLP	35	35		2
DB Advisors	33	9	24	4
Total	639	443	196	

As we can see from the table, 10 management companies manage 639 hedge funds of which 443 are live, while employing from 1 to 7 investment strategies. Eurekahedge accounts for 15 different investment strategies, but the management companies that we included in the research apply 10 different investment strategies: arbitrage, CTA/Managed futures, distressed debt, event driven, fixed income, long/short equities, macro, multi-strategy, relative value and others.

The majority of academic research in the field of hedge fund industry is based on modeling the data provided by the large databanks. The common problem for all the research is how to overcome the missing data. The

usual solutions are to exclude the hedge funds that do not provide complete data, or to interpolate the missing data. In this study we will actually focus on the missing data, and the notion of transparency will be related to missing data or "non-answers". For most of the subscribers to hedge funds databanks the information provided by the databank is a first step in their due diligence process of hedge fund as a potential investment. They want to get as much as possible information in order to understand the investment strategy, returns and riskiness of a hedge fund. For a hedge fund manager, the databank serves as a shop window through which they market their products. They want to reveal information in order to attract their clients, but on the other hand they want to keep amount of secrecy that will not jeopardize their competitive advantage in the market. The more information the hedge fund managers provide to databank, in this case Eurekahedge, we consider them to be more transparent. In order to gauge the transparency of hedge fund managers we use the methodology proposed by Lumbers (2012) which is based on counting blank answers or "non-answers" and assessing their transparency score as a proportion of non-answers of total number of questions After assessing transparency scores for each management company and each strategy, it is important to see what are the main drivers of low transparency. This was measured through answer density which is defined as a proportion of non-answers for each question with respect to total number of hedge funds.

3. RESULTS

In order to see if management companies have consistent approach in their disclosure within each strategy they employ, we analyzed the transparency in more detail for each company and each strategy. While looking at different management companies, especially columns Manager profile, we observed that most of the companies have more than one portfolio manager for each applied strategy. For this reason we analyzed the transparency of each portfolio manager within the strategy and the management company and reported his/her average transparency (number of non answers). The results are presented in Table 2.

Table 2. Breakdown of Non-answers across companies, strategies and managers

Management company	Strategy	Number of managers per strategy	Number of funds managed	Average number of funds managed	Average number of Non answers per manager	Max number of Non answers	Min number of Non answers	Range of Non answers
RAB Capital plc	Arbitrage	1	2	2	0	0	0	0
	Event driven	1	4	4	1	1	1	0
	Fixed income	3	15	5	2.2	5	2	3
	Long/Short	7	54	7.71	3.77	0	7	7
	Macro	1	4	4	5	5	5	0
	Multi-strategy	1	6	6	5.67	7	4	3
	Others	3	23	7.67	3.71	5	2	3
Gartmore Investment Management plc	Arbitrage	1	3	3	11.33	12	11	1
	CTA/Managed futures	1	3	3	11	11	11	0
	Long/Short	19	91	4.79	5.35	14	2	12
	Relative value	1	3	3	6	6	6	0
Henderson Global Investors	Arbitrage	1	6	6	4	4	4	0
	CTA/Managed futures	1	1	1	7	7	7	0
	Fixed income	1	6	6	2.67	3	2	1
	Long/Short	9	28	3	5.32	8	2	6
	Macro	1	6	6	6	6	6	0
	Multi-strategy	4	15	4	5.33	9	3	6
Sinopia Asset Management	Fixed income	2	62	31	5.27	25	4	21
	Long/Short	1*	2	2	25.5	27	24	3

Amundi Luxembourg SA	Arbitrage	1*	31	31	9.81	13	5	8
	Fixed income	1*	8	8	9.37	10	7	3
	Long/Short	2*	12	6	7.41	10	5	5
	Macro	1	3	3	7	9	5	4
	Multi-strategy	1*	1	1	10	10	10	0
Marshall Wace LLP	Long/Short	1	51	51	5.39	6	0	6
Polar Capital LLP	Fixed income	1	12	12	5	5	5	0
	Long/Short	5	33	6.60	6.82	11	2	9
	Macro	1	3	3	2	2	2	0
Superfund Asset Management	CTA/Managed futures	1	44	44	8.5	11	7	4
	Long/Short	1	2**	2	7	7	7	0
Martin Currie Investment Management Ltd	Long/Short	11	39	3.55	5.28	7	4	3
York Capital Management LLP	Distressed debt	1*	1	1	22	22	22	0
	Event driven	3*	34	11.33	12.24	27	6	21
DB Advisors	CTA/Managed futures	2	2	1	7	7	7	0
	Distressed debt	1	1	1	7	7	7	0
	Long/Short	6	29	4.83	6.1	11	5	6
	Multi-strategy	1*	1	1	26	26	26	0

* Some management companies do not gives answers to Managers profile question for all of their funds, therefore we treat them as if they are having just one manager (which is the whole company)

**These two funds classified themselves as CTA/Managed futures, but in their Strategy description field they explained in details that they are Long/Short equity funds

From Table 2. we can see that the average number of funds per one manager across different management companies varies a lot (from minimum 1 fund to 51 funds). Management companies with the highest average number of funds per manager actually didn't want to reveal the details about their portfolio managers and simply left the company name in Manager profile column. Regarding the data, one can also notice that when management companies don't give the data about portfolio manager, they tend to be less transparent (for example DB Advisors Multi strategy has 26 non answers, York Capital Event driven strategy has 27 non answers, which is less than 50% transparency score). Moreover, if we look at the column - average number of non answers per manager we can see that this number significantly varies across strategies in the same management company. For example if we look at RAB Capital, the average number of non answers per manager following arbitrage strategy is 0 (100% transparency score), whereas average number of non answers per manager following multi strategy is 5.67 (88.67% transparency score). This might lead us to the conclusion that actually strategy dictates the degree of transparency of management company. However, from the table we can also see that transparency for the same strategy vary a lot among management companies. Therefore from these two observations we can conclude that transparency mostly depends on the portfolio managers and his willingness to disclose information. This is easily seen from the last column-range of non-answers within the strategy. It is interesting to see that for some strategies such as fixed income this range is not big (maximum range 3), whereas for some strategies such as Long/Short equity is much bigger (maximum range is 12). This clearly indicates that within the same management company and the same strategy, portfolio managers have different views on transparency.

In order to test this assumption we look for single portfolio managers that are running more than one hedge fund within management companies. The important result we have found is that even portfolio managers that are running more than one fund do not show consistency regarding the information disclosure. For example, portfolio manager at Gartmore Investment Management plc. running 9 long/short equity hedge funds, tend to have different level of information disclosure for different funds that he manages. Also, it is interesting to see that management companies such as Henderson Global Investors (committed to Hedge Fund Standard Board's standards in 2010.) and Amundi Luxemburg SA (according to the information available on internet

the most transparent one), which are publicly building an image of very transparent ones, still suffer from the same inconsistencies in their managers' reporting. Therefore we can conclude that the databank transparency of management companies is practically in hands of their portfolio managers. If we look at management company as any company and databank as its way of advertising itself, than portfolio managers are given the freedom to be marketing managers. The question is how much freedom should they have in this sense, bearing in mind that they all work for the same management company? This is still to be defined by the management companies and perhaps the strategies they implement.

In order to see which are the questions to which managers are most reluctant to give answers we estimated answer densities, for each of these. Therefore, we evaluated the answer density across each column in Eurekahedge databank. For better understanding, questions are categorized according to answer density in the following manner:

- High transparency with answer density range from 90% to 100%
- Medium transparency with answer density range from 50% to 89%
- Low transparency with answer density below 50%

High answer density is characteristic for basic characteristics of hedge funds (fund name, flagship, closed, limited, dead, dead reason), most of the fund details, fee and redemption schedule and profile and strategy description, since these are the common details that each fund can provide. Medium answer density is common for part of fund details such as fund size, firm's total asset, minimum investment currency, minimum investment size, equalization/share classes, investment in private placements, managed accounts offered, UCITS and service providers. Low answer density is characteristic for fund capacity, annualized target return and annualized target volatility. In Table 3. only densities below 50% across strategies are given.

Table 3. Answer density across strategies

	Arbitrage	CTA/MF	Distress debt	Event driven	Fixed Income	L/S Equity	Macro	Multy Strategy	Relative Value	Others	Total
Fund Capacity (US$m)	4.76%	0.00%	0.00%	0.00%	5.94%	9.73%	43.75%	0.00%	0.00%	21.74%	8.29%
Firm's Total Asset (US$m)	23.81%	94.23%	100.00%	100.00%	92.08%	74.93%	81.25%	86.96%	100.00%	100.00%	79.03%
Minimum Investment Currency	45.24%	84.62%	100.00%	94.74%	76.24%	96.17%	100.00%	100.00%	100.00%	65.22%	87.79%
Minimum Investment Size	45.24%	84.62%	100.00%	94.74%	76.24%	96.17%	100.00%	100.00%	100.00%	65.22%	87.79%
Equalisation / Share class	47.62%	11.54%	100.00%	57.89%	94.06%	83.78%	62.50%	86.96%	100.00%	100.00%	75.90%
Annualized Target Return	78.57%	0.00%	0.00%	10.53%	80.20%	25.07%	31.25%	26.09%	0.00%	0.00%	33.49%
Annualized Target Volatility	40.48%	0.00%	0.00%	10.53%	80.20%	17.70%	12.50%	17.39%	0.00%	0.00%	26.29%
Principal Prime Broker/ Broker	26.19%	11.54%	50.00%	73.68%	28.71%	79.65%	43.75%	91.30%	100.00%	100.00%	62.44%
Legal Advisor (offshore)	50.00%	36.54%	0.00%	68.42%	83.17%	59.59%	62.50%	26.09%	100.00%	100.00%	61.66%
Legal Advisor (onshore)	26.19%	11.54%	50.00%	10.53%	90.10%	80.83%	93.75%	65.22%	100.00%	100.00%	69.33%
Manager Profile	100.00 %	100.00%	50.00%	73.68%	98.02%	99.41%	100.00%	95.65%	100.00%	100.00%	97.50%
Strategy	100.00 %	100.00%	50.00%	73.68%	98.02%	99.41%	100.00%	95.65%	100.00%	100.00%	97.50%

Fund capacity is the question with the lowest answer density (8.29%) and thus can be regarded as the most controversial. According to Eurekahedge, fund capacity is "an estimate of the size of the fund relative to the turnover of the market it invests in, with the aim of assessing when assets under management become too

large to effectively execute funds investment strategy". In other words, fund capacity is the cap on funds assets under management beyond which fund strategy will not give the desired returns. It is imposed by the portfolio manager and not all the funds have it, therefore to some extent the lack of answer to this question may be the result of the latter. Still, fund capacity is an important feature for both the investors and the competitors. For investors it is the signal for how far away is the fund from being closed to any further investment. For competitors, it is the benchmark for how much the fund is potentially ready to invest in a certain strategy. Given that for some strategies, managers seek to exploit the specific inefficiencies in the market, the greater the investment capital introduced into the market, the lower the potential gain. Therefore, the fund capacity for competitors serves also as a fund's opinion of the overall capacity of the certain strategy. Capacity is correlated with how narrowly or broadly particular strategy is defined. The broader the strategy definition, the greater the capacity. In this sense, macro strategies tend to have the greatest capacity, since they are neither constrained with specific markets nor with specific assets. On the other hand, event driven strategies, which depend on the size and number of special events; and arbitrage strategies, which depend on specific discrepancies in prices, tend to have lower capacity effect. Regarding transparency, this can be interpreted as funds implementing strategies with greater capacity should be more transparent, since there is enough room for everybody in this "game". Our results support this hypothesis, since macro funds have the greatest transparency, whereas event driven, CTA/Managed futures and arbitrage funds have the lowest transparency.

Assuming that the databank is the hedge funds' display window through which they market their products, it is very interesting to see that annualized target return and annualized target volatility have very low answer density. If we look at the hedge fund as a product, the main reasons for which investors are willing to buy this product are target return and/or target volatility. In this sense, the low density is like selling a yacht, but not telling the potential owner how fast can it goes and how safe it behaves on turbulent sea. Knowing that the foundation ground of most portfolio theories relies on the relationship of risk and return, i.e. on how much risk investor is willing to take for the given return, the question is why hedge fund managers are reluctant to give this information? One possible rational explanation is that hedge fund managers are afraid of not fulfilling the target annualized return and therefore would be looked upon unfavorably by their investors. This is specially the case for strategies that are depending on specific market cycles such as event driven strategies, or for strategies that are connected to very volatile markets such as CTA/Managed futures. On the other hand, for fixed income strategies, which have very deep and developed markets, is easier to forecast returns and volatility.

Results from Table 3. also show that total answer density for annualized target volatility is lower than total answer density for annualized target return. For some strategies these densities are the same, but for some strategies they are lower. The potential explanation might be that some managers are willing to take greater risk (volatility) in order to achieve target returns, but they do not want their investors to be aware of that, since that might influence their investment decision. Moreover, as already mentioned for some strategies markets are very volatile (commodity markets) an assessing volatility is a difficult task. Finally, for some strategies such as distressed debt and event driven strategies, it is not easy to calculate target returns and volatility and therefore these data are not provided.

4. CONCLUSION

The aim of the paper is to examine how management companies within hedge fund industry use information transparency in attracting their clients. The data provided was analyzed with respect to transparency score and answer density measures. Both of these measures are based on the proportion of non answers, where non answer is observed each time the manager didn't provide an exact answer to the given question (left the blank answer or n/a or Not available). Given that transparency scores are defined as a proportion of non-answers of total number of questions, they were used to analyze the transparencies of different management companies. The results proved that transparency of management companies was not uniform and that it did not depend on particular strategy that company implements. Moreover, scores showed that transparency mostly depended on single portfolio manager's decision regarding each hedge fund he/she manages. In addition, we found that portfolio managers tend to have different transparency scores for similar hedge funds they managed, thus showing significant inconsistency in transparency. On the other hand, answer density defined as a proportion of non-answers for each question with respect to total number of hedge funds, gave us some useful insights about the issues that all hedge fund managers face regarding transparency. The low answer density scores for fund capacity, annualized target return and annualized target volatility were common for each management company and each hedge fund. However, there were slight differences in these answer density scores among strategies. These differences were explained with the specific characteristics of each investment style. Nonetheless, low answer density for questions such as target return and target volatility was quite surprising, since these are starting points in investor's decision making processes regarding investing into hedge funds.

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CURRENCY DERIVATIVES USE IN EMERGING MARKETS

Vesna Bogojevic Arsic,

Faculty of Organizational Sciences, University of Belgrade, Serbia

Abstract: *Emerging markets have enabled foreign investors to gain the highest rates of return compared to returns they could have achieved by investing in developed markets. Although some data suggest that those rates started to decline, those markets still represent the most attractive market for investments. The high rates on investments have been followed by high investment risk, which was mainly caused by political instability and poor macroeconomic policies. This has influenced the local currencies volatility and has forced foreign investors to start using currency derivatives in order to hedge this risk. The aim of the paper is to present a review of currency derivatives and to point out to appropriate hedging strategies using currency derivatives that can be applicable in emerging markets. Besides, the paper provides a brief analysis of currency risk hedging practice in some of emerging market economies and its perspective.*

Keywords: *Currency derivatives; currency risk; emerging markets; investment; hedging.*

1. INTRODUCTION

Emerging markets (EMs) have grown rapidly during last more than two decades because of the potential they have been given to potential investors in almost all economic sectors. According to World Bank report (2014) equity market capitalization among emerging market economies has increased from approximately US$250 billion in 1990 to over US$12 trillion in 2012 with an annual growth of approximately 14%. This impressive increase was followed by annual growth rate of gross domestic product (GDP) of 4.9% at the end of 2012 in emerging market economies while in developed countries GDP has grown by only 1.5%.

During the specified period, international interest in emerging market local currency investments has grown sharply except for a period 2008-2009 when capital inflows in these markets have been significantly reduced. However, in 2010 according to Institute of International Finance (2013) capital inflows started to recover, so in 2012 they exceeded the size in pre-crisis period were roughly US$350 billion. This has happened despite the much higher rates of inflations in emerging market economies compared to developed countries. World Bank announced (2014) that an average inflation rate in EMs measured by consumer price index were almost three times higher than in developed markets. This can be explained by the efforts of monetary and fiscal authorities made to attract the investors, especially through capital flow barrier reduction and high rates of return on investments. In this regard, the rates of return on investments in EMs have been considerably higher than those of developed markets. For example, between 1999 and 2006, the S&P 500 returned 3.3% annually compared to 18.5%, as reported by Morgan Stanley Capital International Index (MSCI). According to AGF Investments (2014), in 2008 this return became very negative (-41.8%), but soon it recovered, so in 2013 its value was 23.4%. Between 2009 and 2013 the gap between S&P 500 and MSCI was very volatile, but the latest data suggest the narrow gap could be expected.

The aforementioned higher growth rates of return were accompanied by a higher investment risk. The sources of this risk were economic (e.g. high inflation rates, current account deficit, fiscal imprudence etc.) and political (political instability, corruption etc.). Some authors have argued that emerging market economies were exposed to risk even if they eliminate all the potential risks because of their inability to borrow abroad in their home currencies (Eichengreen, Hausman and Panizza (2003)). According to them this would lead to a much higher percentage of emerging markets‟ debt being denominated in foreign currencies than in local currencies and could become a trigger for capital outflow. However, Burger, Warnock and Warnock (2012) showed that Ems seem to have overcome this problem. The authors provided data of fast grow of local currency debt markets. Besides this, it is worth mentioning that sometimes investing risk is out of the control of country‟s financial authorities. In other words, occasional developed market investors‟ misinterpretation of the emerging markets‟ behavior could lead to dramatically reduction in capital inflows. Moreover, for Ems it could be valuable to take into consideration the following risks: credit risk, exchange rate risk, interest rate risk, maturity risk and speculative risk. Likewise, the influence of developed market‟s fiscal policies should be taken into account because of its strong influence on the emerging markets‟ currencies value. That is why some authors Calvo (2005) and McFadden (2004) have proposed to deal with these risks through policies promoted in conjunction with developed economies, such as greater supervision of financial intermediaries, compliance with international accounting standards and clear lending standards. But, even if the suggested were implemented, it could not solve the problem regarding daily, weekly or monthly fluctuations in currencies that underlie the value of emerging market prices of securities. So, it seems that one possible solution can be currency risk management.

Currency risk, also known as exchange rate risk or foreign exchange rate risk represents a possibility of loss contingent on a future change in foreign exchange rate. According to Cusatis and Thomas (2005), this risk can be defined as the risk that a company"s financial performance will be affected by exchange rate fluctuations. By hedging the risk investors in Ems can enhance their returns and/or reduce the losses. In addition, investors can obtain emerging market currency exposure though investing in local currency emerging market bonds, or through forward contracts and options. Gilmore and Hayashi (2011) claim that the risk-return profile of long investments in emerging market currencies have been historically quite attractive. Importantly, the return of emerging market currencies mostly comes from their high "carry," as they typically have higher yields than developed market currencies. Recently, however, interest rate differentials have converged across the world, making it somewhat unlikely that the historical performance of emerging market currencies will be repeated over the next decade. Because of different risk aversions in different emerging market countries followed by their fragile financial systems, hedging currency risk becomes necessity.

2. CURRENCY DERIVATIVES

Because foreign investors are involved or might be involved in operating in emerging markets, they are or they might be exposed to exchange rate risk. This risk can be used both, to capitalize or to hedge against expected exchange rate movements.
In general, a currency derivative is a term contract between two parties, a buyer and a seller, whose price is partially derived from the value of the underlying currency that it represents. Currency derivatives increase the liquidity of investments in emerging markets which usually suffer from illiquidity. Those instruments enable its user (investor) to perform (exercise) the contractual obligation at the predefined price. In this way, currency derivatives can be used not only to hedging the risk in emerging markets, but also as a tool for price discovering as well as a mechanism for dealing with counterparty risk.
As Henderson (2006) suggests, the characteristics of emerging markets influenced their specific currency management. First, liquidity risk caused by emerging market currencies less liquidity than currencies of developed markets. Second, convertibility risk because a majority of emerging market currencies are still not convertible on the capital account, and only a few are still not fully convertible on the current account. Third, several emerging market currencies still have varying degrees of exchange rate controls, which also distort exchange rate pricing and economic activity. Fourth, emerging markets have structurally high levels of inflation compared to developed markets which are usually followed by higher interest rates and resulted in high forward premiums. Fifth, capital inflows can depress market interest rates. Sixth, forward rate bias is lower in emerging markets than in developed markets, which means that emerging market currencies tend to appreciate on a real basis and then collapse to adjust for the trade balance deterioration caused by that real exchange rate appreciation. Seventh, implied emerging market volatility below developed market volatility is a buy signal. Finally, implied emerging market volatility is a very poor predictor of future exchange rates.

Currency risk can be hedged with following currency derivatives:
- Currency forwards,
- Currency futures,
- Currency options and,
- Currency swaps.

Currency forwards are contracts between two parties to buy and sell a specified amount of a currency at a specified exchange rate (forward rate) on a specified date in the future. The most common currency forwards are for 30, 60, 90, 180, and 360 days, although they are available for longer periods (up to five years). Currency forwards can be deliverable and non-deliverable.

Currency futures are standardized contracts that are specifying a standard quantity of a given currency that is to be exchanged for another currency at a specified exchange rate on a specific settlement date. By entering the currency future buyer of a contract is entitled and also obliged to pay a specified exchange rate for a foreign currency on a future date, while seller is obliged to sell a foreign currency at the same specified exchange rate on the same date in the future. These contracts are traded on organized exchanges and they are available for several widely traded currencies, but they are also available on some cross rates

Currency options represent the standardized agreements between two parties which grants one party (the option buyer) the right, but not the obligation to buy or to sell specified quantity of a specified currency at a specified exchange rate (exercise price) within a specified time period or at a specified date (expiration date). With regard to right they give to a buyer, currency options can be call (give a buyer a right to buy currency) or put options (give a buyer a right to sell currency). Currency options can be exchange traded (options on the

physical (underlying) currency obtained via brokers from an exchange) and over-the-counter options (obtained directly from banks). Exchange traded options have standardized time periods and strike prices and only a certain number of currencies are traded. As opposed to this, over-the-counter currency options are flexible instruments that enable the buyer to choose the currencies, time period, strike price and the contract size, in order to match the particular exposure requirements at the time.

Currency swaps are over-the-counter currency derivatives. They represent the agreements between two parties to exchange the principal and interest in one currency for another currency at a predefined exchange rate (i.e. swap rate) on several future dates. They are available for short-term and long-term maturities (up to ten years).

Besides those so-called vanilla currency derivatives, in practice and especially in emerging markets emerged a range of currency derivative variations and combinations, such as currency coupon swap, currency swap/fixed rate currency swap, forward swap, interest rate swap, quanto swap, swaption, exotic options etc. Currency coupon swap combines the interest rate swap and the fixed rate swap in one currency for a floating rate interest in another currency. Currency swap/fixed rate currency swap involves the purchase of a currency for spot settlement and, at the same time, the sale of the same currency for forward settlement. Forward swap represents a swap agreement that begins at a specified future date. Interest rate swap is an agreement between two parties to exchange interest payments on currency principal (notional). Quanto swap is a complex swap in which one party agrees to pay to another party the notional and interest based on the foreign currency while the notional amount is in domestic currency. Swaption represents a combination of option and swap, so it gives a buyer the right, but not the obligation, to invoke a swap at agreed-upon terms at a specified date in the future. Finally, investors in emerging markets can use a numerous different exotic currency options. These options are more complex and sophisticated than the other instruments because they incorporate special features that extend the fundamental contracts. For example barrier options are options which payoff depends on both the value of the underlying currency and the values at various intervals across the life of the agreement.

3. HEDGING WITH CURRENCY DERIVATIVES

Currency risk in emerging markets can be hedged by using all the currency derivatives. However, the use of those instruments varies among emerging market countries both in currency derivative types and variations as well as in volume, depending mainly on a financial market development and efficiency and government decrees. In this regard, hedging with currency derivatives can be classified as

(1) Hedging with currency forwards,
(2) Hedging with currency futures,
(3) Hedging with currency options, and
(4) Hedging with currency swaps.

Hedging with currency forwards provides an investor the opportunity to lock in the exchange rate at which they can buy or sell a particular currency on specified date in future. These contracts are not standardized, i.e. counter parties negotiate all contract terms. In this way contract gets the flexibility. Given that these instruments can be arranged not only for short-term, but for long-term periods also, they are frequently used in emerging markets that are relatively illiquid compared to developed markets. Long-term currency forwards can be used for hedging currency risk when investors know that they will be exposed to currency risk during the long period in the future because of their investment horizon duration.
Investors in emerging markets frequently use relatively new type of currency forwards called non-deliverable forward contract**.** Like a regular currency forward, this contract represents an agreement regarding a position in a specified amount of a specified currency, a specified exchange rate, and a specified future settlement date. However, non-deliverable forward does not result in an actual delivery of currencies at the future date. Instead, the agreement specifies that a payment is made by one party to the other party based on the exchange rate at the future date. Besides this, currency forwards can be used in at least one more form, i.e. it is possible to hedge currency risk with so-called convertible forwards. These forwards represent a combination of a vanilla calls and vanilla forwards. In other words, an investor buys a vanilla call and, at the same time, sells a down-and-in put. It converts to a plain vanilla forward during the exercise period, positioning the investor to profit from a contrarian move in the spot rate.

Hedging with currency futures enables the foreign currency owner or the owner of a security denominated in foreing currency to minimize the exchange rate exposure by establishing a fixed exchange rate that is to be applied on a specified date in future. Besides, these contracts provide a potential foreign investor a fixed rate at which he or she can buy a particular currency or foreign security.

Investors can use currency futures for currency risk control of their portfolios. In other words, investors can change the sensitivity of their international portfolios‟ value to exchange rate movements in foreign exchange market. In this regard, investors will buy currency futures if they expect increase in their home currency price. This can enable them to reduce the losses in portfolio component denominated in foreing currency. On the other hand, if investors expect a decrease in their home currency, they will sell currency futures and receive gains on portfolio denominated in foreing currency.

Currency options permit investors (hedgers) to eliminate unfavorable exchange rate fluctuations while still benefiting from favorable exchange rate fluctuations. Currency option users are banks, supranational and sovereigns (issuers of debt in foreign currencies), multinational companies, investors in foreign currency securities etc. They commonly use currency options as an investment or funding tool, as well to cover foreign exchange rate exposure or to lock in profit. Hedging with currency options can be used for hedging current or forecasted (future) open currency positions and/or positions in foreign securities denominated in foreing currency. In this regard, investors can hedge by buying currency call option if they have to create a long position in foreign securities and hedge themselves from price increase. Otherwise, investors would use put option to protect themselves from potential loss if foreing exchange rate depreciates. Hedging with currency options is more expensive than hedging with other currency derivatives because it requires the payment of an option premium when the hedge is established.
Exchange-traded and over-the-counter options are suitable for hedging purposes. Because of emerging markets low efficiency and development, hedging with over-the-counter options is more common. Within this options type there a large number of different options tailored to investors‟ special needs. In this regard, it would be useful to consider at least two hedging strategies: common hedging strategies with currency options and hedging strategies with exotic options (exotic is referred to their special characteristics regarding price, exercise etc.).
Common currency option hedging strategies are (Bogojevic Arsic (2009)): long call, long put, bull spread, bear spread, calendar spread, and long straddle, long strangle, call ratio backspread, and put ratio backspread.
Long call currency option is used when a user is very bullish (positive) on the markets, while a long put currency option can be used when a trader is very bearish (negative) on the market. Bull spread currency option is used when a user thinks the market will go up somewhat or at least is a bit more likely to rise than fall. This is a good position to have when user wants to be in the market but is unsure of the bullish expectations. On the other hand, bear spread currency option may be adequate when a user thinks the market will fall somewhat or at least is a bit more likely to fall than rise. This is a good position to be taken if a user wants to be in the market but is unsure of the bearish expectations. Calendar spread involves a simultaneous purchase and sale of call currency options that differ only in their time to maturity. These options have the advantage of allowing for modest exchange rate appreciation depending on the exercise price, which can easily occur with an emerging market currency. Long straddle currency option is frequently used when market is quiet and when there is an expectation that the market will start to move but there is uncertainty as to the direction. As opposed to this, long strangle currency option could be a better hedging tool than long straddle if market is stagnant and continues to stagnate in the future. Hedging with call ratio backspread option is desirable when the market experienced a large downside move which was followed by stagnation. Otherwise, put ratio backspread currency option is normally entered into when the last major move in the market was upside direction followed by stagnation.

Among different exotic options that can be used, in emerging market the most commonly used ones (Bouzoubaa and Adel (2010)) are: barrier currency options, average rate currency options, compound currency options, variable notional currency options, multifactor currency options and structured currency options.
Barrier options are essentially a European style options with fixed maturity, fixed call and put currencies and fixed strike price but with an additional “trigger” level. There are a number of different types of barrier options but their common feature is that they are either activated or terminated if a predetermined spot foreign exchange rate, or trigger level, is traded at any time before the expiry date. Investors in emerging markets frequently use standard knock in and knock out options (that enable reduction in the premium associated with the trigger, i.e. exchange price for a call or put options) and window options (that provide a period (“window”) during the option‟s life for which the barrier is valid). Average rate currency options are cash-settled instruments and are exercised against the average of a series of exchange rate fixings rather than the spot foreign exchange rate on the expiry date. These options are widely used for hedging because of their simplicity, cost effectiveness (less costly then entering into a series of currency options), flexibility and choice (a buyer can select any date for the fixings to take place). Compound currency options are essentially the options on options, giving the buyer the right to buy (compound call) or the right to sell (compound put) an underlying currency option with fixed parameters, at a fixed premium on or before a specified date. In return for an additional upfront premium, the buyer has a predetermined period of time (the compound period) over which to decide whether or not to purchase the underlying currency option. Thus, the compound currency

options allow the buyer greater flexibility in the timing of the hedge and reduces the upfront premium cost, in return the overall cost is greater (or the premium receipt is smaller for a compound put). The compound currency options can be used for contingent foreign exchange exposures where the upfront cost needs to be minimized, or where extra flexibility is required in the timing and level of a hedge. Variable notional currency options are differ from European style currency options in that the principal amount of the option increases by a predetermined ratio as the option moves into the money. The ratio by which the principal increases is set on the initial deal date and can be varied to suit individual requirements. These currency options are ideal hedging instruments for corporate users whose exposure increases as the currency rises or falls. Multi-factor currency options provide protection against two exposures, such as commodity prices and foreign exchange rates. Such an integrated strategy addresses a company"s major risks in a coordinated way, at a lower cost relative to a traditional European option. In the multi-factor option, payoff of the option on one asset class is dependent upon the price behavior in the other asset class.
Finally, structured currency options represent a wide group of exotics. The commonly used options of this type are forward extra currency options (essentially the European options that turn into a currency forwards if a trigger level is reached) and contingent premium options (essentially currency options whereby the premium is paid only if the options are in-the-money at expiry).

Hedging with currency swaps provide long-dated forward cover of foreign currency exposure, especially against the currency flow of foreign currency debt. The currency swaps can be used in combinations with other derivatives, such as cross-currency swap and cross-currency basis swap. Cross-currency swap (or circus swap) represents a currency swap combined with an interest rate swap (floating versus fixed rate) so that the loans on which the service schedules are based differ by currency and type of interest payment. On the other hand, cross-currency basis swap means that an investor purchases a standard currency swap while simultaneously receiving a floating interest rate in one currency for a floating rate in another currency. This position allows an investor to profit from interest rate differentials while assuming no more risk than found in a basic currency swap.

4. CURRENCY DERIVATIVES IN EMERGING MARKETS

The availability of currency derivatives in Ems is influenced by a degree of development of these markets and the openness of their governments to foreign investment and floating exchange rates. Therefore, the hedging with currency derivatives varies among these markets. Ems refers to a large number of countries all over the world, so it is possible to consider this issue by analyzing currency derivatives use in Africa, Asia, Central and Eastern Europe and Latin America.

4.1. Currency derivatives in Africa

In many African countries, financial markets are not enough developed to carry out anything beyond basic currency forwards, futures and swap. For example, in Nigeria currency forwards are subject to a maximum tenor of three years, which is considerably better compared to 180 days tenor in 2006. Authorized dealers are now allowed to engage in swap transactions between themselves or with retail/wholesale customers. These transactions with deliverable forwards and swaps are restricted to a maximum tenor of three years. The non-deliverable forward market is underdeveloped and has very poor liquidity. Unlike Nigeria, Kenya has a free-floating currency (Kenyan Shilling) that is fully liberalized and convertible. There are no restrictions on transactions relating to the current and capital accounts and no foreign exchange controls. However, most of trading occurs in vanilla currency forwards, futures and options, while there is still no available foreign exchange protection for periods longer than one year.
The most developed currency derivative market has South Africa. According to African derivatives guide book (2010), hedging can be done by using currency forwards (tenors of up to 10 years and average daily volume of US$1 billion), futures (on notional underlying swaps in 2, 5 and 10 years contracts), currency options (tenors up to 5 years and transaction average size of US$25 million), options on futures, and cross currency swaps (available for period up to 10 years).

4.2. Currency derivatives in Asia

Asian markets represent one of the world"s fastest growing regions for the development of currency derivatives. Singapore has one of the most advanced financial services industries in the region and is at par with international standards. It attracts high levels of overseas investments as it builds a reputation as an offshore financial center. Singapore has one of the most developed currency derivative markets in Asia, i.e. one of the most liquid over-the-counter currency derivative markets (after Japan). A study prepared for ISDA

(2013) suggests that investors can hedge currency risk by non/deliverable currency forwards with settlement in US dollars, currency futures, conventional and exotic currency options, and currency swaps.
The South Korean market is relatively open and attracts worldwide interest, especially after Korea Futures Exchange is launched. Financial system of South Korea is fast developing and enables sophisticated currency derivatives use, both conventional and exotic ones (such as "knock-in-knock-out" foreign exchange options for hedging against the appreciation of the local currency in relation to the dollar) (Prates and Fritz (2013.). Although currency derivatives market was stagnant in 2012 due to decrease volatility of interest rate and foreign exchange markets, in the study prepared for ISDA (2013) it is expected to grow in the future.
China is one of the fastest growing economies in the world, so is its financial market. Though the over-the-counter derivatives market in China developed quickly, the market is still immature, as measured by the number of products, liquidity, market structure, and existing infrastructure with a slightly stagnation and even decline during the last few years. In Chinese market is possible to hedge currency risk with a range of currency derivatives, such as currency forwards (deliverable and non-deliverable forwards), currency swaps (non-deliverable and non-deliverable forward swap), currency non-deliverable options and currency swaps (Zhang and Chan (2011).
Similarly, the Indian foreign exchange market has grown significantly in the last more than ten years. However, existence of government restrictions regarding currency derivatives use prevents financial market"s further grow. Despite this, in India is possible to hedge with non-deliverable currency forwards, options, swaps, forwards, swaps, forward swaps, swaptions, quanto options, and ratchet options.

4.3. Currency derivatives in Eastern and Central Europe

In Eastern Europe there is a wide variation in currency derivative developments. Among countries that belong to this region, it"s worth focusing on Russian Federation and the European Union member states (Czech Republic, Hungary and Poland).
Since the Russian government allowed ruble to float more freely in 2006, the investment in this county become sizable and led to growing currency futures use by international investors. This has influence the currency derivatives use on the Moscow Interbank Currency Exchange. Besides this, in 2013 US dollar to Russian ruble cross- currency swaps and currency swaps were introduced with maturities from intraday to five years.
The currency derivatives market of the Czech Republic is small compared to those of developed markets, but its currency derivatives market is active, stable, and tightly regulated by the Czech National Bank. Currency derivatives activity has significantly grown since 2004, when trading began to center on the euro. In particular, the volume of currency forwards has been relatively large for the last several years because international investors have sought the higher interest rates in the Czech Republic, motivating them to exchange their home currencies for the koruna to buy Czech bond issues. But, in general the currency derivatives can be used in a very basic manner, i.e. the hedging is possible with conventional currency forwards, currency futures and a few currency options.
After 2001, Hungary began to experience higher currency risk, which fostered the development of basic currency derivatives, which are traded on the Hungarian over-the-counter market. The most widely traded derivatives are based on different currencies (e.g. Euro, US dollar, Swiss franc etc.) and ad currency futures are most popular contracts. Based on these trends, it is safe to say that the market for currency derivatives in Hungary will broaden and deepen at a solid pace. The recent crisis has adversely affected Hungary which currency derivatives turnover has largely decreased between 2007 and 2010 (Mihaljek and Packer (2010), while there were difficulties exchanging Euros and Swiss francs for domestic currency in foreign currency swap markets. However, since 2009 local currency swap market has recovered.
Since 2000, Poland has advanced in its use of futures and options, beginning with the use of four currency pairs. Today there are five currency pairs used. The currency pairs serve as a basis for further developments in currency derivatives, such as currency forwards, currency options with expiration up to five years and cross-currency swaps with the maturity of at least ten years.

4.4. Currency derivatives in Latin America

Latin America are still relatively fast growing region but which is characterized by political and economic instability, across all the countries, especially among the most developed ones, such as Argentina, Brazil and Mexico.
Argentine did not get a chance to recover from the financial crisis that began in 2002, when new so-called international financial crisis occurred in 2007. In this regard, Argentina is still in recovering phase. All these have significantly affected the currency derivatives market. Non-deliverable forward contracts are available only in large amounts, which disable small investors to use them for hedging. Besides, currency risk can be hedged with basic currency futures, currency options and swaps.

Since the mid-2005 Chilean authorities have allowed freely floating of peso, which has influenced the currency derivatives growth. However, even in 2010, currency derivatives are currency forwards (which are mostly non-deliverable), futures, and swaps. The use of exotic contracts is usually avoided, although in some situations knock in and knock out options were used for hedging purposes (Avalos and Moreno (2013)
Brazil has the most advanced capital markets and most sophisticated currency derivatives market in Latin America, with both basic hedging and sophisticated instruments available. As such, the Brazilian Mercantile and Futures Exchange, where currency derivatives and other instruments are traded, are considered one of the most developed exchanges among western emerging markets. Large daily turnover in interest rate derivatives has affected the increase in currency derivatives use.
Because of the volatility of Peso and the high level of corruption in Mexico, investors have always had the incentive to hedge currency risk. Free float of peso has led to great currency derivatives market growth. Hedging can be done with all currency derivatives, while since 2002 currency options and currency swaps has become dominant instruments.

4.5 Emerging markets outlook

Emerging market economies had impressive growth rates during the period of 2003-2007. However, the global financial crisis influenced their growth rates slow down in period 2008-2010. Since 2011 growth rates of these economies started to recover and increase. According to World economic outlook (2014), the growth in emerging market economies is expected to be slightly over 5 percent in 2014 with an expectation of its further increase in 2015 and 2016 (i.e. lower than during the pre-crisis period). Africa is expected to have a moderate growth with an exception for North African countries that are expected to grow at a much slower rate (approximately 3% on average). Growth rates of the emerging market economies of Asia are forecasted to remain at 5.3% in 2014 because of tighter domestic and external financial conditions before rising to 5.7% in 2015, helped by stronger external demand and weaker currencies. China represents an exception from this because of the very high growth rate which is forecasted to remain unchanged at about 7% in 2014-2015, after a modest decline in 2012-2013. Besides, the forecast for India suggests an increase in GDP growth at 5.4% in 2014 and 6.4% in 2015 (assuming the investment and export growth after recent rupee depreciation). Only a modest acceleration in activity is expected for regional growth in Latin America, with growth rising from 2% in 2014 to 3% in 2015 which will be due mainly to growth rates in Mexico.
The past twenty years there were big changes in private capital inflows to EMs. These flows have increased substantially both in absolute terms and as a share of those markets GDP and have been characterized by large fluctuations in response to changing global financial and economic conditions. According to World Bank (2014), in the 2009 financial inflows have averaged around 6 percent of GDP in EMs. However, financial crisis has influenced the decline in capital flows, so World economic outlook (2014) provides an expectation of capital flows decline in EMs by about 0.6% of their GDP by 2016, as global asset portfolios are rebalanced toward developed market economies. Briefly, a financial crisis calming in developed markets will affect not only the decrease in capital inflows in EMs but also the increase in exports and interest rates. The increase in interest rates could cause significant damage on emerging market economies by raising domestic and external costs of debt servicing.
Inflation rates in EMs have been growing in after financial crisis period with exception for some counties in 2012-2013 in which inflation rates experienced slightly decline (e.g. China, Korea, Kenya, Poland, Romania, Russia etc.). Nevertheless, the inflation rates in these markets are expected to remain high compared to developed markets as a group.
Furthermore, in 2002-2007 the majority of emerging market currencies experienced appreciation against the U.S. dollar. According to IMF report of representative exchange rates against U.S. dollar (2014), in 2008 emerging market currencies depreciated with exception for few countries (such as Czech koruna and South African rand). In 2009-2010 the majority of emerging market currencies appreciated against the U.S. dollar with exception for a number of countries (e.g. Russian ruble in 2009 and 2010 or Czech koruna and Hungarian forint in 2010). In 2012-20103 there were both appreciations and depreciations in emerging market currencies, so it could be expected that those trends will prevail in the future. In general, in 2014-2016 the depreciation can be expected to continue in large number of emerging market economies, for exception for some Asian economies, Russia and some European economies. Finally, volatilities of the emerging market currencies have been notable dropped in 2007 compared to volatilities in 2000, while in period 2008-2013 the volatilities have grown.
With regard to currency derivatives in EMs it should account for more use of currency derivatives in future because of foreign investors need to hedge when investing in portfolios in emerging market securities, especially when direct hedging is not possible, i.e. when only cross-hedging is feasible. Besides, currency derivatives can be used to hedge currency risk in global portfolios. Finally, currency derivatives can be an efficient hedging tool for hedge funds and corporations in EMs that are strive to enhance their portfolio returns through foreign exchange (i.e. enhancing a “portable alpha”).

5. CONCLUSION

EMs have made considerable progress in last twenty years although they have been adversely affected by a number of financial crises in the world. Those markets have unique potential for further growth, but there are lot of problems waiting to be solved in the future, especially those related to trade and financial restrictions removal and free float of currencies. It should not be oversight the influence of the U.S. on the financial stability especially if economic growth slows. Furthermore, in EMs the financial as well political risk will always exist. A part of this risk can be reduced by hedging. Those markets need foreign investors‟ capital and they can be attracted by enough developed currency derivative market. Despite the projected growth rates, inflation rates, capital inflows, currencies „depreciations (appreciations) and currencies‟ volatilities, it is reasonable to expect slow improvement in emerging market economies in next two or three years. In addition, the more sophisticated use of currency derivatives can be anticipated (both in number and types) and more emerging market government incentives for investment and currency derivatives use.
Given that foreign investors will be always exposed to exchange rate risk, their need to hedge this exposure will never disappear, but will grow with emerging market growth.

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THE VISIBLE HAND OF STATE IN THE BUSINESS OF INSURANCE COMPANIES AND INVESTMENT FUNDS

Vladimir Njegomir [1], Jelena Demko Rihter [2], Ivana Vrkatić [3]
[1] Faculty of legal and business studies, Novi Sad, vnjegomir@eunet.rs
[2] Faculty of technical sciences, University of Novi Sad, jciric@uns.ac.rs
[3] Faculty of legal and business studies, Novi Sad, ivrkatic@useens.net

Abstract: *State capitalism is related to direct state interventon in the national economy and some forms of state involvment always exist, even in developed economies. Contemporary meaning of state capitalism refers to developing economies and emerging markets, as well as countries where socio-economic reforms toward market liberalisation ocurred. In those countries and economies state has key role in transition process, through founding and managing State Owned Enterprises (SOE) and providing them resoruces, but simultaneously using those enterprises for promoting political interests of ruling party. In addition to explaining term and examples of state capitalism worldwide, in this paper will be presented forms of direct and indirect state intervention in the business of insurance companies and investment funds, as institutional investors on financial market. Global investment phenomenon of sovereign wealth funds will be particularly explained. The aim of this paper is to identify and clarify situations in the business of insurance companies and investment funds, when state intervention is needed, as well as to point out consequences of excessive interference of state in the economy and financial market, disturbing laises faire principle.*

Keywords*: insurance, investment funds, state capitalism*

1. INTRODUCTION

The model of state capitalism that has been applied in the last twenty years in emerging economies and markets such as China, Russia and Brazil is a slightly different model of direct state intervention compared to models realized in the last fifty years in OECD (Organization for Economic Cooperation and Development) countries and across Europe, Japan and other countries destroyed by The Second World War. The modern meaning of state capitalism has appeared along with the socio-economic reforms toward market liberalization, that occurred in countries still governed by Communist Party (e.g. in China), or carried through privatization processes (e.g. Soviet Union and other South East Europe – SEE countries), as well as in „petrostates“ such as United Arabian Emirates, governed by royal families. The common characteristic of all those countries is that economic decisions have been made and resource have been allocated by leading political establishment, not by free market. Having in mind global financial crisis in 2008 and its consequences, free market model showed its shortcomings and this is the reason and alibi why governments of many countries have been intensified their entanglement in the free market. According to the definition of The United Nations Conference on Trade and Development in a state-owned company the state owns at least 10 percent of the share capital and has significant control through: full, majority or significant minority ownership (Sprenger, 2008). In some countries, such as Russia, government is a minority shareholder in the equity of some companies, but owns golden shares and has main role in making decision and allocation of company's resources. Economic and strategic decisions of State Owned Enterprises (SOEs) influence not only performance of these enterprises and domestic market, but global market too. SOEs in China and Russia participate the most in the stock market capitalization in those countries. The other side of medal is that SOEs are usually misused by leading political party in order to promote and realize its political gains and interests and to strengthen its ruling position.

2. STATE CAPITALISM AS GLOBAL PHENOMENON

The well known and the richest companies owned by government are oil companies. Among world's largest oil companies, measured by their reserves, 13 of them [1] are owned and operated by governments and they control more than 75 percent of global oil reserves and oil production. At the same time, private multinational oil companies hold just three percent of the global oil reserves and produce just ten percent of the total oil production (Bremmer, 2009).

[1] some of those companies are Saudi Arabia's Saudi Aramco, the National Iranian Oil Company, Petróleos de Venezuela, S.A., Russia's Gazprom and Rosneft, the China National Petroleum Corporation, Malaysia's Petronas, and Brazil's Petrobras.

In some countries, usually developing, governments realize their political interests through privately owned national champions. These companies have private equity, but gain competitive advantage on the base of preferences given by government in form of favorable credits, contracts or subsidies, not on the base of increasing productivity and efficiency. Positive aspect of fostering national champions is that they can be considered as special joint venture, combined of state resources and the most valuable knowledge and experience of the best multinational companies and their management. There are couple of examples in the China's automobile industry and electronic industry, where China's national champions took over the global car maker *Volvo* and giant of electronic industry *Siemens*. Although national champions are private companies and a lot of them, especially in emerging markets are listed on the Fortune Global 500, they are in more favorable position compared to other private companies as their competitors. On the Fortune Global 500 list, according to revenues in billions of US$, there are a lot of Chinese government companies, such as Sinopec group (4th place), China National Petroleum (5.), State Grid (7.), Industrial and Commercial bank of China (29.), China Construction Bank (50.), Agricultural Bank of China (64.), Bank of China (70.), China Mobile Communication (71.), China State Construction Engineering (80.), China National Offshore Oil (93.), China Railway Construction (100.), China Railway Group (102.) and other state owned companies. There are also a couple of Russian state companies on the Fortune Global 500 list, such as Gazprom (21.), Rosneft Oil (99.), Sberbank (228.). [2]

Besides the remarkable financial results of these companies and their importance for the national economy and financial market, it has to be noticed that those results are mainly achieved due to the government support and those companies are used as an instrument of manifesting power of political establishment and realizing political interests. According to McKinsey, in 2013 there were 8000 companies worldwide whose revenue exceed US$ 1 billion, and 75 % of those companies came from developed countries. McKinsey forecasts that by 2025, there will be additional 7000 companies with revenue above US$ 1 billion and 70 percent of those companies will come from emerging markets, with dominant position of China's companies.[3] Regarding this forecast and development of state capitalism in the last twenty years, similar trend can be expected in the next decade, which means a considerable number of companies from the emerging economies, have revenues above billion of US$ and are owned by state and governed by professional management. Empirical evidence from China suggests that SOEs are more successful in the realization of infrastructure projects, such as railways and airports, than in the boosting of innovation. There are also negative effects of favoring private champions and SOEs that are reflected in the repression of private sector and decreased productivity and efficiency, whereby costs of subsidies and credits given to the national champions and SOEs, are transferred to the final consumers through higher prices of goods and services.

Regardless evidence of using SOEs as a tool of ruling political party, different forms of direct state intervention in economy has been existed since the ancient societies, and were especially popular in the 20th century in conditions of Great depression and other global financial crisis. It indicates that SOEs are not exclusively related to developing or emerging economies. The role of government and its interference in the economic sectors was particularly necessary after The Second World War and reconstruction processes throughout the Europe, Japan and other countries destroyed by the War. SOEs as a manifestation of visible hand of government are usually founded in energy sector (oil, gas, electricity, coal), telecommunication and mass media, railway, air transport, financial and banking sector. Ten years ago according to the OECD data, SOEs in France and Italy had the biggest asset value and total equity vale compared to SOEs in other OECD countries. According to the number of SOEs employees as a percentage of total employment, France was at the fourth and Italy was at the ninth place. French government has 85 % of shares in EDF (energy company), Japan has 50 % of shares in Japan Tobacco, Germany has 32 % of shares in Deutsche Telekom. Total value of SOEs in OECD countries is nearly US$ 2 trillion, with the workforce of 6 million people. [4] Governments of some countries use direct state intervention as an instrument of realization developing strategies and goals in order to boost development of some sectors, industries, regions or national economy as a whole. Through SOEs government realizes some measures of fiscal policy and supports achieving of socio-economic goals such as decreasing rate of unemployment, especially of population under thirty. Having in mind importance of SOEs for national economies and their influence on the global market, even more OECD countries are interested in reforms and professionalization of SOEs board of directors. It requires higher level of autonomy and competence of members of boards in SOEs and less political influence reflected in the political representatives in boards. There are also some countries without state representatives in SOEs boards, such as Norway, Denmark and Netherland. Number of state representatives in the SOE's board depends on the ownership model (sector, dual, centralized) that is applied in a country. System of fees and incentives has to be properly set for the members of SOEs boards similar to remuneration systems in private companies. In many OECD countries there is a trend of revision of

[2] http://money.cnn.com/magazines/fortune/global500/index.html
[3] http://www.smartplanet.com/blog/bulletin/half-of-fortune-500-companies-will-soon-come-from-emerging-countries/
[4] The Economist, January 2012, Something old, something new - A brief history of state capitalism http://www.economist.com/node/21542922

fees and incentives of SOEs boards' members in order to harmonize their incentives with same items in private sector. Members of SOEs boards should also be focused on creating and increasing value of SOEs, such as they are members of board in some company with private equity. It is hard to expect that these principles of corporate governance that have already been implemented in SOEs in OECD members countries, will be soon applied in the governance of SOE's in China, Russia, Brasil and other emerging economies.

Regardless obvious state support and unequal treatment of SOEs and enterprises with private equity in terms of availability and price of financial sources as well as other business conditions, return on equity (ROE), productivity, efficiency, cost control, innovative activities of SOEs are still below the same performance measures of private sector's enterprises. In the period 2001-2009 in China average return on equity of SOEs was only 1.47 percent, a several times less than ROE in private sector. Some older studies indicate that the higher state participation in the equity is, the lower productivity is. There are also some exceptions such as *China Mobile* and *China National Petroleum Corporation* that achieve excellent financial and business results, although Chinese government has majority ownership in these enterprises. [5]

3. STATE INTERVENTION IN THE BUSINESS OF INSURANCE COMPANIES AND INVESTMENT FUNDS

Free trade is the base of useful division of labor worldwide. Through regulations state may affect the restriction of free trade of goods and services and cause violation of the basic postulates of free and competitive trade. Theoretically, state intervention is justified in situations of market or regulatory failure, such as: natural monopoly (e.g. oil, gas), public goods (e.g. law, order), merit goods (e.g. health, education) and externalities (positive or negative outcomes of activities that influence a lot of community members (OECD comparative report on corporate governance of state-owned enterprises, 2005, p. 9).

There are a couple of arguments justifying the role of the state in the implementation of protectionist policies in the insurance market. One of the reasons is potential threat of domination of foreign insurance companies in the domestic insurance market. If domestic insurance companies do not have sufficient market power, capital, and expertise they could not compete with global insurance companies that have significant financial resources, a strong market reputation and experience. These restrictions are generally introduced by developing countries in order to facilitate the development of domestic insurers. There are also macro-economic and political reasons, as well as protecting national security. The key justification for preventing the entry of foreign insurers and reinsurers is to prevent the outflow of premium abroad which can be a real threat regarding that insurance companies with foreign capital tend to realize as many activities in their origin countries.

Government can use some measures in order to restrict free trade which has a negative impact on the competitiveness of the national markets and those measures are known as protectionist. For insurance and reinsurance companies which intend to enter new markets or already doing business in markets besides their national market or out of their centrals, different customs and non-tariff barriers may have negative impact. Those protectionist measures are usually in the form of tariffs, quotas, subsidies and public procurement. Customs have a protectionist effect on the domestic insurance sector in the country in which they are introduced, with positive impact on the balance of payments and increase of state revenues, but their summary effect is negative, as it reduces competition and thus exert a direct negative effect on both the market and consumers.

Customs are rare in the insurance, but different tax treatment of domestic and foreign insurers could be classified as tariff barrier. Non-tariff barriers are informal or indirect restrictions or regulations that hamper the free trade and thus directly limit fair competition. The most important non-tariff barriers are subsidies. Subsidies can be targeted directly towards favoring domestic insurers. Subsidies can be in the form of direct government incentives to obtain insurance coverage of domestic insurers, as well as in the form of tax refunds or tax incentives. For example, in Switzerland domestic insurers are allowed to form reserves in case of catastrophic damages. The way of realization of public procurement has a significant impact on business of insurance companies, while practices of favoring domestic companies were not subject of review under the General Agreement on Tariffs and Trade (GATT) [6]. For example in the U.S. is allowed a preference of

[5] The Economist, January 2012, Mixed bag - SOEs are good at infrastructure projects, not so good at innovation http://www.economist.com/node/21542929

[6] GATT is transformed to the World Trade Organization (WTO) in 1995; one of the basic goals of WTO is reduction of tariffs and other non-tariff barriers.

domestic companies in the sectors of products or services, until their price does not exceed the amount of more than 12 % of the price offered by the foreign company.
Restricting access to the market is not in accordance to the fundamental principles of free and fair international trade and there are numerous different examples. It is required in some countries that insurance and reinsurance companies have majority of domestic capital. Some countries may restrict the access to foreign insurers in all cases except when a specific type of insurance cannot be obtained from domestic insurers. Finally, there is also limitation in terms of risk transfer to reinsurers, which appears in the form of obligatory assignment of risk to domestic reinsurers first.

In addition to these differences in the tax burden, preference in public procurement and the introduction of quotas for the foreign insurers, there are also possible differences in regulations regarding the types of activities that are permitted to domestic and to foreign insurance companies, then it is possible to introduce higher capital requirements in the regulation of solvency for foreign insurers or to restrict them access to the national trade associations.

3.1. Direct state intervention on the insurance market

On the insurance market, in addition to creating regulatory framework, state usually participates in promoting insurance and its importance, as well as improving confidence in the institution of insurance. The role of the state in the providing of social insurance is present in all countries, with some variability in the volume of services. Social security provides protection of incomes of individuals and their families in the old age, in case of death, disability, impairment of health, maternity, unemployment and injuries and it is an important instrument of state policy.

It is common that the social security system included 1) the pension and disability insurance, 2) health insurance and 3) unemployment insurance. In addition to the social insurance state traditionally has a role in providing other forms of insurance for which private sector is not interested. In group of insurance for which there is no initiative of private sector, especially important are deposit insurance and export insurance. The role of government in providing social insurance is important in most countries, including the developed as well as the UK. In this country, for example, the cost of health insurance provided by the state or the national health service exceeding one hundred billion pounds while total premiums of voluntary health insurance starts at around 4 billion pounds.

Increased probability of catastrophic events over the last decade drew attention to the limits of insurability within a market economy. Through the institutions that personify state, the state is interested to provide insurance protection for all risks and all insureds and when private insurance companies do not offer insurance for catastrophic risks, the state usually directly involves in the insurance business (Njegomir, 2011). The direct role of the state in the insurance market is realized through the founding of state insurance companies or through financial support to the private sector when the state has a role of (re)insurer of the last instance, similar to the role of central bank that appears as a last resort in order to provide liquidity in the banking system. Through its institutions, state may appear in the role of (re) insurer of last resort when it can provide reinsurance coverage for the private insurance sector. For example, in the region insurance companies achieved poor results in the insurance of agriculture (Njegomir, Pejanovic, 2011) and government intervention in the form of subsidies for insurance premiums is required. However, a direct state intervention in the form of compensation that occurs in the region is not justified, regarding the little interest in insurance, which should be the primary form of protection of agriculture (Njegomir, 2011).

The role of the state as an insurer of last resort the most efficiently can be achieved through the establishment of national pools. National pools are pools of insurance and reinsurance companies, with the state support. These pools are formed to secure insurance coverage for major risks, such as earthquakes and floods, which are considered fundamental and which are beyond the control of individuals or groups and have extremely negative consequences for the entire population, economy and infrastructure. In the UK there is a state-sponsored program of support in the form of Pool Reinsurance Co. Ltd. In Spain there is Consorcio de Seguros for terrorism insurance, in France there is state-supported pool GAREAT for terrorism insurance. In Germany there is a typical pool with state support, for reinsurance of risks of terrorism, consisted of 16 insurers and reinsurers and called EXTREMUS.

Mega catastrophes that emerge with increasing probability in recent years, are beyond the capacity of the insurance market, but even the states, which indicates the need for the partnership between the public and private sectors on the global level, and Organization for Economic Cooperation and Development – OECD has very important role in it (Messy, 2005).

Finally, the extreme situation of the direct role of the state in the insurance market is the nationalization of the entire insurance sector, as was the case in the former socialist countries. Through the process of transition to the market system, followed by collapse of the socialist socio-economic system in the late eighties and early nineties, insurance sector was privatized. Completely planned and by state regulated insurance sector is inferior in comparison to the private insurance sector In countries where the insurance sector was systematically state directed, insurance companies are considerably smaller, with less developed organizational structure, smaller volume and diversity of services within insurance coverage and usually they not operate on international insurance market, unlike insurance companies from market oriented economies. Also, a key reason against the government interference in the business of insurance companies, except in circumstances where it is absolutely necessary, is a lack of positive investment effect that private insurance companies realize on the capital markets (Dorfman, 2008, p. 75).

3.2. Sovereign wealth funds as a state visible hand on the financial markets

Sovereign Wealth Funds (SWF) are state owned investment funds with diversified portfolio of government bonds, shares in domestic and international companies, real estates, precious metals. Although some state owned investment funds have been founded in the fifties of the twentieth century (Kuwait Investment Authority in 1953), influence of SWFs on the global market has become even stronger from 2005. Having in mind relationship of SWFs, state capitalism and emerging economies, from 2005 have started some kind of financial race between SWFs and investment funds that come from USA and Europe. Financial crisis of 2008, that especially hit financial markets of USA and Europe, additionally spurred performances of SWFs and emerging markets.

Countries that continuously have high export revenues and surplus in foreign exchange, establish SWF in order to realize and maximize long term return on investments, but at the same time to promote political interests of leading party. This is the way how some countries form huge pools of capital available for financing business of SOEs and national champions as well as for foreign direct investments (FDI), but simultaneously sustain stability of national currency, prevent increase of inflation rate and avoid direct budget financing of SOEs. Nowadays the biggest SWF is The Abu Dhabi Investment Authority with capital of US$ 627 billion that is equal to some of the largest US mutual funds, which indicates their size and importance on the global financial market. The biggest ten SWFs are shown in the table 2:

Table 1: Top ten global SWFs and their assets (in billion of US$) in 2013

Country	SWF name	Assets (billion of US$)	Inception	Origin
Norway	Government Pension Fund - Global	838	1990	oil
UAE – Abu Dhabi	Abu Dhabi Investment Authority	773	1976	oil
Saudi Arabia	SAMA Foreign Holdings	675,9	n.a.	oil
China	China Investment Corporation	575,2	2007	Non-commodity
China	SAFE Investment Company	567,9	1997	Non-commodity
Kuwait	Kuwait Investment Authority	410	1953	oil
China – Hong Kong	Hong Kong Monetary Authority Investment Portfolio	326,7	1993	Non-commodity
Singapore	Government of Singapore Investment Corporation	320	1981	Non-commodity
Singapore	Temasek Holdings	173,3	1974	Non-commodity
Qatar	Qatar Investment Authority	170	2005	Oil and gas

Source: Sovereign Wealth Fund Institute http://www.swfinstitute.org

Data in table show that the SWFs are concentrated in the Middle East (UAE, Saudi Arabia, Kuwait and Qatar). According to the fund source, for 59 % of SWFs fund sources are oil and gas export revenues. Chinese and Singapore SWF are also among global top ten funds. According to the region, 40 % of SWFs come from Asia, 35 % from Middle East, 17 % from Europe, 3 % from Africa and 3 % from America

(Sovereign Wealth Fund Institute). All SWFs can be divided into stabilization funds and saving funds. Stabilization SWFs have main purpose to reduce the volatility of government revenues, while typical saving fund is Government Pension Fund of Norway, global number one SWF according to the assets value (US$ 838 billion) and that is not used for promoting political interests of Norway government. SWF Temasek that comes from Singapore is also represent of favoring financial instead of political interests through its business. Some funds can be characterized as development funds, with the main goal to promote development of some regions or industries (e.g., IT sector). In 2007 total net value of SWFs was US$ 4000 billion. In March 2014, market size of SWF is US$ 6357 billion, comparing to their market size in December 2013, which amounted to US$ 6106 billion. Although International Monetary Fund (IMF) requests from SWFs to increase their transparency, SWFs mainly ignore those requests. Even more, the recent trend among SWFs from emerging economies is that they create joint ventures (China Investment Corporation and the Qatar Investment Authority in 2009) and consortiums (Government of Singapore's Investment Corporation, China Investment Corporation, Abu Dhabi Investment Council and six other SWFs signed agreement in 2010) and ignore the most important western financial intermediaries.[7]

3.3. Indirect role of state on the insurance market

By definition the role of government is to protect its citizens and property from the destructive forces of nature and the risks associated with human activities and to create conditions for the undisturbed operation of the private sector and to support economic activities based on market principles. Regarding that state intervenes directly and indirectly on the insurance market.

Indirect state intervention is realized through the regulation conditions of business of insurance companies in order to protect the insured. Government intervention in the insurance sector is also necessary because of the problem of information asymmetry. On the insurance market problem of asymmetric information appears on the side of the customers or insureds and the insurers, too. On the one hand, insureds are less familiar with the characteristics of individual insurance products as well as the adequacy of the insurance companies in terms of their ability to ensure solvency, or to be a guarantor of undertaken obligations if insurance cases are realized. On the other hand, insurance companies do not always have enough information about the object of insurance as well as the risk, which causes emerging of situation of adverse selection, moral hazard and insurance fraud. The role of government is to promote symmetry of available information, particularly with regard to the insurer. Having in mind fact that insurance companies are professionally engaged in insurance activities, which means their favorable position in relation to the insureds, the state regulates the activity of insurance in order to protect the insured.

Numerous examples of bankruptcy of insurance companies imply the necessity of the state regulation of insurance sector. Identifying and understanding the factors that affect the problems of insurance companies helps in improving regulation. Analyzing the market failures of insurance companies in the United States between 1969 and 2010, rating agency AM Best came to the conclusion that the key causes of bankruptcies of insurance companies inadequate approach to insurance risk management, whether in terms of inadequate reserves, rapid growth or impact of catastrophic damages. Results of the study are presented in the table below.

Table 2: Causes of market failure of insurance companies in USA, period 1996-2010

Period	Participation in total number of companies
Inadequate reserves	40,3%
Rapid growth	13,6%
Frauds	7,8%
Problems with related persons	7,8%
Investment problems	7,3%
Catastrophe damages	7,1%
Considerable changes in business	4,0%
Problems in reinsurance (realization of credit risk)	3,6%
Other	8,6%

Source: 1969-2010 P/C Impairment Review, Best's Special Report, A.M. Best, May 2, 2011

[7] The Economist, January 2012, New masters of the universe - How state enterprise is spreading http://www.economist.com/node/21542925

The role of government in a market economy is necessary regarding that Smith's "invisible hand" is not absolutely capable to provide the best allocation of resources in each case, especially in order to improve the efficiency at the level of society. The absolute dominance of the "invisible hand" is limited by the market failures which were first identified by Keynes who analyzed the causes of the Great depression in the thirties of the twentieth century.

Taking into account the identified causes of market failures as well as bankruptcies of the insurers, key reasons for the regulation of insurance sector directed towards the protection of the insureds as consumers, that are mentioned in the literature are: 1) prevention the insolvency of the insurance companies, 2) protection of the insured due to their lack of information and bargaining power in relation to the insurer, 3) ensuring fair insurance premium, given the imperfections of the market mechanism of premiums regulation, and 4) the achievement of social objectives and benefits by providing a wide availability of insurance coverage (Njegomir, 2011, p. 211).

Indirect role of the state, or its agencies, on the insurance market are related to regulation of insurance business or creating a regulatory framework that will ensure the effective and efficient business of insurance companies. Areas of regulation include: founding of insurance companies; determining allowable organizational forms; solvency; application of accounting standards in the assessment of assets and liabilities; insurance premiums; market behavior, including corporate governance, consumer protection, the level of competition and licensing of brokers and insurance agents; taxation and abandonment the market, including liquidation, restructuring and abandonment some segments of the insurance business.

Through completely free market mechanisms could not be established insurance premium high enough to cover costs and provide a reasonable profit to insurers, but also low enough to be available to insureds. State intervention in order to ensure fair insurance premium is required and it is achieved in two ways: 1) indirectly, through regulation of solvency is prevented the uncontrolled and unfair competition and 2) directly, by approving the tariffs of insurance premiums. Bearing in mind that priority to the market mechanisms should always be given and interventions should be applied only in case of inefficiency of market mechanisms, big insurance companies are indirectly favored, because of lower relative share of the costs of regulation in total revenue of big in comparison with smaller insurers. Increasing cost of regulation cause additional adverse effect manifested in reduced funds for innovations that are necessary in terms of continuously changing environment and the emergence of new risks.

Regulation of insurance can be directed towards the need to achieve social goals, especially the wide availability of insurance services for all who need insurance. In some situations, the regulatory authorities may force insurers to accept insureds that otherwise would not be accepted and to lower insurance premiums. Examples of regulatory pressures on insurers are known throughout the world and commonly associated with forcing insurers to offer insurance services at regular premiums in areas that were exposed to catastrophic damages. Such measures can cause the abandonment of certain types of insurance and the necessity of state intervention as insurers.

3.4. Indirect state intervention in the business of investment funds

Indirect role of the state in the sector of investment funds is realized by creating a regulatory framework, the adoption and implementation of laws and regulations. On the financial markets of the USA, as the most developed and the most important world's market of investment funds in terms of their numbers and diversity, as well as the interest of shareholders to invest in the funds, Securities and Exchange Commission (SEC) is the central supervisor institution for the entire financial market. All countries with regulated financial markets, regardless of the level of market development, have central supervisor institution such as SEC on the USA financial market. In the countries of our region, the regulatory and legal framework for the business of investment funds has been created 10 to 15 years earlier than it was done in Serbia and thus investment funds industry in those countries is more developed and potential investors are more aware and informed about possibilities of investing in funds. Investment funds on these markets have suffered significant consequences of the global financial crisis of 2008 and some financial markets are still being recovering. In Serbia, in 2006 was adopted and entered into force the Law on Investment Funds, then the Law on market of securities and Law on Capital Market in 2011 (Službeni glasnik 46/2006, 47/2006, 51/2009, 31/2011) and the regulatory framework for the business of mutual, closed and private investment funds has been completed. Republic of Serbia Securities Commission is supervisory institution that grants, suspends or withdraws licenses and keeps registers of Investment fund management companies, approves membership of their boards of directors and supervises operation of those companies and their funds. Financial reports and auditor reports of Investment fund management companies and each fund have to be submitted to the Securities Commission.

4. CONCLUSION

State capitalism as a recent global phenomenon has appeared twenty years ago along with the socio-economic reforms toward market liberalization. The leading representatives of state capitalism are China, Russia, Brazil, as well as Middle East countries, rich in oil and governed by royal families. They have main characteristic that leading political establishment decide about economy and resource allocation, denying free market. Global financial crisis of 2008 that especially hit western economies gave tail wind to the emerging economies that continuously mark growth and their state owned enterprises and national champions are generators of country's development and progress. Although in state capitalism government uses SOEs and national champions for promoting its political interests, a lot of Chinese and Russian SOEs are listed in Fortune Global 500 index, even in top ten companies according to the revenue. The adverse by-side effect of state capitalism is repression of private sector that cannot compare to the SOEs that have privilege treatment and government support in terms of resources, prices, interest rate, etc. Nevertheless productivity and return on investments of private sector are still above the same indicators in the business of SOEs.

In business of insurance companies and investment funds, as institutional investors, state intervention is represented in form of direct or indirect state interference in the free market. Indirect state intervention is manifested in creating regulatory framework for business of insurance companies and investment funds. Through the regulation state should provide safety of business of insurance companies in order to protect insureds, as well as fair market competition. Similar situation is related to the business of investment funds, having in mind that investors and capital are usually looking for secure zone for investments.

On the insurance market, in addition to creating regulatory framework, state usually participates in promoting insurance, as well as improving confidence in the institution of insurance. Direct state intervention in the insurance sector is also indispensable in providing social security which means protection of incomes of individuals and their families in the old age, in case of death, disability, impairment of health, maternity, unemployment and injuries and it is an important instrument of state policy. State usually directly involves in the insurance business in order to provide insurance protection for all risks and all insureds in situations when private insurance companies do not offer insurance for catastrophic risks. Through its institutions state can have the role of (re)insurer of last resort by providing reinsurance coverage for the private insurance sector.

Sovereign Wealth Funds (SWF) are state owned investment funds that have become global investment phenomenon in the last decade and expression of visible hand of state on the financial market. They realize remarkable returns despite the global financial crisis of 2008 and its consequences. SWFs are particularly related to emerging markets and economies, but their role and importance on the global financial market have been changing and they even more threat to key financial institutions and investors on the markets of USA and EU.

All these indicate that visible hand of state in the business of insurance companies and investment funds is welcome in the setting regulatory framework and enriching supply of these institutional investors in case when private sector is not interested or cannot profitably operate. In other cases, state represses fair competition and private sector and slow down its development, that have negative long term consequences for the financial market and the entire society.

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EMPIRICAL EVIDENCE ON EFFICIENCY OF TRADITIONAL VERSUS BEHAVIOURAL ASSET-PRICING MODELS: AN OVERVIEW

Milica Latinovic[1], Tijana Obradovic[2] Veljko Dmitrovic[3]
[1]University of Belgrade, Faculty of organizational sciences, latinovicm@fon.bg.ac.rs
[2] University of Belgrade, Faculty of organizational sciences, tijana@fon.bg.ac.rs
[3] University of Belgrade, Faculty of organizational sciences, dmitrovicv@fon.bg.ac.rs

Abstract: *Security analysis evolved through decades, and introduced various asset-pricing models for stock selection. Developments in theory and modelling varied from efficient markets with rational investors to inefficient markets with irrational investors. This paper aims to present different asset-pricing models and to review empirical findings on their effectiveness in explaining expected returns. Based on the review of contemporary researches, this paper provides the insight into important macroeconomic and microeconomic factors, which have influence on the cross-section of expected returns.*

Keywords*: Valuation, asset pricing models, CAPM, APT, investor sentiment*

1. INTRODUCTION

What is the value of a certain asset and what return it will generate? These are the most challenging questions for various market participants such as investors, regulators, and portfolio managers. The answers to these questions will either fulfill investment objectives, or fail them. Valuation represents an estimation of an asset's value that can be based on variables assumed to be in relation with future returns. Estimation of value can also be obtained by comparison with similar assets. Investments analysts use different valuation concepts and models to select stocks, infer market expectations, evaluate corporate events, to render fair opinion, evaluate business strategies and models. Main use of different concepts and models is for stock valuation. Valuation can be performed as a part of an overall portfolio management process. In the planning phase of a portfolio investment process investor identifies investment objectives, constraints, and an investment strategy. Different investment strategies can either use those concepts and models, or do not. With indexing strategies analysts just try to replicate an index, there is no requirement for judgment of individual securities. Valuation is crucial for active investment strategies, where analyst is trying to produce superior risk-adjusted returns with a portfolio different than some benchmark. Valuation of a particular company is a task within an overall portfolio management process. Valuation process assumes understanding of the company that is being valued, forecasting its performance, and selection of an appropriate valuation model for a particular valuation task (Stowe et al., 2007).

Empirical researchers examined market efficiency of both developed and emerging markets. Evidences found in these studies are opposite. Market efficiency usually depends on the sample that is taken or it is associated with a certain situation. Hence, nature of markets is difficult to determine. This results in that that it is very challenging to pick the right asset pricing model for a specific market. Applicability of the known asset pricing models is connected with rational investor assumption, where expected return represents fair value of investors' portfolio. This is just an assumption, which does not hold in the real market setting. It is frequently argued that investors are following sentiment. Hence, sentiment could be factor that would help in return predictability (Majumder, 2014).

This paper is going to present different models that are available to investors, and to discuss empirical findings of recent research, and discuss its applicability. In the second part of the paper, theoretical foundations of different valuation models will be presented. Third part, will give insight into empirical evidence of performance of modern finance models. Also, in third part of the paper, important behavioral factors that drive expected returns will be presented. Fourth part will provide concluding remarks.

2. SECURITY VALUATION PROCESS AND MODELS

Each security valuation represents a process that consists of few steps. First step assumes understanding and evaluation of an industry as a whole, assessment of company's competitive position and its strategies. In order for us to be able to understand company, it is important to analyze corporate economic and industry context in combination with management strategic responses to it. Second step assume forecasting of company's performance from two perspectives, company's economic environment and its financial

characteristics. In this step macroeconomic analysis is integrated with financial statement analysis, and numerical forecasts are created. Besides quantitative factors it is important to create some qualitative forecasts as well, where assessment of quality of earnings is one of the essential ones. Forecasts represent inputs in value estimation. Third step is a step when appropriate valuation model is selected. There are several value perspectives that can be used as a base for different valuation models. The most important value concept is intrinsic value (Stowe et al., 2007).

Valuation is an integral part of an effort to produce positive excess risk-adjusted return or abnormal return or alpha. If there is a difference between estimates of intrinsic value and the market price of an asset, that means that any recognized mispricing will be part of the holding-period return estimate which represents forecast of the total return. An expected holding-period return represents the sum of the expected capital appreciation and investment income. Therefore, assets alpha in a forward sense represents, the difference between expected holding-period return and fair return on the asset given its risk. Mispricing raises questions about market efficiency. In the traditional efficient markets formulation, the best available estimate of an intrinsic value is assumed to be assets market price. The rational efficient markets formulation assumes that no rational investor will incur expenses of gathering information except if he expects to receive higher return. Furthermore, if trading costs are taken into consideration than market price can even more deviate from assets value. Moreover, rational investor assumption was often challenged and new valuation approaches are formulated. Forth step, of a security valuation process, is a conversion of forecasts into a valuation, and a fifth step is giving recommendation to the investors (Stowe et al., 2007).

2.1. Valuation models

Third step of security valuation process assumes model selection. Stowe et al. (2007) distinguish between two broad types of valuation models, absolute and relative valuation models. An absolute valuation models produce a point estimate of intrinsic value that can be compared with market price of an asset. Present value models, as a type of absolute valuation models, assume that the value of an asset must be related to the returns, or asset's cash flows. Present value models based on dividends are dividend discount models. Besides dividends, cash flows can also be defined at company level. Hence, present value models used for valuation of corporate cash flows are free cash flow models and residual income models. The application of present value models for common stock valuation engages uncertainty, that stem from inputs in these models, mainly cash flows and discount rates. Corporations can also be valued with another type of absolute valuation models, called asset-based valuation models . These models assume that company can be valued based on the market value of its assets/resources. Relative valuation models give assets value relative to the value of an another asset. Rationale for these type of models is that similar assets should have similar prices. This type of valuation is implemented using different price multiples, like price-earnings (P/E) multiple (Stowe et al., 2007; Bogojevic, 2004). Bogojevic (2009) distingueshes two approaches for determining cost of equity capital, approach based on the dividend discount model (which can be used in fundamental analysis) and approach of the Capital market line. Also, basic models of risk and return are CAPM and APT. In time, many of their extensions were created in attempt to overcame to drawbacks of those basic one's.

Haugen (2001) distinguishes between different periods of evolution of academic finance, the old, the modern, and the new finance. Summary of Haugen's view of the evolution of security analysis is presented in table 1. In the old finance period, security analysis was focused on accounting statements and law. Introduction of new finance era came with Harry Markowitz portfolio optimization and Capital Asset Pricing Model (CAPM) (Sharpe, 1964), and is completed with the efficient market hypothesis. These building blocks of the modern finance assume rational investor behaviour. Stock prices change randomly from one period to another, and they are responding instantly and accurately to the new information. Risk of an individual stock can be measured with beta, which represents the sensitivity of a security's periodic return to changes in the periodic return to the market index. Modern finance thinking was challenged with discovery of myriad of market anomalies, such as January effect, or small stocks premium. The new finance paradigm dismisses rational investor's behaviour, and assumes that markets are inefficient. It is necessary to measure the behaviour first, and then to try to find reasonable explanations for it. Hence, stocks with particular characteristics are more likely to yield premium returns.

Table 1: Summary of Haugen's view of evolution of security analysis

Evolution of security analysis		
Old finance	Modern finance	New finance
Financial statement analysis	Rational investors'	Irrational investors'
Law	CAPM	Behavioural asset pricing

Capital market theory extends portfolio theory and introduces CAPM which allows pricing of all risky assets. CAPM is used for calculating the required rate of return which can be compared with an estimate of the assets expected rate of return during specific investment horizon. Based on the result obtained it can be observed that asset is undervalued, properly valued or overvalued. CAPM gives required or expected rate of return when risk-free rate is enhanced for risk premium, and this transition is helpful when one wants to value an asset because it provides a discount rate which can be used in any valuation model. CAPM is a single risk factor model which takes into account volatility inherent in an individual security or portfolio of securities. Only relevant risk is a covariance of the asset with the market portfolio (Reilly & Brown, 2002). Due to unrealistic assumptions of CAPM there are several extensions of this model and one of them is inter-temporal capital asset pricing model.

The arbitrage pricing theory (APT) assumes that there are several risk factors or indexes, but it does not specify how many of them are there or what precisely are they (Ross, 1976). The APT assumes that stochastic process that drives asset returns can be represented as K factor model. Risk factors used in APT that influence returns can be either macroeconomic or microeconomic (Reilly & Brown, 2002). There are several multifactor models used in practice such as Chen, Roll, and Ross (1986), Fama and French (1993), Carhart (1997) extension of Fama and French model, and BARRA model.

Models of new finance are behavioural pricing models. Behavioural finance presents mixture of behavioural and cognitive psychological theory and conventional economics and finance. This field of finance emerged due to inability of efficient market theory to explain different empirical patterns. The underlying assumption of behavioural finance is that individual investors' decisions and market outcomes are systematically influenced by information structure and characteristics of market participants. Humans behave in irrational manner, and therefore make forecast errors and also, do not follow risk aversion concepts. Such behaviour has influence on the efficiency of capital markets and performance of corporations (Baker&Nofsinger, 2010). It is complex to incorporate investors' behaviour into valuation of assets. Szyszka (2010) gives an overview of different classes of behavioral asset pricing models. They can be classified into belief-based models and preference-based models. Belief-based models are models of investor sentiment, DHS model, and Hong and Stein's Model. Preference-based models are Models of Shifting Risk Attitude and Probability Misperception Model.

Model of investor sentiment suggest that attitudes of investors match to two behavioral patterns. First pattern, suggest that investors believe that profitability of a corporation oscillate around some mean value. If company would report increased profitability, investors would react adversely in fear that such news would be eliminated in the next period. Hence, price adjusts to the new information with delay. Humans tend to change their beliefs slowly when encountered with new information; they would need confirmations by successive results. Barberis et al. (1998) associate such investor behaviours with cognitive conservatism. Second pattern, correspond to the belief that profitability of corporations follow specific trend. In this case investors put emphasis on the latest results (Barberis et al., 1998). Barberis et al. (1998) associate this attitude with the representativeness heuristic. This means that investors give probability to the specific event based on the similarity with the precise characteristics of the sample, which will lead to an error. The weight of individual characteristics, which comply with some pattern, will be overstated, and the real statistics will be understated. Thus, their conclusions are based on the short series error.

Daniel et al. (1998) model (DHS) is based on the assumption that investors can be either informed or underinformed. Underinformed traders do not have any influence on the market. Informed traders are overconfident and because of that, their decisions can have an impact on the market. These types of traders are subject to calibration bias. Investors assume that their analysis is more precise than regularly available market information. Model of investor sentiment suppose that investors overreaction is due to a sequence of signals of similar significance and underreact to the new information. DHS model distinct overreaction and underreaction depending on whether information is public or private. DHS model does a good job in explaining short-term continuations, long-term trend reversals, as well as long-term continuations. However, this model assumes that investors' reaction is incomplete when new information is published for the first time (Szyszka, 2010).

Hong and Stein (1999) also assume that there are two types of investors in the market, and they have bounded rationality. First type of investors is the type who uses fundamental analysis, and they track new information which can affect the value of a company. Second type of investors is momentum trader, who favors short-term price trends. All investors analyze only certain subset of publically available information. Fundamental information reaches investors slowly, causing certain delay in their reaction. They are focused on forward looking information, ignoring historical trend. Momentum traders only care about price movements.

Barberis, Huang, and Santos (2001) propose preference-based model, based on three ideas. Investors are interested in the level of their wealth and they are concerned with fluctuations in its value, also they are more stressed with reduction in the level of their wealth than to its enhancement. Investors are risk takers after they have realized gains, and they are risk averse when they have experienced losses. This model is trying to explain investors' behavior when capital markets are analyzed from an aggregate level. Dacey and Zielonka (2008) proposed another preference-based model. Investors want to maximize their personal utility, and therefore they are prone to two types of errors. An error may occur due to the investors' faulty estimate of the probability of the events. Errors may arise when investors assign inaccurate weights to the estimated probability level in the weighing function of prospects theory. Furthermore, there are two types of investors rational and quasi-rational. There are fewer rational investors' in the marketplace and they correctly assign probabilities to the potential changes in assets prices. Reversely, quasi-rational investors make wrong estimates.

3. EMPIRICAL EVIDENCE OF PERFROMANCE OF ASSET PRICING MODELS

There is a vast number research that test efficiency of the capital markets. Also, in pursue of adequate model for stock selection, researches investigate the efficiency of both traditional and behavioural asset-pricing models.

3.1. Facts about modern finance models

Kim et al. (2012) tested CAPM, APT-motivated models, the consumption-based CAPM, inter-temporal CAPM, and Jagannathan and Wang conditional CAPM model in the Korean stock market. They found that the Fama-French five factor model gave the best results in explaining the inter-temporal and cross-sectional returns.

Hammami and Lindahl (2014) found that bank credit growth is relevant factor in stock pricing based on the US sample. They have included bank credit growth variable into ICAPM and determined that as a state variable it explains 94% of the cross-section of the average returns. Bank credit growth is priced in the expected stock returns. This state variable is important since it can predict business cycle variables and future labor income growth, and also according to them cross-section of expected returns. Marquering and Verbeek (1999) extended ICAPM by adding transaction costs and habit persistence. Habit persistence can be defined as high consumption in previous period followed with high consumption in the next period. Consumers that are used to high consumption levels would desire such level of consumption to persist. Introduction of transaction costs in consumption-based model did not show good results. However, when habit persistence was included in the model results obtained were improved significantly.

Mouselli et al. (2013) investigate the relevance of accruals quality to asset pricing, by introducing this factor to the Fama-French three factor model. Investors recognize the quality of financial reporting, and more precise accruals quality. Stocks with lower accruals quality exhibit on average higher returns than stocks that have higher accruals quality. Reasons for such findings are not attributable to size or book-to-market effects. Furthermore, costs of capital are influenced with accruals quality. However, Mouselli et al. (2013) concluded that accruals quality is not a good proxy for determining the information risk or it can be captured with other risk factors. This study found no evidence that accruals quality is a priced risk factor. However, this finding does not imply that earnings management is irrelevant; maybe different proxy for such actions should be considered.

Cowman and Joutz (2006) tested economic factors significance in multifactor asset pricing models. They have created Bayesian learning model under which unobserved components can be estimated using Kalman filter. They concluded that economic factors can be useful when pricing risk, and that industrial production and unexpected inflation make inference across financial markets.

Chou et al. (2012) found that well known asset pricing models are not able to explain industry returns. Hence, either efficient or inefficient theories cannot clarify industry returns. They have based their conclusions on the analysis of two industry asset pricing models, industry-based five-factor model and industry-augmented five-factor model which they compared with CAPM, Fama-French three factor model, and momentum augmented four-factor model. They found that economic fundamentals and information about industries help to predict stock markets. Furthermore, empirical results show that asset price anomalies (small firm effect, book-to-market effect, momentum effect) are related to industry classification.

3.2. Evidence of different behavioural aspects on asset pricing

Chan et al. (2004) tested effects of two psychological biases, representativeness and conservatism, on stock price behaviour. They based their research on trends and consistency of performance of the accounting data. Generally, biases are formed when investors analyze past information about companies, and based on those biases, investors can form expectation about company's performance and they can be satisfied or unsatisfied with their forecasts. They found evidence that behavioural theories based on representativeness are not sustainable. On the other hand, behavioural theories based on conservatism biases have some influence on the stock pricing. They found no evidence that past accounting performance trends over multiyear periods generate future return reversals. Their evidence weakens the likelihood that market inefficiencies stem out of representativeness and conservatism, based on different metrics and horizons.

Many studies have reported that investor sentiment and stock market returns are related. Such findings dispute classical asset pricing models (Kim et al., 2014). Sentiment can be defined as optimism or pessimism regarding future stock returns. Therefore, periods of high sentiment, represent periods in which majority of economic agents believe that future performance of stocks is going to be high (Berger & Turtle, 2012). Dergiades (2012) has found the evidence that investor sentiment is significant for predicting stock returns, mainly because of conditional variance of stock returns. Research is conducted for US stock market. Yang and Li (2013) also report an evidence of systematic and significant impact of investor sentiment on asset prices. However, general sentiment based asset pricing model still does not exist, and research is in an explanatory stage.

Changsheng and Yongfeng (2012) explored the impact of investor sentiment on asset valuation based on Chinese stock market data. They found that stocks with low book-to-market value and high P/E ratio are sensitive to investor sentiment. Therefore, investor sentiment has explanatory power for hot and value stock. Thus, investor sentiment should be taken into account in asset pricing, which is consistent with behavioral theory.

Proponents of investor sentiment theory argue that market sentiment and behavioural biases affect aggregate and individual returns. There are several sentiment matters, and among them is disagreement between investors. Investors can be optimistic or pessimistic, where their pessimism is not easily seen in market prices due to short-sale restrictions. Numerous studies reported that under short sale limitation, disagreement between investors' result in overpricing. Kim et al. (2014) investigated relation between such disagreement and stock market returns, with time-varying level of investors' sentiment. They found that higher level of disagreement among investors lead to lower returns during high sentiment periods. During low sentiment periods, there is no relation between disagreement and stock returns.

Information validity has great significance when valuing risky securities. When information about stocks is not transparent, investors could require additional compensation to buy those stocks. If this is the case those stocks would be more sensitive to the market sentiment. Berger & Turtle (2012) found evidence that stocks that are volatile, small, young, and intangible exhibit greater sensitivity to the market sentiment. There is inverse relation between known investor sentiment and marginal performance of non-transparent stocks. Stocks with transparent information display little variability in performance during different levels of market sentiment.

Chung et al. (2012) examined how well investor sentiment predicts cross-section of stock returns if different states of economy are considered. They found that predictive power of investor sentiment is only significant in the expansion state of the economy. In a recession state, investor sentiment has no predictive ability. In the expansion state of the economy has predictive power for portfolio returns which are based on the size, book-to-market ratio, dividend yield, earnings-to-price ratio, age, return volatility, asset tangibility, growth opportunities, and several anomalies. Their findings are based on in-sample and out-of-sample data.

Chen et al. (2013) examined asymmetric effects of local and global sentiment on the expected industry returns, in the Asian stock markets. They found that global optimistic views makes industry returns to be overvalued, and pessimistic view leads them to undervaluation. Furthermore, higher local sentiment increase returns of several industries, like basic materials, telecommunications, and utilities. Likewise, high sentiment makes industries attractive to optimists and speculators.

4. CONCLUSION

Is there a perfect asset-pricing model? Search for an answer to this question is like a quest for a holy grail. Fama-French extended model gave good results in explaining movements in Korean market. Cross-section

of expected returns was better explained with ICAPM when bank credit growth or habit persistence was included. However, traditional models are not found to be efficient in explaining industry returns. Investor conservatism has some influence on stock pricing. Furthermore, investor sentiment is found to be very important factor in explaining returns, in both developed and emerging stock markets. Its explanatory power is significant only in the expansion state of the economy. Also, there is a difference in a significance of global and local sentiment in explaining returns of companies from different industries. Further research is needed to be able to shed light on additional risk factors and biases that are necessary for inclusion in a sustainable asset-pricing model.

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LOAN PORTFOLIO MONITORING

Slobodanka Jovin[1], Mirela Momčilović [2], Dajana Ercegovac [3]
[1]Higher School of Professional Business Studies Novi Sad boba_jovin@yahoo.com
[2]Higher School of Professional Business Studies Novi Sad bizniscentar@gmail.com
[3]Higher School of Professional Business Studies Novi Sad dajana_vindzanovic@yahoo.com

Abstract: *Risk is inherent in all lending. Portfolio management is a tool that is used when a loan is approved so as to manage that risk. Knowing the client and his business very well represents a base of quality lending bank business. Therefore, upon granting the loan, every bank monitors i.e. follows all granted loans. A monitoring goal is perception of total lending portfolio quality, as well as of each loan quality and detecting all problematic loans in the business bank assets structure. Problematic loans have a direct influence on credit portfolio. Problematic loan managing is one of the most important areas in banking but, in the same time, this is the biggest challenge. For sustainability and competitiveness of banking sector in Serbia, a long-term collaboration between banks and enterprises is required.*

This paper goal is to point on importance of management active portfolio, place and role of an independence monitoring function and in recognition all early signs warning on possibility of problematic loans appearance. As the level of problematic loans grows in Serbia, this work will show all possible measures and corrective actions for raising the loan portfolio quality.

Keywords: *loan portfolio, monitoring, loan risk, problematic loans*

1. INTRODUCTION

Most commercial banks consider lending as their principal business activity.
Nowadays, the banks perform their business in very unstable business surrounding in which they face different kinds of risks. There is no loan without any risk. On one side, the banks try to create a loan portfolio to be large as much as possible, in order to achieve satisfactory returns; on another side, company worthiness right estimation and granted loans monitoring are very important in the process of granting loans. Failure to perform obligations by the company, results in loss of a part or whole receivable. If several key clients of the bank failure to service their obligations on time, it may retract the bank in insolvency.

Profitability realization, in conditions of growing competition and rising risk, becomes a challenge for modern banking management. Therefore, procedure of collaboration between the client and the bank doesn't finish with granting the loan, but it's being actively continued until the loan is returned.
Loan monitoring is one of the most important elements of a strong portfolio management system. Experience has revealed that although annual audits of loan portfolios may address these risks, the preferred approach is continuous monitoring of the portfolio.

Since early signs and warnings should point to potential problems, even in those clients still being out of the phase of delay repayment, monitoring represents a significant segment of credit portfolio management which will be discussed in the following chapters.

2. LOAN PORTFOLIO GOALS

Loan portfolio comprises a group of loans, being classified by the bank management according to the loan users in several groups:

- commercial,
- investment,
- mortgage,
- agricultural,
- residential ,
- consumer.

Each loan portfolio consists of a wide range of short-term and long-term loans intended to legal and natural persons, economy, population, budget and other organizations.

According to Vunjak and Kovačević (2011, p.200), credit portfolio needs to have the following elements:

- type and maturity of the loan,
- interest rate structure and level,
- security (collateral) of the loan,
- protective clause in loan agreements.

Specific and measurable goals for the portfolio are established as loan portfolio objectives. The loan portfolio goals include the following:
- scope of portfolio,
- structure of portfolio,
- loan services,
- collection of loans,
- price of loan,
- achieved profit.

Implementing actions based on these objectives for most banks requires medium and long-term strategic plans and objectives for the loan portfolio. These strategic plans need to be consistent with the strategic direction and risk tolerance of the bank. They also must be periodically reviewed and appropriately modified thereto.
Determined loan policy and procedures being introduced to the employees in a quality manner, in written, represent a key instrument of management and provide a controlled growth in risk assets. Except of adopted loan policy and strategy for credit portfolio management, the bank also has to have a defined policy of credit risk management in all phases of granted loans.

According to Đukić (2011, p.114), quality procedures should cover the following:
- Respecting suitable criterion, policies and procedures for granting loans;
- Granting loans with an adequate mortgage or other mode of security that the bank may implement if a debtor fails to realize its obligations;
- Permanent monitoring of the loan portfolio being granted in order to monitor all problematic loans;
- In the case of problematic loans appearance, it is required to undertake all measures related to the loan restructuring, their collection or selling of receivables as well as realization of security offered.

In addition to respect of the principle of caution while granting the loan, diversification of loan portfolio mainly comes from obligations stipulated for the banks by regulatory bodies (Horne and Wachowicz, 2007).
Banks need to understand both the risk created by every credit they issue and how they are interrelated in the overall picture of their portfolios in order to successfully manage their portfolio. Historically, supervision of these individual loans has been the banks' focus when managing the overall risk, but, although this is an important approach, banks must also manage the risk in portfolio segments and the overall portfolio.
Credit risk management at the bank level, covers the loan risk identification, monitoring, bank exposure measurement and calculation of capital needed, as well as organization of adequate control function. Therefore, the banks make an effort in forming quantitative and qualitative approach for exposure measuring, i.e. capital costs calculation.
According to author's illustration, next figure represent differences in risk management approach:

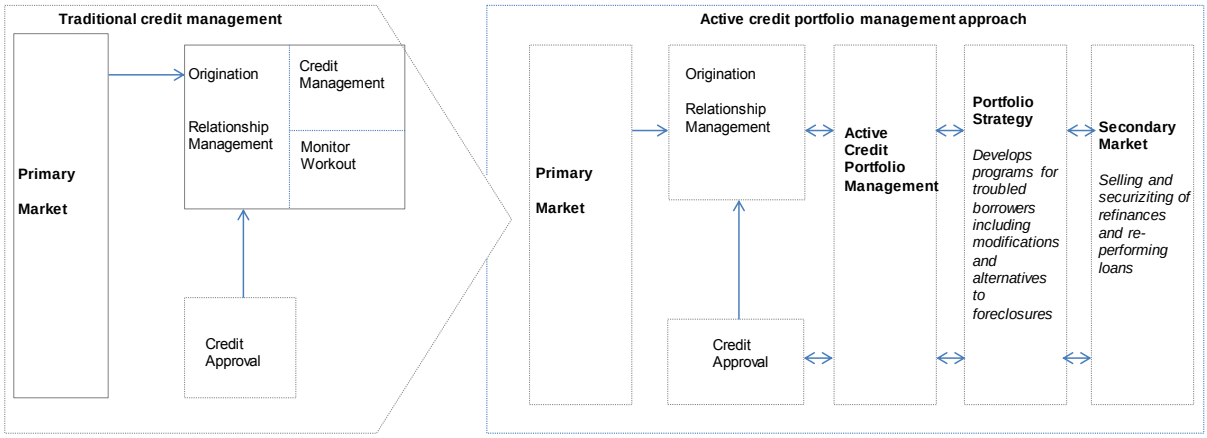

Figure 1: Credit portfolio management as a business model

Unlike the traditional approach to risk management focusing only on assets and liabilities of the bank balance, a modern approach considers the risk management growing from wide range of off-balance bank activities, integrating in this way the risk management at the level of the bank, as a whole.

The focus in traditional credit risk management is underwriting the loans measuring the risk. The bank needs to perform a system of monitoring in order to calculate the occurrence of default. Active portfolio management, however, identifies the concentrated risk on the basis of economic capital lost. The steps that could be taken to mitigate the concentration of risk are sell the loan, buy a form of protection against defaults or securitize the loan asset.
Loan policies, guidelines for underwriting and other bank procedures need to ensure the strategic objectives for the portfolio can be met. Banking represents taking risk, but at the same time making a profit so loan portfolios must reflect the risks and profits accordingly. Management roles and responsibilities are therefore a must for all banks. According to Fiordelisi and Salvatore Mare (2014), size is positively related with bank stability meaning that larger cooperative banks are better able to diversify their portfolio in that increasing bank soundness. Also, diversification may reduce a bank's collateral requirements, giving rise to a kind of scale economy in lending (Neuberger, 1995).

The goal of credit business control is to minimize the bank loses based on the loans, by performing a regular and systematic terrain checking of quality in all departments and affiliates of the bank whose affairs consider a loan risk for the bank.

Quality of credit portfolio depends on the credit risk level. According to Vunjak and Kovačević (2011), credit risk may be expressed as a relationship of potential loses and total credits. According to National bank of Serbia, credit risk also represents possibility of occurrence negative effects on financial result and capital as a consequence of default (Decision on Risk Management by Banks, 2013). There are 2 types of credit risks. One is connected to return on equity, and another one is related to paying interest, as an income to placed credit assets. The loan portfolio exposure to the credit risk considers greater engagement of the management.
Based on credit portfolio analysis, all credits may be divided on standard and problematic ones.

Problematic credits may be divided on the following categories, Ćirović (1995, p.131):

1. Substandard credits;
2. Suspicious credits and
3. Credits with loses.

In standard credits, capacity of the debtor looks like there are no any difficulties to be expected in returning that credit.

Substandard credits include those items where the debtors delay to pay their obligations at least 90 days, as well as restructured loans.

Suspicious credits have an increased risk of not being collected. They include the items of assets in which the debtor delays his payment obligations at least 180 days.

Credits with loses cover those credits being written off at the bank because they are considered as uncollectible.
Because of the credit portfolio important quality, bank management should be informed on conditions and quality of portfolio, as well as on poor-quality i.e. problematic credits. Credit portfolio analysis is done within a special department performing portfolio monitoring continuously.

3. LOAN PORTFOLIO MONITORING

Knowing the client and his business very well represents a base of quality lending bank business. Therefore, upon granting the loan, every bank monitors i.e. follows all granted loans. Monitoring goal is in perception of total lending portfolio quality, as well as of each loan quality and finding of problematic loans in the business bank assets structure.

Monitoring may be organized within credit department as a separate function or within department for risk management, but it is important to provide an independence and objectivity in portfolio quality analysis.

According to Vunjak and Kovačević, (2011, p.201), monitoring process provides:

- Quality credit portfolio;
- Consistent application of credit policy;

- Finding of problematic credits;
- Discovering of failures in releasing credits;
- Objective forming of reserves of the banks that are in the function of credit loses covering.

The goal of monitoring function is to find risk credits as soon as possible, as well as to inform the top management on quality of credit portfolio in whole and per credit groupings.

We differ a total credit portfolio monitoring and individual credits monitoring. **A total credit portfolio monitoring** covers the bank claims based not only on credit but also on factoring affairs, guarantees, letters of credit and credit cards. The aim of credit portfolio quality estimation is an evaluation of possibility that certain credit won't be paid off. Via credit monitoring, the bank estimates how large reserves should be formed in order to cover any potential loss.

Also, a classification of credit is checked according to Regulative of National Bank of Serbia (taking into consideration that each bank has right on internal classification, in accordance with International Financial Reporting Standards), possible changes in classification are monitored, a new classification of the debtors is determined if needed, quality of security offered is checked, as well as cash flows for the credit to be paid off etc.

According to Đukic (2011, p.24), the credit portfolio estimation should include app. 70% of credit amount and 30% of number of credits being covered. Credits with maturity more than 1 year are included completely.

In problematic credits, corrective actions are immediately undertaken through credits restructuring, requirements for additional security etc. according to Decision on the Classification of Bank Balance Sheet Assets and Off-balance Sheet Items (National Bank of Serbia, 2013), criteria being observed in classification of the debtors are as follows:
- Timeliness, i.e. delay in settlement of liabilities towards the bank;
- Financial state and creditworthiness estimation;
- Quality of security offered.

In order to determine all expected loses (EL) at the level of portfolio, it is required to determine all expected loses of each individual credit and those are calculated according to following parameters:
- Probability of default (PD)
- Loss given default (LGD)
- Exposure of the bank (E)

Expected loss in individual credit is calculated according to the following formula:

$$EL = E \times PD \times LGD$$

The bank calculates possibility of failure in performing liabilities of each individual client, while the rest of parameters may be calculated or standard coefficients may be taken. Expected loss at the level of portfolio is obtained as a sum of expected losses of individual clients.

Individual credits monitoring represents already granted credits control, with the purpose in giving information on situation development and changes in the company in the period of time from the date of granting credit or the credit previous regular analysis, followed by an analysis of all new financial data. This analysis should underline an influence of change to the main risks of the credit and sources of paying off.

Loan reviews:
- Analyse and evaluate individual loans, including risks of default or insufficient repayment;
- Evaluate lending policies and procedures compliance;
- Determine problems with faulty documentation;
- Suggest priorities for credit risk management;
- Recommend steps and establish procedures to overcome difficulties.

These types of estimations rely mostly on analysis of the debtor's creditworthiness. The goal of this check is that the bank needs to be sure in following:
- That economic and financial situation of the debtor isn't going worse;
- That the value of collateral isn't going down;
- That the credit is used with the purpose.

Warning signs indicating non performing loans and poor loan policy, regardless the size of some company, may be systematized in the following way, Rose and Hudgins (2005, p.545):

1. Unusual delay in financial reports receiving and in payment or in communication with the bank's staff;
2. When business loans are in charge, any sudden changes in methods used by the borrower on account of amortization, when paying pension contributions, the stock value, with respect to taxes or obtained income;
3. When business loans are in charge, outstanding debt restructuring or elimination of dividends or changes in the debtor creditworthiness;
4. Negative changes in prices of shares of the client to be debited;
5. Losses per net incomes in one or more years;
6. Negative changes in the borrower capital structure (coefficient of share capital /debt), liquidity (current coefficient) or at the levels of activity (selling coefficient in relation to the stock);
7. Deviations regarding the real selling or cash flows in relation to envisaged in time of application of the request for granting the loan;
8. Sudden, unexpected and inexplicable changes in balances of deposits held by the client.

It is very often that the company orderly settles its obligations but doesn't use the credit with the purpose. In that case the bank has the right to ask for the credit to be returned. A special attention should be directed to the new clients who are granted with long-term credits.

If untimely repayment of the credit occurs, the bank firstly considers the reasons that have led to this situation. If they are reasonable, the bank may extend deadlines for returning. If they are not reasonable, the bank may undertake the payment by security instruments activation or by judicial proceeding.

Monitoring importance is in the fact that it is not enough only to take care if the client delays with payment and then undertake some measures but there must be built such a system that will be able timely to recognize problems and to undertake all steps for preventing or decreasing the scope of damage before it happens. According to Chava and Purnanandam (2011), the positive correlation between bank-health and client performance is an outcome of the client’s health affecting bank performance and not the reverse.

4. NON PERFORMING LOANS MANAGEMENT

Despite all measures of caution envisaged by numbers of banks in their credit policies, some credits become problematic which means that the company failures its payment obligations in time or values of security, given as a collateral for loan, have been decreased.

Credit policy defines ways in which a bank can deal with non performing loans (NPL), since working out problem loans involves identifying problem areas and negative trends early, in order to better deal with the issues.
In the case that the bank doesn't charge the loan and interest within 90 days form maturity day, it is considered that problematic credit is in charge which requires a special treatment. When determined that non performing loans exist, they must be given to the referent for solving credits, who must find the reasons for problems and, together with the company, try to find some solution for collection of funds. A well trained referent who knows his/her client very well, will recognize all signs of warning pointing that external factors or bad management negatively influences the credit quality.

In non performing loans, it is required immediately to undertake corrective actions through the loan rescheduling, additional security, searching for new information etc. Credit rescheduling is an option which should be chosen by the bank only if it firmly believes in long-term future of the company. In the case of successfully performed suggested action measures, the client is to be excluded from the list of problematic loans.

Banking sector of Serbia, upon global economic crisis, is loaded, among other things, also with non performing loans.

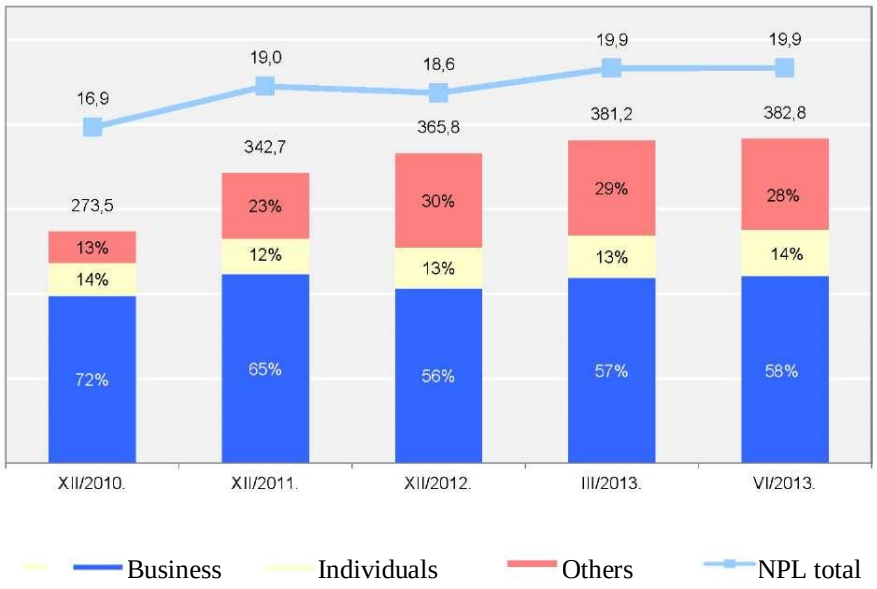

Figure 2: Non performing loans

As shown by the previously graph, according to the last data of National bank of Serbia related to the second trimester of 2013, (Banking sector in Serbia, Second Quarter Report 2013, p.14), total gross credits of banking sector with delay in repayment longer than 90 days, amounted 382,8 billion of RSD and made 19,9% of totally granted loans.

At the end of the second quarter of 2013, a share of NPL in economy amounted 58% and in population 14%. Observing the end of 2012 and first two quarters of 2013, a slight growth of NPL can be seen.

The main reason of NPL growth in Serbia is economy whose gross indicator increased from 18,6% at the end of 2012 to 19,9% in Jun of 2013. According to data of National bank of Serbia, branches with the greatest participation of NPL, with the date of 30.06.2013, are construction, business with real estate and education, processing industry and trade.

In addition to high participation of NPL, stability of banking sector in Serbia is not threatened taking into consideration high amounts of reserves of the banks for those purposes and according to international standards and domestic regulations. At the end of 2012, the NBS changed its regulative in order to provide

conditions for decreasing NPL in a banking sector. Certain limits have been eliminated in relation to the transfer of claims from the legal persons.

Although the NBS has brought the measures in the purpose of NPL decreasing, economic recovery and efficiency of legal system are even important. By decreasing an amount of NPL, the growth of credit activity is provided whose real realization will depend on existence of enough quality projects and clients.

Taking into consideration all stated data, an importance of monitoring relating to following the credits and timely spotting the potential problems, becomes more significant.

5. CONCLUSION

Each credit portfolio is consisted of the wide spectrum of short-term and long-term credits, intended to the natural and legal persons. The risk represents an unbreakable component of each credit business. Together with an increase of banking business, the credit risk is also to be increased. In narrower sense under credit risk we consider a possibility that the loan wont' be returned in maturity deadline, including interests. Timely repayment of the credit depends on possibility and will of the debtor to return the credit, which also depends on many factors, both those under control of the debtor and those under out of the debtor's control. It is not possible absolutely to avoid the risk, but it is possible to decrease it to minimum due to detailed estimation of creditworthiness and solvency of the company, and later with continued monitoring of the client's business.

By the business bank credit portfolio we define the strategy of risk management from the aspect of individual credit and total credit activity of the bank. Loan portfolio monitoring represents a quality observing and

continuous analysis of granted credits. For the function of monitoring is very important to be independent from other business functions in the purpose of objective perceive of problems and to inform the bank management on all kinds of issues.

Early signs of warning should indicate possible problems, even in those clients who are still out of delay phase, with the purpose in preventing the growth of bad placements and provide the credit portfolio to be qualitative as much as possible.

In this work there are stated the methods of discovering of potential problematic debtors, as well as early signs that can lead an experienced banker to make a more detailed analysis of certain part of the credit portfolio and to make possible every identification of possible problems in claims collection.

The identified problem areas in a loan review affect the whole process of portfolio management and signify the necessity for more detailed reviewing of these areas.
Successful collection of claims represents a mirror of one bank credit policy, its value and the credit portfolio value. However, despite all preventive measures, non performing loans happen. In the case that the bank is not able to collect its claims i.e. the credit and interest within 90 days from the day of maturity, it is considered that a non performing loan is in charge which requires a special treatment. In that case, it is needed immediately to undertake all corrective actions through rescheduling of the credit, additional security, searching for new information etc.

Banking sector in Serbia is also loaded with non performing loans. Observing the end of 2012 and first two quarters of 2013, a slight growth of NPL can be seen, but due to a high level of the banks reserving for those purposes and according to international standards and domestic regulations, stability of the banking sector is not jeopardized.

In order to make the portfolio management processes more effective, a review of policies for lending and underwriting criteria need to be performed as well, in a longer time stretch. Before implementing any proposed changes to policies or standards, management need to take into consideration their potential effect on risk tolerance limits, the complete risk profile of the bank, and the bank's ability to meet its portfolio objectives.

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SELECTION OF UNIVERSAL SERVICE FINANCING MODEL USING FUZZY MCDM

Bojan Jovanović[1], Ivan Tričković[2], Dragana Šarac[3]
[1]University of Novi Sad, Faculty of Technical Sciences, bojanjov@uns.ac.rs
[2]University of Novi Sad, Faculty of Technical Sciences, ivantricko@gmail.com
[3]University of Novi Sad, Faculty of Technical Sciences, dsarac@uns.ac.rs

Abstract: *In this paper has been considered sustainability of the universal service in postal traffic. We analyzed certain models of financing and introduced fuzzy MCDM method for the selection of an appropriate financing model. After analyzing we adopted a regional approach to funding and shown an example of the application of the proposed model, implemented in the appropriate region.*

Keywords: *universal service, postal sector, MCDM, AHP, fuzzy, TOPSIS*

1. PROBLEM OF SUSTAINABILITY OF UNIVERSAL SERVICE

Number of competitors in the postal sector has increased. Based on the available empirical research, there is an increase of courier, express and parcel services (CEP services), while classic postal services stagnate or even decline (Dieke et al., 2013). Competition to public postal operator is most common in CEP services, and rarely in the field of universal service and the consequence is a decline in revenue for public operator. On public postal operator has also been imposed an obligation of providing universal service throughout the entire state territory. The concept of universal service corresponds to a set of postal services of a defined quality, the provision of which is ensured by the state laws at all points of the territory at affordable prices (Directive 97/67/EC, Directive 2002/39/EC, Directive 2008/6/EC).

The question that occurs in many countries is whether it is possible to further liberalize the postal market, increase efficiency and reduce the required additional financing of universal service, and provide reliable service to the entire population and the economy? Another question that arises is: how will the existing implemented strategy of providing universal services affect the economic development of the society and whether it will support balanced development of all regions in a country?

A considerable amount of research was conducted in order to analyze trends in the provision of the universal postal service (Gautier and Paolini, 2010; Jaag and Trinkner, 2011; Gautier and Wauthy, 2010; Jaag, Trinkner, Lisle, Waghe and Van Der Merwe, 2011). Results of these researches speak about the problems in the full opening of the postal service. From these studies it can be concluded that for the purposes of providing the universal service, there is a use of the methodology and methods of providing universal service in other sectors (telecommunications, electric distribution, etc...). The problem of providing reliable and efficient universal postal service and the implementation of the strategy, which will ensure this, is a challenge of great social importance. However, stated social significance is not in proportion to the existing research in this area. In many countries, there is no systematic approach to solving this problem. Greater importance is given to other forms of communication (telecommunications, information society, etc.).

Countries that have defined the strategy of postal services used their own experiences in other industries and sectors of the economy, as well as the experiences of neighboring countries that are also acceded to resolve this issue. In order to facilitate the provision of universal services in the whole territory, there was a conscious discrimination of customers in highly profitable areas, in respect to those in low profit areas. Unique service price on entire territory for some meant punishment, and for others meant prize. In addition, reserved universal postal service area that is accepted as a form of financing of universal service, prevents the entry of other postal operators into this segment which may be more effective, and public operator is not motivated to increase efficiency not having any competition.

Having that in mind, it is obvious that some essential questions about the strategy of providing universal postal services haven't been answered. Some of these issues should be reviewed and implemented a new approach to solving the problem of providing universal postal services and defining the strategy of providing.

During the evaluation of problems related to the provision of universal service experts are faced with imprecision, which may in some cases be too high compared to the value of the error that can be tolerated.

The decisions that needs to be adopted in solving real problem, inevitably includes consideration of material based on several criteria rather than considering only one dominant criteria. In order to overcome these difficulties methods of MCDM (multi-criteria decision making) can be applied. They were developed with the aim to set global preferences between the options, that is, to make the final decision based on the output ranking of alternatives (Mehmet Kabak, 2012). In this regard, the work relies on MCDM theory to facilitate the decision making process when choosing the model of financing the universal postal service. Taking into account that estimates of the parameters can be associated with uncertainty, subjectivity, imprecision and ambiguity the process of their evaluation is suitable for fuzzy analyzes (Teodorović, 1999).

Next part of the paper is structured as follows: the description of different models of funding universal service, the framework for their evaluation and proposition of the methodology.

2. MODELS OF FINANCING

Levels and methods of financing the universal postal service, is mainly determined by political factors, but cost estimates and defining the method for calculating is the job of regulatory bodies. There are different models in the approach to financing the universal postal service. This paper will discuss: Restricted area, compensation fund, pay or play, and financing through additional activities.

Reserved area of service is a specific segment of the national postal market over which the universal service operator holds the exclusive franchise as a base of effective, sustainable system of financing of this public service whose provision is guaranteed by the government. This reserved area must be accurately described in terms of three basic elements: type of service, mass of the shipment and protective prices. In establishing the reserved service area, the state decide what kind of postal services will be performed solely and exclusively by the public postal operator. The scope of services to be reserved depends on the needs of countries for providing postal service in accordance with the requirements of the Universal Postal Union. According to the directives of the European Commission, which are binding on all member states, as well as candidates for entry into the European Union, only letterpost services can be reserved for one operator (Directive 97/67/EC, Directive 2002/39/EC, Directive 2008/6/EC). The scope of the area in terms of weight of items varies depending on the maturity of the postal market and the level of development of the universal service operator. Without exception, the range of these variations is inversely proportional to the level of development of the postal operator and the maturity of the postal market. Terms of performing services in the postal market demand protection of services prices reserved for the universal service operator to ensure effective exercise of the right to that part of the market and minimize its vulnerability to unfair competition and predatory price setting by other postal operators. Regulations describing the reserved area, must establish certain minimum price of postal services to private operators or any other operators except the universal service operator.

Compensation funds in the postal sector are often discussed, but the possibility of their practical applications are limited. Questions that always arise when establishing any compensation fund, and which have the greatest impact on analysis through the established evaluation criteria are:

- Who should fill the fund and how to determine the amount of contributions,
- How to define the tax base (the amount of contribution) in order to collect enough funds to cover all costs incurred by the provision of universal service, while at the same time cause minimal distortion to the postal and the global market.

Way to fill the compensation fund can be made through: income tax, profit tax,"Lump-sum" taxation, the unit tax on each service (shipment) and so on.

Pay or Play is one of the more sophisticated models of financing universal service, which combines the question of how to finance the service and who should provide universal service. This approach has the same starting position as well as models of compensation funds in accordance with the requirements of financing and provision of universal services in sectors with high fixed costs and average price levels. Operators that operate exclusively in highly profitable sectors (low cost / high volume services) are required to pay additional benefits in the compensation fund. However, unlike traditional funds, where there is determined only one operator that provides universal service, and thus acquire the right to dispose of the entire fund, this model gives the right to every operator in the market to decide whether to provide universal service (" Play") or fill the fund (" Pay").

Financing through additional activities in development programs is related to the financing of universal service, with the revenue from the additional activities of the public operator, through participation in regional development and the information society. This model would involve a public operator and several private operators in the area where the monopoly, as a reserved area, is abolished. Universal service would be financed from additional activities, that is, with the increase of efficiency and profitability of the public operator.

3. EVALUATION FRAMEWORK AND METHOD

A method of selection of the optimal model consists of several steps (Figure 1). First of all it is necessary to define the characteristics that form prism through which each of the proposed models will be seen. Application of the AHP method will determine the weight coefficients which are conditioned by the characteristics of the observed area. Assessment of achievement of each criterion in the application of a particular model is realized by fuzzy sets theory, where is obtained a universal matrix of contribution of each criteria with respect to the discussed model which is applied to each area. The final step is the application of TOPSIS (Technique for Order Preference by Similarity to Ideal Solution) by which the selection of the most appropriate method of financing the universal service is made.

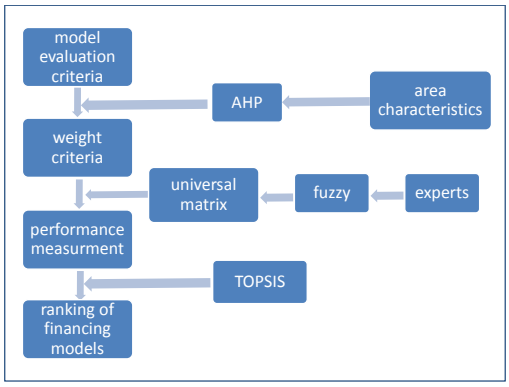

Figure 1: The process of selecting models of financing

3.1 Criteria for model evaluation

Models of financing the universal service may jeopardize the survival and development of operators in a given market. Models should provide contributions for public operators to compensate for the provision of universal service, allowing market entrance for the efficient, competitive operators and preventing the entry of inefficient operators. Operators should evenly divide the obligations arising from the necessity of providing universal service. Funding model should be" well-balanced" that is, to meet the criteria of **fair competition**.

The criterion of social equality, in practice, is a normative concept which determines criteria and assesses which sectors of society need to be more privileged compared to others in terms of the postal service. This assessment is performed mainly in relation to universal service. Criteria should answer the question of whether financing model ensures that strata of society similar economic power get universal service at approximately same prices.

Any of the financing models, may it be the least reliant on financial support from the state, **must comply with national and other positive regulations of the financial sector.** This primarily relates to the compensation fund, which is filled with general or special taxation, and whose resources the state uses to subsidize universal service. Any transfer of state resources, direct or indirect, which provides certain competitive advantages to the recipient or lead to disorder in the liberalized market, is considered to be unlawful government act. This does not mean that any financial help from the state to the provider of universal service will be construed as an illegal intervention.

Calculation must be **transparent** in order to avoid favoring the recipient in relation to its competitors. The compensation should cover only the most basic expenses incurred by the provision of universal service, in special cases can be considered a minimum profit of the operator. When the selection of public operator is not made through public procurement procedure, the level of compensation must be determined by analyzing the costs that would theoretically occur in the case of efficient service delivery. From the perspective of this criterion, the principle of operation of the model of financing should be available and clear

to all market participants. All participants should be able to understand the way in which amount of compensation is determined, who pays contributions for financing the universal service and the way in which those contributions are set. Also, information on the establishment of the fund and entities who have established it must be available, and then how to access the resources of the fund and the availability of specific operators in a given time to have access to the fund. All participants, if they wish, must be provided with the opportunity to meet the requirements for funding from the fund. All this information must be verified and published.

Collection of contributions to small operators reduces the possibility of new entrants to the market, and in the long run leads to its polarization and negative consequences for users. Accordingly, European Commission has put forward a proposal that in case of covering all the costs of providing universal service with funds collected from contributions of other operators, perform the allocation of contributions. Collecting contributions should be non-discriminatory and based on the **principle of proportionality**, and if there is no higher level of market presence, small operators should be freed of this obligation. Proportionality means that the given model of funding achieved a reasonable balance between the projected goals and objectives of the global market. It needs to be ensured that the model minimally affects other market mechanisms and introduces minimal distortion in the global economic plan.

Feasibility is determined by the complexity of financial schemes and information necessary for their establishment and management. Complex mechanisms with complicated procedures of implementation and exploitation require greater funding at practical use and there is increased uncertainty about achieving the projected goals. This criterion has a direct impact on the transparency, in terms of easier or more difficult access to information relating to the current situation and progress in terms of achieving the objectives of the designed model of financing.

Sustainability is key criterion for achieving the minimum cost of establishing a specific financing model. The main aspect of this criterion is that the model, first of all need to act on clearly defined objectives to be achieved. Every action in the framework of the model is to provide a sustainable universal service.

Reliable financing model is one that ensures the long term sustainability of the universal service. The mechanism that provides long-term security financing is much more convenient than those with short and unpredictable financial arrangements. It is important that the model is based on economic principles.

Implementation of a financing model should provide minimal distortion of economic efficiency and increase profit of the operator. In practice, there are three main aspects that can support the concept of efficiency: **allocative, productive and dynamic** efficiency. Financing models that promote redistribution allows operators to raise prices to the level of service that will reflect the cost of providing service, including a reasonable profit based on invested funds. Despite the fact that allocative efficiency is directly contrary to the recognized principles of universal service operators, particularly those large, are increasingly trying to prove its necessity. Production efficiency is based on the obligation of the operator to provide services at the lowest possible cost, with the optimum use of all available technological resources. In this context, financing mechanisms should provide incentives in procurement and implementation of optimal technologies, which will enable full utilization of potential at an acceptable cost. The model should also facilitate the selection of optimal operator which will be entrusted with the provision of the universal service and thus avoid the increase of fixed costs of service. Dynamic efficiency refers to facilitate innovative process, which leads to the development of completely new and enhanced services. The advantage of the dynamic efficiency is in the possibilities of development of universal service based on the applied mechanism, through new ways of providing services or the introduction of entirely new services.

3.2 Analytic Hierarchy Process (AHP)

Analytical Hierarchy Process is a systemic procedure for determining the relative importance of a set of activities or of criteria (Kujačić, 2002). The approach is based on three main components. The first is defined in the request of necessity to decompose the problem into a hierarchical structure. The second component relates to the measurement scale expressing the priorities in the elements (Saaty, 1986).
Dependence of criteria and sub-criteria on the alternatives and mutual dependence of criteria is formed by a matrix whose values are defined by a numerical (1 through 9) or semantic scale. The third component is to define the measurement mechanism for setting priorities in the hierarchy and consistency of assessments provided by experts. Calculating the priority is reduced to the determination of the appropriate vector of weight coefficients.

3.3 The theory of fuzzy sets

A small piece of information about a particular problem can be seen as certain, or deterministic. Problem of uncertainty that arises in information can lead to deceiving if the blur of human decision-making is not taken into account. Fuzzy set theory provides a mathematical basis for the representation of ambiguity and vagueness in human systems (Ross, 2004). Starting from the development of the theory of fuzzy sets (Zadeh 1965), a large number of papers deal with the problem of uncertainty in decision-making based on the theory of fuzzy sets. In this direction, this paper endeavors to encompass fuzzy subjective assessment of experts in terms of the financing model for the universal service.

Fuzzy numbers can be regarded as a generalization of the concept of trust (Teodorović and Šelimć, 2012). That is every fuzzy number can be specified with confidence interval and affiliations functions. Under the term fuzzy numbers is considered to be limited, convex and normalized fuzzy set (Dubois and Prade, 1978). The statement of the extent to which it met certain criteria as linguistic variables (eg, part ") can be represented by triangular fuzzy numbers in the range of 0-5. Triangular fuzzy number can be defined as a triple (a, b, c) (Fig. 2), where the affiliations function is defined as follows (Zimmermann, 1991):

(1)

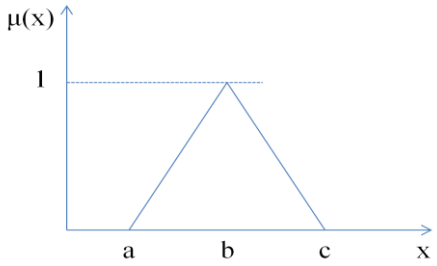

Figure 2: Triangular fuzzy number

Algebraic operations on triangular fuzzy numbers can be defined by means of arranged triplets:

$$(a1,b1,c1) \oplus (a2,b2,c2)=(a1+a2,b1+b2,c1+c2) \quad (2)$$

$$(a1,b1,c1) \quad (a2,b2,c2)=(a1-a2,b1-b2,c1-c2) \quad (3)$$

$$K \quad (a,b,c)=(Ka,Kb,Kc) \quad (4)$$

The concept of linguistic variable is very useful for dealing with situations that are too complex or ill-defined to describe understandably conventional quantitative expressions (Deng Yong and Chan, 2011). Each of these variables can be associated with affiliate function. In this paper, we used expressions in terms of the degree of achievement of the observed criteria: “unrealized”, “poorly realized”, “medium realized”, “very realized”, “and fully realized”. Experts were asked to give their opinion and each linguistic variable is demonstrate triangular fuzzy numbers in the range of 0 to 5 In order to provide a more objective evaluation of the fuzzy assessment, there was a aggregation of linguistic variables LV_{ij} alternative A_i for criterion C_j based on the expression:

$$LV_{ij} = (a,b,c) = \left(\frac{1}{n}\right) \otimes (LV_{ij}^1 \oplus LV_{ij}^2 \oplus ... LV_{ij}^n) = \left(\frac{\sum_{i=1}^{n} a_i + \sum_{i}^{n} b_i + \sum_{i}^{n} c_i}{n} \right). \quad (5)$$

Equation (5) shows that the average performance can be expressed in the form of a new triangular fuzzy numbers (Buckely 1985). As the result of the synthesis is a new fuzzy number, it is necessary to realize defuzzification (a technique of converting fuzzy numbers into solid real numbers). Defuzzification procedure is positioning the BNP (Best Nonfuzzy Performance) value. Many defuzzification techniques are available (Zimmermann, 1991), but the common defuzzification methods include the center of area, first of maximums, last of maximums, and middle of maximums (MoM). This paper used Center of Area method taking into account ease of use, where defuzzification value can be obtained:

$$BNP_{ij} = (c_{ij} - a_{ij}) + (c_{ij} - a_{ij}) / 3 + a_{ij} \qquad \forall i, j. \quad (6)$$

3.4 TOPSIS

Technique for order performance by similarity to ideal solution (TOPSIS), was first developed by Hwang and Yoon (1981) for solving a MCDM problem. It is based on the selection of the optimal alternative that is closest to the positive ideal solution and farthest from the negative ideal solution. An ideal solution is composed of all best values attainable of criteria, whereas a negative ideal solution is made up of all worst values attainable of criteria. Take the objective space of the two criteria as example which is indicated in (Figure 3.), A^+ and A^- are, respectively, the ideal solution and negative ideal solution, and observation A_1 is shorter in distance in regard to the ideal solution (A^+) and negative ideal solution (A^-) than A_2. As a matter of fact, the ups and downs of these two observations regarding to ideal solutions cannot be compared because there exists some tradeoff between the ups and downs. However, TOPSIS can help resolving this problem because it has defined such „relative closeness" so as to consider and correlate, as a whole, the distance to the ideal solution and the negative ideal solution.

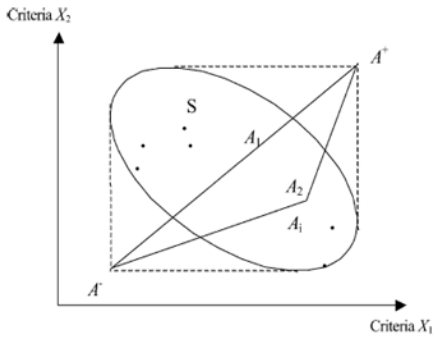

Figure 3: Position A1 and A2 with respect to the ideal and the negative ideal solution

The process of calculation is carried out through the following stages:

- forming normalized performance matrix,
- forming weighted normalized matrix by multiplying weight coefficients and criteria:

$$V_{ij} = w_{ij} \times r_{ij} \qquad \forall i, j. \tag{7}$$

where w_{ij} is the weight of criterion j, and r_{ij} normalized value of the j-th performance criteria for the i-th alternative;

- determining the ideal solution:

$$A^+ = \left\{ \max V_{ij} \middle| j \in J \right), \left(\min V_{ij} \middle| j \in J' \right), i = 1,2,\ldots,m \right\} \tag{8}$$

- determining the ideal negative solution:

$$A^- = \left\{ \min V_{ij} \middle| j \in J \right), \left(\max V_{ij} \middle| j \in J' \right), i = 1,2,\ldots,m \right\} \tag{9}$$

where J is associated with the benefits of the criteria, and J 'from the cost criterion,

- calculating the distance between the ideal and the negative ideal solution of each alternative.

$$S_i^+ = \sqrt{\sum_{j=1}^{n} \left(V_{ij} - V_j^+ \right)^2} \qquad i = 1,2,\ldots,n, \tag{10}$$

$$S_i^- = \sqrt{\sum_{j=1}^{n} \left(V_{ij} - V_j^- \right)^2} \qquad i = 1,2,\ldots,n, \tag{11}$$

- calculating the relative proximity of each alternative to the ideal solution:

$$R_i = \frac{S_i^-}{S_i^+ + S_i^-} \qquad i = 1,2,\ldots,n, \tag{12}$$

- ranking of alternatives in descending order R_i.

4. METHOD OF SELECTION OF PROPOSED MODELS ON A PARTICULAR AREA

Taking into account the diversity of various regions within one country, there is a need for special consideration of each of them in terms of defining the method of financing the universal service. Therefore it is necessary to observe the territorial units established by NUTS 2 standard. In each of these units observed, depending on the characteristics of the postal market and the aim sought to be achieved by the regulatory body, weights of the criteria are set for the evaluation of certain alternatives of financing the Universal Service. The determination of these weights is carried out by AHP method. The core of the system is a performance matrix for specific criteria by proposed alternative models of financing. Values of matrices are obtained on the basis of questionnaires filled by experts for financing models. The survey was conducted over 10 experts. The experts were asked to assess the realization of each criterion, via linguistic variables which are expressed by triangular fuzzy numbers in the range of 0-5. The possible values of these variables are: “unrealized”, “poorly realized”, “medium realized”, “very realized”, “and fully realized”. From the obtained fuzzy numbers, by applying BNP, we get defuzzicated values. Ranking of values is made by implementing TOPSIS, and then the selection of the financing model most similar to the ideal solution is made.

We will observe the territory of the Republic of Serbia. In accordance with the NUTS 2 standardization and looking at the highest concentration of competition we decided to consider the statistical region of Belgrade. Looking at the characteristics of the observed area weight coefficients of the criteria defined on the basis of AHP are: fair competition – 0.15, social equality - 0.1, compliance with state aid rules - 0.1, transparency - 0.1, proportionality - 0.1, feasibility - 0.05, reliability - 0.05, allocative efficiency - 0.1, productive efficiency - 0.1, dynamic efficiency - 0.1. Results of testing experts analyzed on the basis of equation (5) are given in Table 1. After measuring performance in the form of fuzzy numbers, made their defuzzification using the Center of Area (equation (6), so that it could be applied TOPSIS the procedure of ranking (Table 3).

Table 1: Fuzzy performance of financing model

criteria / alternatives	Reserved area	Compensation fund	“pay or play”	Additional funding
Fair competition	(1.81, 2.21, 2.47)	(3.90, 4.23, 4.58)	(3.52, 4.29, 4.7)	(3.91, 4.18, 4.24)
Social equality	(3.63, 3.93, 4.24)	(3.09, 4.06, 4.75)	(4.72, 4.84, 4.95)	(4.54, 4.63, 4.69)
Compliance with state aid rules	(4.75, 4.91, 4.94)	(4.49, 4.87, 4.96)	(4.15, 4.53, 4.76)	(3.97, 4.01, 4.06)
Transparency	(2.95, 3.12, 3.72)	(1.48, 2.39, 2.54)	(2.8, 2.94, 3.03)	(2.04, 2.9, 3.19)
Proportionality	(2.42, 2.87, 3.18)	(1.91, 2.40, 2.57)	(2.79, 3.16, 3.22)	(2.95, 3.37, 3.5)
Feasibility	(4.57, 4.68, 4.73)	(2.03, 3.39, 3.57)	(2.84, 3.22, 3.91)	(3.93, 4.27, 4.40)
Reliability	(4.67, 4.72, 4.87)	(2.75, 3.24, 3.77)	(2.74, 3.08, 3.31)	(3.39, 3.92, 4.12)
Allocative efficiency	(2.62, 3.31, 3.55)	(2.17, 2.89, 3.12)	(3.7, 4.34, 4.6)	(3.03, 3.48, 4.18)
Productive efficiency	(2.27, 3.20, 3.69)	(2.04, 2.48, 2.62)	(4.09, 4.38, 4.71)	(4.35, 4.43, 4.82)
Dynamic efficiency	(1.69, 2.12, 2.48)	(1.31, 2.40, 2.71)	(4.42, 4.68, 4.95)	(4.05, 4.21, 4.44)

Table 2: Overall performance measures of financing models

criteria / alternatives	Reserved area	Compensation fund	“pay or play”	Additional funding
Fair competition	2.13	4.24	4.17	4.11
Social equality	3.94	3.97	4.84	4.62
Compliance with state aid rules	4.87	4.77	4.48	4.01
Transparency	3.26	2.14	2.92	2.71
Proportionality	2.82	2.29	3.06	3.27
Feasibility	4.66	3.00	3.32	4.20
Reliability	4.75	3.25	3.04	3.81
Allocative efficiency	3.17	2.73	4.21	3.56
Productive efficiency	3.05	2.38	4.39	4.53
Dynamic efficiency	2.10	2.14	4.68	4.23

Table 3: Ranking of financing models

Rang	Model	The similarity to the ideal solution
1	“pay or play”	0.8047
2	Additional funding	0.7655
3	Compensation fund	0.4144
4	Reserved area	0.3299

5. CONCLUSION

The problem of financing the universal postal service captures the attention of the postal sector for many years. One of the basic principles underlying the role of postal services is facing the issue of sustainability, as profitability of postal system is becoming more and more basic benchmark in successful functioning. Past experience has shown that this business segment is unattractive for operators that have emerged from the market liberalization, so public postal operators have taken this responsibility. The reason for this may be sought in the financing model that is administered on the whole territory of the state.

Different characteristics of each region within the state should be considered in order to establish appropriate mechanisms to encourage other operators to take an active role in the provision of universal service. On the model that we presented, we came to the conclusion that the most appropriate model for the observed region is “pay or play”, while a reserved area that is currently in force took the last place in relation to the considered models of financing.

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COMPARISON OF MOVING AVERAGES FOR TRADING TRENDS: THE CASE OF THE BELGRADE STOCK EXCHANGE

Aleksandar Rakićević[1], Radovan Končarević[2], Bratislav Petrović[3]
[1]University of Belgrade, Faculty of Organizational Sciences, aleksandar.rakicevic@fon.bg.ac.rs
[2]University of Belgrade, Faculty of Organizational Sciences, koncarevicradovan@gmail.com
[3]University of Belgrade, Faculty of Organizational Sciences, bratislav.petrovic@fon.bg.ac.rs

Abstract: *This study examines the comparative performance of Simple Moving Average (SMA), Linear Weighted Moving Average (LWMA), Exponential Moving Average (EMA) and Kaufman Adaptive Moving Average (KAMA). These moving averages are incorporated into the basic trend following trading system and tested on the BELEX15 stock components. Testing different values of the lag parameter showed that increase in its value leads to the increase in the profitability of trading strategy. Unexpectedly, LWMA performed the best, while KAMA performed the worst.*

Keywords*: Technical analysis; moving average; trading system.*

1. INTRODUCTION

With the development of technology, computer aided and technical trading systems become widely used by professional traders worldwide. Nowadays, there are numerous automatic trading systems in financial markets and many of them are using some kind of technical trading. The basics of technical trading are set by academicians in the sixties when Alexander (1964) and Fama & Blume (1966) dispute the ability of technical trading systems to produce excess returns. This opened wide academic discussions with the participation of many authors. Later studies, including Brock et al. (1992), LeBaron (1999), Ellis & Parbery (2005) and Metghalchi et al. (2012) and many others demonstrate various trading systems capable of outperforming the market.

This study examines the comparative performance of Simple Moving Average (SMA), Linear Weighted Moving Average (LWMA), Exponential Moving Average (EMA) and Kaufman Adaptive Moving Average (KAMA) on BELEX15 market index components. The observed moving averages are used as the models of trend within a basic trend following system. Different values of the lag parameter are tested for all four types of moving averages. Return on investment (ROI) is used to measure profitability of the trading system. The proposed trading system is run on all BELEX15 stock components and resulting ROI values are averaged to get overall results for each of the observed moving averages. These results are benchmarked to the “Buy and hold” strategy.

The remainder of the paper is structured as follows. Section 2 reviews moving average models used in this paper. In Section 3 the basic trend following trading system is presented. It is used for the purpose of testing moving average models from Section 2. Section 4 gives a detailed description of data and experimental settings. Further, the results are presented along with the corresponding discussion. Finally, Section 5 concludes the paper.

2. MOVING AVERAGES

There are several purposes in regard to trading that Moving Averages (MA) serve. A Moving Average is a good way to gauge momentum as well as to confirm trends, and define areas of support and resistance. Also, Moving Averages form the basis of several other well-known technical analysis tools such as Bollinger Bands and the MACD. One of the most important roles that the Moving Averages play in trading is a form of lagging (or reactive) indicator, which plots average asset prices over time. The main idea is to smooth the curve of points given by the close prices.

There are lots of types of Moving Averages which all take the same basic premise and add a variation. Most notable are the Simple Moving Average (SMA), which is the simple average of a security over a defined number of time periods, and the exponential moving average (EMA), which gives bigger weight to more recent prices exponentially. Also, widely used moving averages are the Linear Weighted Moving Average (LWMA), which gives bigger weight to more recent prices linearly, and Kaufman Adaptive Moving Average

(KAMA), which was created by Perry J. Kaufman (1995) and takes into consideration not only the direction, but also the market volatility.

2.1 The Simple Moving Average (SMA)

The Simple Moving Average (SMA) is arguably one of the oldest and the most popular of all technical indicators. Its rule is one of the most widely used technical trading rules by investors to analyze the stock and eventually strive to outperform the stock market. Technically, SMA is represented by the equation:

$$SMA_n = \frac{1}{n} \sum_{t=k-n+1}^{k} P_t \tag{1}$$

In equation 1 the number of periods included in the average is marked as argument n, the relative position of the period currently being considered within the total number of periods is marked as argument k, and P_t is the price at time t. SMA is also known as just “moving average”, “weighted moving average (WMA)” or as an “arithmetic average” because each price in the data series is equally weighted. In other words, Simple Moving Average (SMA) is calculated when you divide the sum of the prices for the past n days by the number of days (n days). There are no weighting factors applied to any of the data points, but one of the possibilities for improving SMA is weighting more heavily the market’s most recent behavior and so incurred other moving averages.

2.2 The Linear Weighted Moving Average (LWMA)

Linear Weighted Moving Average (LWMA) is used to smooth out price and volume fluctuations ("noise") that can confuse interpretation to emphasize the direction of a trend in a very specific way. Similarly to the EMA, the main idea of the Linear Weighted Moving Average (LWMA) is to apply more weight to the most recent price data, but there is a difference in weighting prices. In LWMA there is a less contrast between the weighting of earlier and more recent prices than in the EMA. The popularity of this moving average has been diminished by the exponential moving average, but none the less it still proves to be very useful. LWMA is given by the formula:

$$LWMA_k = \frac{\sum_{j=1}^{n} P_{k-n+j} \cdot j}{\sum_{j=1}^{n} j} \tag{4}$$

where k is the relative position of the period currently being considered within the total number of periods, n is the number of periods included in the average, $LWMA_k$ is the value of Linear Weighted Moving Average (LWMA) at time k, P_{k-n+j} is the price at time k-n+j. From this formula we can see that the oldest price included in the calculation receives a weighting of 1, the next oldest price receives a weighting of 2, and the next oldest price receives a weighting of 3, all the way up to the most recent price which receives a weighting of n (n is a number of periods).

The downside to using a weighted moving average is that the specific resulting average line could make it more difficult to discern a market trend from a fluctuation. For this reason, some traders prefer to place both a SMA and a LWMA on the same price chart. Though the linear WMA is more sensitive to trend changes than the simple moving average, it is less sensitive than the exponential moving average. Some traders find this method more relevant for trend determination, especially in a fast-moving market. LWMA is also called just “Weighted Moving Average (WMA)”.

2.3 The Exponential Moving Average (EMA)

As well as for all moving averages, the basis for Exponential Moving Average (EMA) is Simple Moving Average (SMA). There are two main differences between EMA and SMA:

- calculation method,
- the way that prices are weighted.

Calculation of the EMA is a little more complex than the calculation of the SMA, but in the age of computers it is facilitated considerably. EMA is represented by the equation:

$$EMA_k = P_k \cdot p + EMA_{k-1} \cdot (1 - p) \tag{2}$$

where k is the relative position of the period currently being considered within the total number of periods, $EMA_k$and EMA_{k-1} are the values of Exponential Moving Average at time k and k-1, respectively, P_k is the price at time k, and p is weighting multiplier.

For the construction of the EMA we have to calculate weighted multiplier p given by the formula:

$$p = \frac{2}{n+1} \tag{3}$$

where n is the number of periods included in the average. Weighting multiplier p is also known as “smoothing factor”, and limiting values of weighting multiplier are $0 < p < 1$.

Obviously, EMA has to start somewhere and for calculation of the first EMA (EMA_{n-1}, where n is the number of periods) we can use price value at that time, simple moving average, some other type of moving average, etc. According to Boylan and Johnston (2003), the best solution is to use an adequate SMA (SMA_{n-1}). That's because EMA needs a previous value and thus we need to start somewhere.

Essentially, EMA is a weighted moving average. The theory is that more recent prices are considered to be more important than older prices. So, the weighting is such that the recent days' prices are given more weight than older prices and that’s the reason why EMA reacts faster to recent price changes than a SMA. The Exponential Moving Average (EMA) is also known as "Exponentially Weighted Moving Average (EWMA)".

2.4 Kaufman Adaptive Moving Average (KAMA)

One of the most used types of all adaptive moving averages is Kaufman Adaptive Moving Average (KAMA), which was created by Perry Kaufman (1995) and first presented in his book Smarter Trading. He wanted to overcome two key shortcomings of different smoothing algorithms for financial time series:

- accidental price leaps can result in the appearance of false trend signals,
- smoothing leads to the unavoidable lag in predicting the trends.

Adaptive Moving Average (KAMA) is represented by the equation:

$$KAMA_t = P_t \cdot C_t + KAMA_{t-1}(1 - C_t). \tag{5}$$

The formula for KAMA is similar to the formula for the EMA, but the difference is that instead of weighting multiplier p Kaufman proposed smoothing constant C_t . In equation 5 the current (at time t) value of the KAMA is marked as argument $KAMA_t$, value of the KAMA in the previous period (at time t-1) is marked as argument $KAMA_{t-1}$, P_t is the price at time t, and C_t is smoothing constant.

Smoothing constant C_t is calculated every day as:

$$C_t = sc \cdot sc = (sc)^2 \tag{6}$$

where sc is scaled smoothing constant, calculated as:

$$sc = ER_t \cdot fast\ sc + (1 - ER_t) \cdot slow\ sc. \tag{7}$$

In equation 7 fast sc and slow sc are represented by the same equation as weighting multiplier p in equation 3. Kaufman (1995) realized that weighting multiplier p should be adjusted both for fast and slow trend speed, and because of that he introduced fast and slow smoothing constants. He suggested that the number of days in the fastest and slowest applicable Simple Moving Average should be 2 and 30 days, respectively. For that matter, fast and slow smoothing constants will be 0.6667 and 0.0645, respectively. Of course, these parameters are usually optimized and adapted to the market under study.

ER_t given in equation 7 is Efficiency Ratio at time t. Kaufman (1995) wanted to make a mechanism that senses market speed and “chopines” and gives feedback to the moving average. Based on this moving average adjust the speed of its smoothing. Efficiency Ratio is represented by the equation:

$$ER_t = \frac{D_t}{V_t} \tag{8}$$

where ER_t is Efficiency Ratio at time t, D_t is momentum or the n-day change in price, and V_t is volatility or the sum of the absolute value of daily price changes. D_t is calculated as:

$$D_t = P_t - P_{t-n} \tag{9}$$

where P_t and P_{t-n} are prices at time t, and t-n, respectively. V_t is calculated as:

$$V_t = \sum_{i=1}^{n} |P_t - P_{t-i}| \tag{10}$$

where P_t and P_{t-i} Are prices at time t, and t-i, respectively.

In other words, Efficiency Ratio measures the strength of the trend. ER divides the net price movement by the total price movement. The first and one of the most important steps in the construction of the KAMA is an estimation of the Efficiency Ratio. The limiting values of the efficiency ratio are $0 \leq ER \leq 1$. When markets are very noisy for the current amount of direction and movements of the market are in a larger range $ER \to 0$. The opposite of that, when prices are highly directional and changing of price contain relatively little noise $ER \to 1$.

Essence of trend-following methods adapt to different market conditions, and that is the starting idea of all adaptive moving averages. KAMA seeks to adapt its behavior, according to the combination of market direction and speed by use of the Efficiency Ratio (ER). Kaufman (1995) noticed four characteristic types of market for research and the development of KAMA: runaway markets (with very fast speeds), fast markets (with fast speeds), congested markets (with very slow speeds) and middle-trends with some volatility (slightly faster sometimes). He based his adaptive moving average on a theory that slow (i.e. Long-length) moving average will be preferred when markets are ranging and fast (i.e. Short-length) will be preferred when market prices are trending.

3. TRADING SYSTEM

In all presented moving averages common parameter is price P, but it is not specified which price. For parameter price can be used any of open, high, low and close price or some kind of combination of them. In this research, we decided to use close price because, in this context, close price is the best solution for including most of the distributions and corporate actions that occurred at any time prior to the next day's open.

The length of the moving average is very important parameter suitable for discussion. It depends on the analytical objectives. For short-term trends and trading short moving averages (5-20 periods) are the best, for medium-term trends better are longer moving averages that might extend 20-60 periods, and long-term investors would opt moving averages with 100 or more periods. It is widely known that some moving average lengths are more popular than others. One of the most popular short-term moving averages is a 10-day moving average. The 50-day moving average is quite popular for the medium-term trend. Perchance one of the most popular moving averages is the 200-day moving average which is long-term moving average, because of its length. It is not new to combine shorter and longer moving average and many chartists use the 50-day and 200-day moving averages together. Length of moving average is, usually, optimized for a specific market.

There are a lot of strategies based on the moving average. One of the most popular is connected to the crossover because the crossover is the most basic type of signal and is favored among many traders because it removes all emotion. Regardless of that, we decided to use another moving average strategy because of the type of our research. Since our research is based on comparative analysis of different types of moving averages, we decided to use the same strategy for all presented moving averages:

- Open long position if moving average is rising
- Close long position if the moving average is dropping

The main idea of this research is to compare different moving averages using the same strategy and we consciously decided to use this, tentatively, simple strategy. Also, we decided to use a control strategy “Buy and hold” where an investor buys stocks and holds them until the end of the time series.

4. RESULTS AND DISCUSSION

In this section we will describe data used for research and experimental conditions and settings. After that, we will present the results that we obtained and discussion of the results.

4.1 Data

Our target market is the Belgrade Stock Exchange (BSE). BSE was established in 1894. and by many criteria is behind larger stock markets. Regardless of that, according to the latest ongoings Belgrade Stock Exchange might have a promising future. We consider a set of 14 major stocks of the Belgrade Stock Exchange, which make the most important index of the Belgrade Stock Exchange called BELEX15 (AERO, AIKB, ALFA, ENHL, FITO, GMON, IMLK, JESV, KMBN, MTLC, NIIS, SJPT, TGAS, VZAS). Index basket constituents on the last revision day 31.12.2013. Data used for research purposes includes volume, open, high, low and close price of mentioned stocks.

Table 1: Data used for research

Symbol	Company	Period start	Period end	Number of observations
AERO	Aerodrom Nikola Tesla a.d., Beograd	7.2.2011	31.12.2013	733
AIKB	AIK banka a.d., Niš	9.1.2006	31.12.2013	2014
ALFA	Alfa plam a.d., Vranje	9.1.2006	31.12.2013	2014
ENHL	Energoprojekt holding a.d., Beograd	9.1.2006	31.12.2013	2014
FITO	Galenika Fitofarmacija a.d., Zemun	9.1.2006	31.12.2013	2009
GMON	Goša montaža a.d., Velika Plana	7.5.2012	31.12.2013	422
IMLK	Imlek a.d., Beograd	9.1.2006	31.12.2013	2014
JESV	Jedinstvo a.d., Sevojno	10.8.2009	31.12.2013	1111
KMBN	Komercijalna banka a.d., Beograd	18.6.2006	31.12.2013	1836
MTLC	Metalac a.d., Gornji Milanovac	9.1.2006	31.12.2013	2014
NIIS	NIS a.d., Novi Sad	30.8.2010	31.12.2013	846
SJPT	Soja protein a.d., Bečej	9.1.2006	31.12.2013	2009
TGAS	Messer Tehnogas a.d., Beograd	9.1.2006	31.12.2013	2014
VZAS	Veterinarski zavod Subotica a.d., Subotica	28.2.2007	31.12.2013	1730

In Table 1, we present all stocks used for research with their basic information including company name, period start, period end and the number of observations.

4.2 Experimental Settings

Developed system has some experimental settings and conditions. The value of the of commission is set at 0,0065 , which is the actual commission on the Belgrade Stock Exchange (BSE), and the value of starting account is 1 000 000 RSD. Purchase transactions can be done once a day at the opening of trading at a price that was achieved in the opening. It is assumed that any volume that our system is able to trade is realizable at specified prices. If volume is zero, i.e. if there is no trade, our trading system does not do anything. Also, one of the restrictions is that shorting stocks is not possible.

4.3 Results and Discussion

For all mentioned moving averages number of periods included in the averages is optimized. Limiting values of the number of periods included in averages are 2 and 100 with intermediate steps of 1. Herewith we would like to include all three main types of moving averages (short-term, medium-term and long-term).

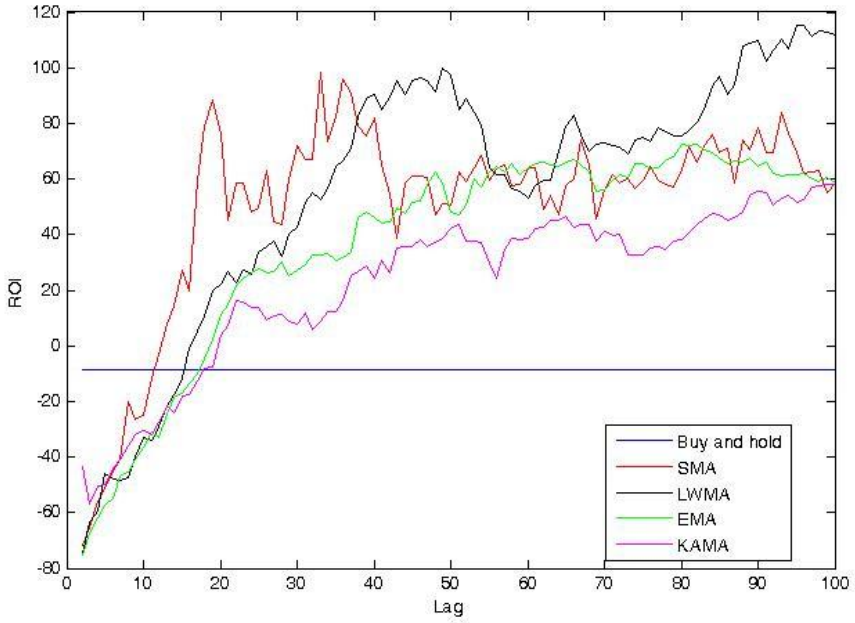

Figure 1: Comparison of moving averages with respect to average profitability (BELEX15)

In Figure 1 we present changing ROI depending on the lag, where ROI is return on investments and lag is optimized number of periods included in averages. ROI is, also, used to evaluate the efficiency of an investment and is given by the formula:

$$ROI = \frac{net\ profit}{investment} \cdot 100\% \tag{11}$$

We show ROI of all the moving averages compared with the ROI of control strategy “Buy and hold”. Generally, in this research Return on investment (ROI) is used as a ranking criterion.

It shows that the standard set of MA rules (SMA, LWMA, EMA, KAMA) performs poorly on short-term trends (length up to approximately 10) and it was expected. The main reason for this is commission, which is an advantage for “Buy and hold” strategy, because in that strategy, there is no trading until the end of the time series. Also, the average ROI of “Buy and hold” strategy is -8,398 and in short-term trends, average ROI for our moving averages is negative. For longer short-term trends with length in the range of approximately 10 and 20 average ROI of all four moving averages exceeds ROI of “Buy and hold” strategy and, soon, become positive. That happens to SMA, LWMA, EMA and KAMA, respectively. On medium-term trends, with length in the range of approximately 20 and 40, the biggest average ROI is for SMA and after that average ROI for SMA decreases rapidly to the middle, in the range of approximately 40 and 70, where it stays to the end of the time series. As regards of LWMA, its average ROI is in the middle, in the range of 20 and 40, and after that is mainly the best except when the range of lag is approximately 55 and 65. For LWMA profit has tendency to increase with increasing the lag. For lag higher than 20, profit for EMA is mainly in the middle between the profit for SMA and LWMA. Surprisingly, the average ROI for KAMA is the worst of all four moving averages, even it shows an upward tendency with increasing the lag. An interesting fact is that SMA, EMA and KAMA are converging together for lag higher than 95.

Two most attractive stocks on BSE are NIIS and ENHL. Ad hoc predictions were that we will get interesting results for these two actions and it turned out to be true. NIS (stock symbol: NIIS; English: Petroleum Industry of Serbia) is a Serbian multinational oil and gas company headquartered in Novi Sad, Serbia. NIS held a monopoly on all oil imports in Serbia until 2011.In Figure 2 we present close price for stock NIIS, as well as average ROI for all four types of moving averages depending on the lag, for the same stock.

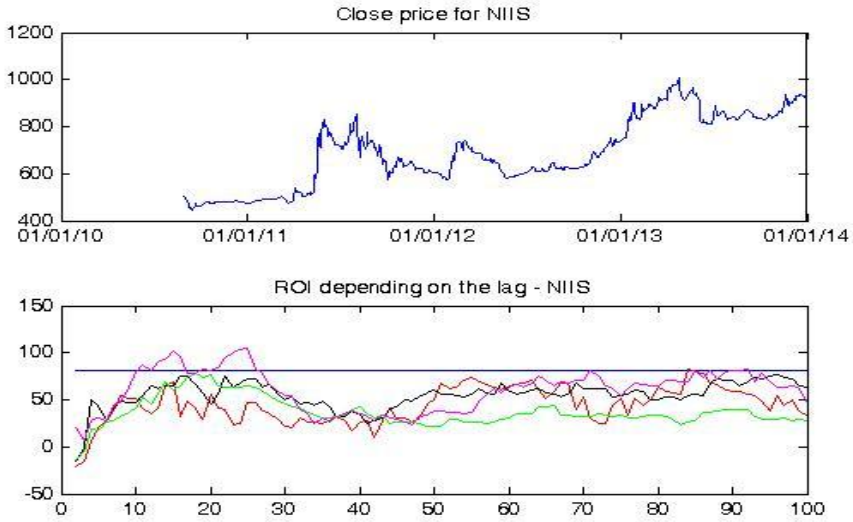

Figure 2: Comparison of moving averages with respect to average profitability (NIIS)

What is characteristic for this stock is the very high average ROI of "Buy and hold" strategy. One of the main reasons for this is, generally, upward trend of this stock. NIIS is the most liquid stock on the Belgrade Stock Exchange and has a strongly trended bull market. Also, very interesting are the results for KAMA for trends with length in the range of approximately 10 and 25. In that range KAMA has the best average ROI, excluding the two falls. Kaufman (1995) suggested KAMA with a length of 21, which results are good in this case, but not so good as KAMA with a length of 15 and KAMA with a length of 25. Except KAMA with mentioned lengths, all other moving averages with different lengths, mostly, has a lesser average ROI. KAMA as, conditionally speaking, "smarter" moving average gives better results on stocks such as NIIS.

Energoprojekt holding (full legal name: Energoprojekt holding a.d. Beograd) is a Serbian construction company founded in 1951 in Belgrade, Serbia. It enters into the composition of BELEX15 and BELEXline, the two main indices of the Belgrade Stock Exchange. This stock is very interesting for the investors and one of the highly liquid stocks. In Figure 3 we present close price for stock ENHL, as well as average ROI for all four types of moving averages depending on the lag, for the same stock.

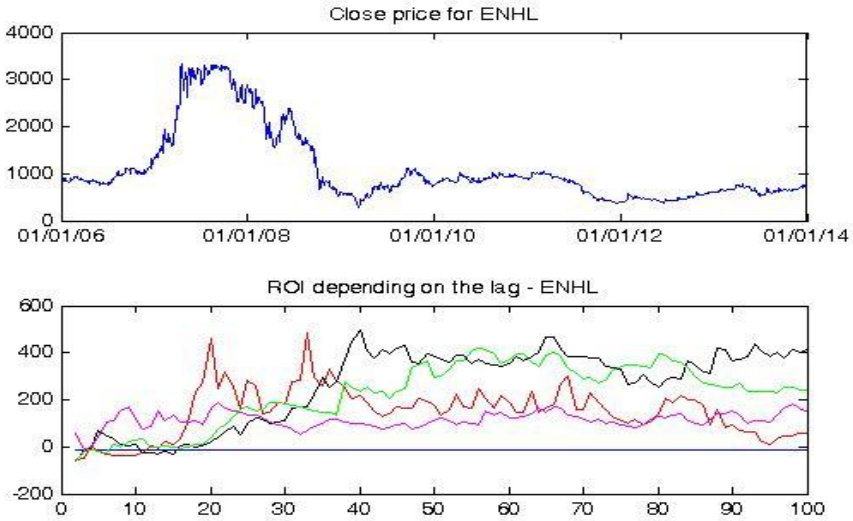

Figure 3: Comparison of moving averages with respect to average profitability (ENHL)

As we can see from the graphs, there is a very low average ROI of "Buy and hold" strategy, which is negative. This is, mostly, because of the influence of the financial crisis. Except for smaller lengths, results of "Buy and hold" strategy are the worst from all four moving averages. The best results are for SMA with a length of 20, SMA, with a length of 33, and for LWMA with a length of 40. In the middle-term trends, principally, SMA dominates. In trends with length longer than 40, there is "battle" between LWMA and EMA in which LWMA dominates. KAMA for trends with length longer than 10, has small oscillations.

5. CONCLUSION

In this study, we have compared four types of moving averages – Simple Moving Average (SMA), Linear Weighted Moving Average (LWMA), Exponential Moving Average (EMA) and Kaufman Adaptive Moving Average (KAMA). To compare the averages, we use them as models of trends within the basic trend following trading strategy. Trading strategy is tested on most liquid equities from Belgrade Stock Exchange (BSE). The selected equities represent the components of the BELEX15 market index.

Our study has shown that, on overall, basic trend following strategies can be profitable and can give better results than “Buy and hold” strategy. We found that increase in the MA lag parameter is followed by the increase in the profitability of trading strategy. The overall results show that LWMA outperforms other moving averages. Unexpectedly, KAMA performed the worst. Further, the resulting ROI for SMA, EMA and KAMA are converging for large values of lag parameter.

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RESULTS OF APPLIENCE OF BENFORD'S LAW ON SERBIAN COMPANIES[1]

Lidija Barjaktarović[1], Marko Milojević[2], Ivica Terzić[3]
[1]Univesity Singidunum Belgrade, lbarjaktarovic@singidunum.ac.rs
[2]University Singidunum Belgrade, mmilojevic@singidunum.ac.rs
[3]University Singidunum Belgrade, iterzic@singidunum.ac.rs

Abstract: *Benford`s Law is one of the most common technique for detecting anomalies and irregularities in accounting data. Its purpose is to analyses patterns of digits in numbers sets. Benford`s Law explain frequency for each digits of numbers in log-normally distributed data. The subject of this research is to determine does some of accounting positions (fixed assets and net result in absolute numbers available on the site of the Agency of legal entities) in official financial reports of 847 big Serbian companies which perform business in 2012, have behaviour in accordance with Benford's Law. By applience of Audit Command Language (ACL) it is confirmed main hypothesis of the research that Benford's Law can be applied on financial reports of Serbian companies, i.e. can discover fraud in financial results. The results suggest that data of fixed assets reported in Serbian company's financial statements do not deviate from Benford`s Law and it is proof that data are presented fairly. In contrast, data of profits/losses showed a deviation, which indicated the potential existence of fraud in the income statement.*

Keywords: *Benford`s Law, ACL, accounting, fraud, fixed asset, net result, management*

1. INTRODUCTION

In order to increase profitability and market share many companies expanded their activities on other industries by establishing or acquiring other companies in the country or abroad. Globalization has had impact on increase of international trade, but they have introduced a lot of problems connected to the book keeping and accounting. Different taxes on profit and other important items of financial reports resulted in favour of headquarter (profit is booked there) while expenses were booked in financial reports of daughter companies (majority costs belong to the mother company). Profit has been moved from country to country in accordance with headquarters' need.

At the same time, internationalism raised question of financial report validity. Different accounting regulation had made problems in monitoring and comparing daughters' businesses. In practice it was possible that there were different book keeping in two countries where one internationally active company was present.

Introduction of International standards of financial reporting (IFRS) was good step in solving the described problem. It uniformed and standardized regulation for creating and booking financial reports. Serbia implemented IFRS in 2004.

However, IFRS didn't solve all problems, because standards allow accounting judgement (Milojevic and Terzic, 2013). The fact is that IFRS requires intensively implementation of judgment which can have impact on bigger differences due comparison of financial reports of group of connected companies in different countries. Rules can be explained on different ways which can resulted in different results in appliance of the same rule. However, appliance of IFRS allows companies to prepare and analysed financial reports by applying the same basis all over the world.

The subject of this research is to determine does some of accounting positions in official financial reports of Serbian companies have behaviour in accordance with Benford's Law. The aim of the research is to check

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quality and validity of chosen accounting positions in order to make proper conclusion. The main hypothesis of paper research is: Benford's Law can be applied on financial reports of Serbian companies.

2. LITERATURY REVIEW

Phenomena known as Benford's Law was discovered by NewCobe in 1881, when he noticed that smaller digits at the beginning have higher frequent of appearance than bigger. Fifty years later, in 1938, Benford confirmed this regularity (Hill, 1998). Moreover, Benford expended analysis with determine frequency of appearance of the first digit in different data: length of the river, article numbers, demographical statistics etc. Digits results of those data were near to logarithms distribution.

Nigrini, used to analyse Benford's Law, and he stressed the importance of it in controlling data i.e. discovering fraud or mistake (Nigrini, 1996). Benford's Law is used to determine normal frequency of repeating some number in the data pool (Nigrini, 1999). This is silent confirmation that some pool of accounting data or number of voices on election or data in any experiment which isn't enough in accordance with Benford's Law, can be result of manipulation or mistake in data.

Benford's distribution is the only distribution of the first important digits which remains the same with the scale's change i.e. it is the same when the data is converted from one currency into another currency (Diekman and Ben, 2010). Pool of data has the higher probability to be under Benford's Law if the data comes from more various distributions. Engel confirmed that Greek's debt crisis could be predicted by digit analyses of euro stat data (provided by the Greek Government). He thinks that Benford's Law has full appliance in practice in this case (Engel, 2010).

There is a wide range of literature connected to the appliance of Benford's Law in accounting and auditing. For example in accounting, Carlslaw (1988), Kinnuen and Koskela (2003) and Van Caneghem (2002) did researches on "cosmetic profit management" and frauds. They confirmed that there are bases for suspicions on manipulation on chosen sample of companies, which were subject of analysis. Moller applied Benford's Law in auditing and tax auditing (Moller, 2009(.

Carlslaw did research in accounting filed on financial reports of New Zeeland companies in 1988, and he confirmed and documented their practice of profit management in line with Benford's Law. Accordingly, profitable companies expressed higher (lower) frequency of appliance of 0 (9) as second digit in profit. This shows that those companies manipulated with their profit where the second digit was higher than the first in order to increase the first digit (Carlslaw, 1988).

Benford's Law allows auditors to get information about probable frequency of appearance of determined digit in data. It helps them to discover the data which can't be visible by applying traditional methods of auditing financial reports. The templates of appearance of digits can lead to imaginary digits, systematic fraud, and mistake in data or subjective way of expressing data (Nigrini, 1996).

In the first row of the first page of the paper, below the space reserved for header, you should type the paper title. Names of the authors, names of the institutions and the addresses should be typed below the paper title, as shown at this page of the instruction. In the first empty row below the address of the first author, apply style "Line" or copy/keep the line from this template. Below the paper title and names of the authors, you should write a short abstract. Below the abstract, you should write key words.

3. METHODOLOGY

The sample subjects of analyses are:

- 847 big companies which perform business in Serbia, and they are part of internationally active companies and have connected companies locally in 2012 (in accordance with Law on Accounting and Auditing).
- Following items from balance sheet and income statement: fixed assets and net result.

As it is known, appliances of fair value, moment of accepting income, cost of capitalization, write off stocks or receivables, are items with whose correction it can be influenced on company's business. In this research we implemented tool for checking the data quality in terms of their surety and originality. In the case when original data is behaviour in accordance with Benford's Law, replacement of correct with imaginary data leads to discrepancy with the Law (Benford, 1938).

Authors decided to analyse:

- Fixed assets because companies were obliged to correct value of own assets with market value in accordance with IFRS. So, we authors were interested did companies do it on right way or not i.e. was there suspicion that Serbian companies expressed on false way value of own fixed assets.
- Net result (profit or loss) because this item is subject of manipulation and hot topic for domestic and international researches. Furthermore, higher net profit increases credit potential of the company, appetite of owners and strategy for the decrease for paid tax on profit to the state.

The basis of analysis was financial reports available on site of the Agency for legal entities. In order to process easier chosen balances' items we converted them into MS Excel, and then transferred to module ACL (Audit Command Language) to check Benford's Law in Practice. Authors decided to use ACL because of following reasons: Firstly, there is significant beneficiaries' forum with higher number of visitors comparing to other auditing software. There is huge number of experts which are capable to answer on any technical or methodology problem which can be appeared. Secondly, there is huge number of beneficiaries' groups organized on regions, which are determined by technological equipment level, geographical position and way of expressing data in financial reports. Thirdly, there is enormous number of publications which cover ACL module in electronic form and published books. Finally, there are more ACL than IDEA users. So, large companies rather will employ ACL than IDEA users (Coderre, 2009).

The following formulas were applied:

A. Frequency of appearance of the first digit in accordance with following logarithmic equation:

$$F_a = \log(1+\frac{1}{10}) \qquad (1)$$

Where is n leading decimal digit which is not 0 i.e. 1, 2, 3, 4, 5, 6, 7, 8, 9.

B. Other digits

In the case of number which starts with decimal digits nz

$$F_b = \frac{\log_{10}\left(1+\frac{nz+1}{nz}\right)}{\log_{10}\left(\frac{n+1}{n}\right)} \qquad (2)$$

Where z can have following values 0, 1, 2, 3, 4, 5, 6, 7, 8, 9.

C. Appliance of Benford's Law on any numbers

Number which starts with decimal numbers abc … opq,

$$\log\ 1+x\ \approx\left(x-\frac{x^2}{2}+\frac{x^3}{3}-\frac{x^4}{4}+\ldots\right) \text{ Taylor's seria (3)}$$

$$\log_{10}\ 1+x\ \approx\left(x-\frac{x^2}{2}+\frac{x^3}{3}-\frac{x^4}{4}+\ldots\right)/\log(10) \text{ (4)}$$

$$F_q = \frac{\log_{10}\left(\frac{abc\ldots opq+1}{abc\ldots opq}\right)}{\log_{10}\left(\frac{abc\ldots op+1}{abc\ldots op}\right)} = \frac{\log_{10}\left(1+\frac{1}{abc\ldots opq}\right)}{\log_{10}\left(1+\frac{1}{abc\ldots op}\right)} \approx \frac{abc\ldots op}{abc\ldots opq} \to 1/10 \text{ for increasing q (5)}$$

Table 1 showed that the first digits in real time of measurement, are generally speaking, logarithmically distributed, with the highest frequency of appearance of digit 1 (30.1%) and with the lowest frequency of appearance of digit 9 (4.6%).

Table 1: Probability of appearance of digits in collected pool of numerical data in accordance with Benford's Law

Digit	**Expected Frequencies Based on Benford's Law**		
	1st place	1st place	1st place
0		0.1197	0.1018
1	0.3010	0.1139	0.1014
2	0.1761	0.1088	0.1010
3	0.1249	0.1043	0.1006
4	0.0969	0.1003	0.1002
5	0.0792	0.0967	0.9980
6	0.0670	0.0934	0.9940
7	0.0580	0.0904	0.9900
8	0.0512	0.0876	0.9860
9	0.0458	0.0850	0.983

(Source: Nigrini, 1999)

It means that probability of the first digit is decreasing with the increased of its height. Distribution of the second digit has the same trend; decreasing trend is shortening with movement of the digit position on the right in collected pool of numerical data. In the case when numbers of some pool are ranked from the smallest to the biggest, they roughly follow geometrical distribution (roughly, because Benford's pool of data of two numbers can be identical). Pool of numbers is in accordance with Benford's pool of data if fulfills minimum following three conditions:

- Pool of data has to be homoginious: population of the town, surface of the lake, value of shares, etc.
- Data doesn't have low (especially zero) and up bound.
- Data can't be in passwords, such as telephone numbers, post codes, numbers of social insurance.

A reason why those data isn't in accordance with Benford's Law is clear [5].

It is important to emphasize that this distribution is not applicable on any scope of numbers. Firstly, scope of numbers should be big enough to allow distribution of digits. Some of authors discovered that scope which consists with less than 100 items won't be in accordance with Benford's Law. Secondly, numbers shouldn't contain artificial limitations or origin [15].

Limitations of the research are connected to the fact that all: analysed companies didn't have fixed assets and net result of company's performance is expressed in absolute number.

4. RESULTS OF RESEARCH

Results of applied Benford's Law on the leading digits of value of fixed assets of 847 big companies which perform business in Serbia are presented in table 2. Leading digits are expressed from 1 to 9, their number of appearance in the sample, expected number (count) in accordance with Benford's Law, value of Z statistics, as well as lower and upper bound of tolerance.

Table 2: Frequencies of appearance of the first digits expressed in fixed assets of Serbian big companies in 2012

Leading Digits	Actual Count	Expected Count	Z stat Ratio	Lower Bound	Upper Bound
1	243	246	0.209	221	272
2	141	144	0.233	123	165
3	88	102	1.449	84	121
4	88	79	0.972	63	96
5	66	65	0.094	50	80
6	44	55	1.436	41	69
7	57	47	1.356	34	61
8	51	42	1.374	29	54
9	40	37	0.346	26	49

(Source: Authors calculations)

We can conclude that frequency of appearance of all digits on the first place of accounting item fixed assets of big Serbian companies is in accordance with Benford's Law. By appliance of 0.10 level of surety, table 2 discovers that frequency of real appearance of all digits from 1 to 9 is statistically unimportant different from expected frequency of appearance (expected count). In Serbian case, 814 companies have 1 as the first digit of value of fixed assets, which represents 29.85% of total number of analysed data. In accordance with Benferd's Law expected count is 246, which means that this discrepancy is not statistically important, which we confirmed by calculating Z statistics, i.e. lower and upper bound of discrepancy. The similar situation is with other digits and their frequency of appearance on the first place, which is the best visible in Figure 1.

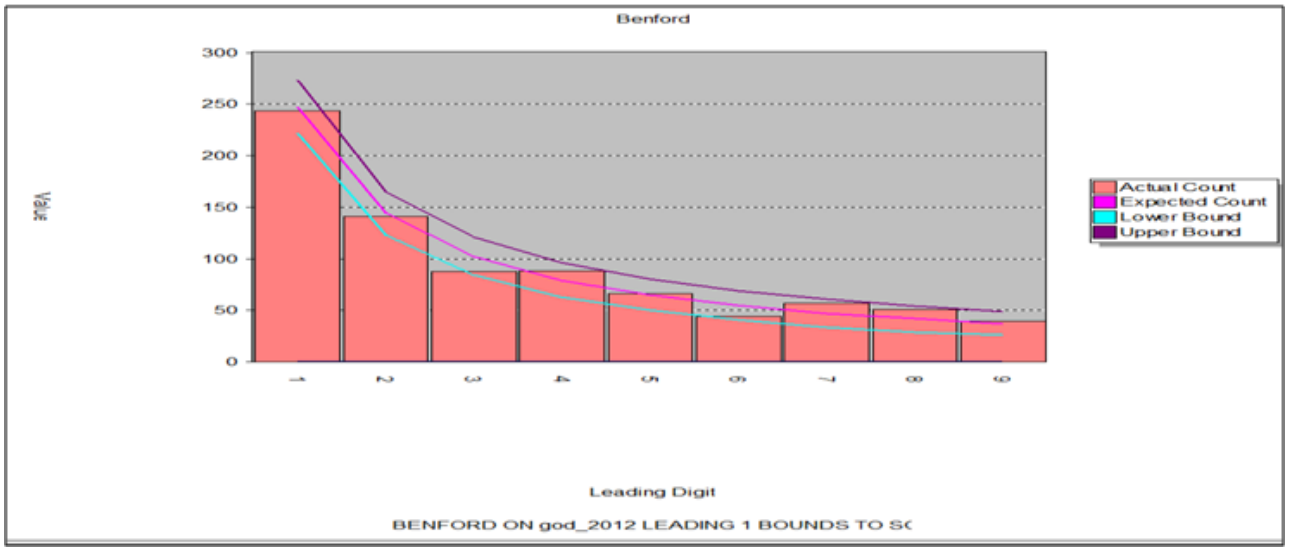

Figure 1: Frequency of appearance of the first digits in item fixed assets of big Serbian companies in 2012

On the basis of Figure1, where it is shown real and expected number of appearance of the first digit expressed in the item of fixed assets, and lower and upper bound, we can conclude that big Serbian companies expressed on the truth way value of own fixed assets. It is interesting that probability of appearance of all digits is in accordance with Benford's Law i.e. in prescribed borders. This finding is very important for auditors and state's bodies engaged on control of any company's business in Serbia.

Results of applied Benford's Law on the leading digits of value of net results of Serbian big companies, which are subject of analysis, are presented in table 3. Leading digits are expressed from 1 to 9, their number of appearance in the sample, expected number (count) in accordance with Benford's Law, value of Z statistics, as well as lower and upper bound of tolerance. In accordance with it, distribution of digits in profit of Serbian big companies is not in accordance with Benford's distribution.

Table 3: Frequency of appearance of the leading digits expressed in net result of Serbian big companies in 2012

Leading Digits	Actual Count	Expected Count	Z stat Ratio	Lower Bound	Upper Bound
1	**284**	255	1.687	229	281
2	148	149	0.392	127	171
3	83	106	2.320	87	125
4	71	82	1.229	65	99
5	70	67	0.310	52	82
6	60	57	0.384	42	71
7	45	49	0.826	36	62
8	**29**	43	1.844	31	56
9	**57**	39	2.918	27	51

(Source: Authors calculations)

Digits which aren't in accordance with Benford's distribution are 1, 8 and 9. Number 1 has the highest appearance on the first place, and it can be explained with nature of the position, which is difference between income and costs. For numbers 9 and 8 we can't find proper logical explanation. This finding is important for auditors, investors and small shareholders. For auditors, this result is important and useful in the moment of preparing and giving auditing opinion. For investors and small shareholders, it means that they should not accept financial reports without further analysis. Manipulation with achieved financial result can bring investors and small shareholders in bad position in terms of considering profitability i.e. earning situation of the company. However, we can conclude that this research should be expanded on longer period of analysis, which will cover period before and during the crisis, in order to confirm validity of prepared financial reports of Serbian companies.

Finally, we can conclude that the main hypothesis of the paper research is approved i.e. Benford's Law can be applied on financial reports of Serbian companies.

5. CONCLUSION

The main hypothesis of the paper research is approved i.e. Benford's Law can be applied on financial reports of Serbian companies. The sample consists of 847 companies which perform business in Serbia in 2012, where items subject of Benford's Law appliance are fixes assets and net result (profit or loss) expressed in absolute numbers. Authors used ACL model to determine applicability of Benford's Law on financial items of Serbian big companies.

Conclusions are following:

- Frequency of appearance of all digits on the first place of accounting item fixed assets of big Serbian companies is in accordance with Benford's Law. By appliance of 0.10 level of surety, table 2 discovers that frequency of real appearance of all digits from 1 to 9 is statistically unimportant different from expected frequency of appearance (expected count). In Serbian case, 814 companies have 1 as the first digit of value of fixed assets, which represents 29.85% of total number of analysed data. In accordance with Benferd's Law expected count is 246, which means that this discrepancy is not statistically important, which we confirmed by calculating Z statistics, i.e. lower and upper bound of discrepancy. Furthermore, we can conclude that big Serbian companies expressed on the truth way value of own fixed assets. It is interesting that probability of appearances of all digits is in accordance with Benford's Law i.e. in prescribed borders. This finding is very important for auditors and state's bodies engaged on control of any company's business in Serbia.

- Distribution of digits in profit of Serbian big companies is not in accordance with Benford's distribution. Digits which aren't in accordance with Benford's distribution are 1, 8 and 9. Numbers 1 and 9 have the highest and number 8 has the lowest appearances on the first place as result of executed research. The higher appearance of digit 1 can be explained by the character of the position, because group of companies intend to decrease payment of tax on profit. More frequent appearance of digit 9 and lower frequent appearance of digit 8 can be explained with intention of group of companies to expressed better result than it is, in order to create better picture in eyes of stakeholders of the companies. This manipulation is in accordance with human psychology, which says that it is more impressive when achieved result is 901,500,000 dinars (RSD) than 897,500,000. On the basis of calculated frequency of appearance of the first digit we can conclude that there are three group of companies in sample subject of analysis: the first one expressed truly correct results, the second group intends to express lower result in order to pay less taxes on profit, and the third group of companies intend to increase achieved net result with usage digits 8 or 9 on the second and third place in order to increase importance of the first digit. It can be said that the second and third group of companies are subject of management manipulation i.e. their plans to achieve their private aims.

  This finding is important for auditors, investors and small shareholders. For auditors, this result is important and useful in the moment of preparing and giving auditing opinion. For investors and small shareholders, it means that they should not accept financial reports without further analysis. Manipulation with achieved financial result can bring investors and small shareholders in bad position in terms of considering profitability i.e. earning situation of the company.

Limitations of the research are connected to the fact that all: analysed companies didn't have fixed assets and net result of company's performance is expressed in absolute number. Further researches will be

expanded on longer period of analysis, which will cover period before and during the crisis, in order to confirm validity of prepared financial reports of Serbian companies.

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TESTING MOVING AVERAGE TRADING RULE IN CASE OF SERBIAN AND CROATIAN STOCK MARKET INDICES

Boris Radovanov[1], Aleksandra Marcikić[2]
[1]Faculty of Economics Subotica, radovanovb@ef.uns.ac.rs
[2] Faculty of Economics Subotica, amarcikic@ef.uns.ac.rs

Abstract: *This paper examines the Belgrade Stock Exchange Index (BELEX15) and the Zagreb Stock Exchange Index (CROBEX) with respect to simple moving average rules. Using standard statistical tests, our results indicate significant difference between trading rule profit mean and unconditional profit mean in both observed stock markets. Also, the implementation of various moving average trading strategies drives to significant difference between average buy returns and average sell returns. Although applied moving average trading rule strategies mainly generate more losing trades than winning trades, most of them comes with extra profit compared to passive buy-and-hold strategy. In addition, it seems that presented moving average rules have forecasting power for the recent sample, which could be due to the fact that these rules have not been employed by market participants.*

Keywords*: Moving average trading rule, stock markets, indices, profitability, weak-form efficiency*

1. INTRODUCTION

If stock prices demonstrate various regularities in observed sample of time, they will allow the market participants to run a profitable trading strategy and to reject the weak-form market efficiency hypothesis. Anyway, the absence of weak-form efficiency, in which information consider only historical price data, does not unquestionably convert into profitable information. To prove this statement, Park and Irwin (2007) review evidence on the profitability of technical analysis and reveal that previous studies are not able to bring reliable arguments supporting the benefits of technical trading strategies.

Brock et al. (1992) provided strong encouragement for further development of trading strategies. Also, the focus of this paper is on the methodology similar to that of Brock et al. (1992). Bessembinder and Chan (1995) conclude that two simple technical trading rules are successful in predicting stock price movements in Japan, Hong Kong, South Korea, Malaysia, Thailand and Taiwan. Mills (1997) showed that even though the used technical trading rules outperform profits of defined benchmark in the time interval, their predictive ability significantly decline after the observed period.

However, most lately, the attention of technical trading analysis has shifted to emerging stock markets which collectively deliver a significant alternative source of opportunities to potential investors. Parisi and Vasquez (2000) and Gunasakarage and Power (2001) found support for the profitability of technical trading rules in several South American and emerging South Asian markets, respectively. Chang et al. (2004) also found that technical trading rules are profitable on some emerging stock markets. Similarly, McKenzie (2007) tested three technical trading rules for seventeen emerging markets and indicated that some of the trading rules appear to earn significant returns but the forecast accuracy decreases for more recent sample periods. Same author claims that market inefficiency could be a constant feature of emerging financial markets. Than as well, Marshall et al. (2009) consider technical trading rules more profitable for smaller, less liquid stocks. Moreover, Mitra (2011) investigated moving average trading rules for the Indian stock market and observed that profitable opportunities from technical analysis holds as a puzzle in the stock market.

On the other hand, investment attractiveness and predictive power seem to disappear in the course of time. Hence, it is of significant interest to investigate whether the inducement of technical trading strategies keeps on hold for the most recent sample periods. Consequently, the basic goal of this paper is to investigate the profitability and predictive ability of technical trading rules in Serbian and Croatian stock market during the last couple of years.

2. MOVING AVERAGE TRADING RULES

Trading rules or their alternatives, trading strategies, are measuring algorithms that generate an output investment decision containing the information about buy or sell a stock for a given period of time. If there is more volatility in the stock price data, there are more potential opportunities to buy and sell stocks. Though

the stock market may have indicated a stabile long term price movement pattern, in the short term the price behavior is very noisy. Thus, active trading strategies should be more profitable in the short term with more variation than the long term.

There are many different trading rules according to possible application and predictive ability. This paper focuses on one widespread used method, called the moving average trading rule. It is based on moving averages which are series of simple partial averages of prices P over the previous n trading days, including the current day. They represent a measure of stock price momentum. Therefore, the moving average at time t for n trading days is computed as follows:

$$MA_t^n = \frac{1}{n}\sum_{t=1}^{n} P_t \tag{1}$$

Thus, the original time series of stock prices conducts two new series of partial moving averages, one for short term (s) and another for long term (l), as we present by relations in table 1.

Table 1: Application of moving average trading rule

Condition	Decision
$MA_t^s > MA_t^l$	Buy/hold position
$MA_t^s < MA_t^l$	Sell/stay out position

Considering the moving average rule, when the short moving average of stock prices is above the long moving average, the traders initiate buy or hold decision relying on believe that the short term price growth surpass the long term price growth in expected time period. Oppositely, when the short moving average is below the long moving average or when they are equal, the traders make a sell or stay out decision.

A typical number of trading days in short and long term moving averages depends on research assumptions. Hence, Brock et al. (1992) are used 1 and 5 days interval for the short moving average, and from 50 to 200 trading days for the long moving averages, while Charoenwong (2012) considered that the short moving averages can range from 5 to 15 days and the long moving average from 50 to 90 days. This paper implements 1 and 5 days interval for the short, and 100, 150 and 200 trading days for the long moving average.

3. TESTING METHODOLOGY

Moving average trading rule represents unquestioned evidence of the stock price predictive ability if expected stock prices depend on available buy/sell information. To measure such a relationship it is crucial to test the difference between expected returns of buy and sell signals or returns of buy/sell signals generated from the technical trading rules and returns of buy-and-hold strategy. Evident choice for this purpose is the t–test of differences between the arithmetic means of two subsamples, presented by the following expressions in two variants:

$$t^* = \frac{\overline{R}_b - \overline{R}_s}{\sqrt{\frac{\sigma_b^2}{N_b} + \frac{\sigma_s^2}{N_s}}} \tag{2}$$

$$t^* = \frac{\overline{R}_{b/s} - \overline{R}}{\sqrt{\frac{\sigma_{b/s}^2}{N_{b/s}} + \frac{\sigma^2}{N}}} \tag{3}$$

Where the $\overline{R}_b$ and $\overline{R}_s$ are mean returns following the buy and sell signals, $\overline{R}$ is the unconditional mean, σ_b^2 and σ_s^2 are the variances of returns generated from buy and sell signals, σ^2 is the unconditional variance, N_b and N_s are the numbers of buy and sell signals, N is the overall number of observed data. The index b/s identifies combined buy and sell signals. The results of the t–test will help either accept the null

hypothesis (there is no actual difference between mean returns) or reject it (there is an actual difference between mean returns). However, these results assume independent and stationary time series with asymptotically normal distribution.

4. DATA AND SUMMERY STATISTICS

As noted previously, implementing a well-known trading rule provides an initial test of the weak-form market efficiency hypothesis. If stock markets are efficient, one cannot achieve superior results by using technical trading rules. However, if market inefficiencies are present, profitability opportunities may arise.
Due to the research of moving average trading rule in the course of time, this paper work uses the period of time from January 2009 to March 2014 presented by 1301 daily stock market indices values. In analysis we use two stock market indices: the Belgrade Stock Exchange index (BELEX15) and the Zagreb Stock Exchange index (CROBEX). Both indices are recognized as indicators of average stock price movements in emerging financial markets.

Table 2: Descriptive statistics

Index	BELEX15	CROBEX
Mean	0.00002	0.00002
Max	0.08250	0.08563
Min	-0.07471	-0.07020
Std	0.01292	0.01173
Skewness	0.41144	0.25183
Kurtosis	8.97576	11.20887
ρ(1)	0.26031	0.11024
ρ(2)	0.10592	-0.01563
ρ(3)	0.04200	0.07012
ρ(4)	0.10409	0.02522
ρ(5)	0.04610	-0.00333

Developing stock market indices, such as BELEX15 and CROBEX, significantly alter in statistical features from developed markets. Table 2 encompasses descriptive statistics of daily returns for time series of two stock market index values. The results indicate decidedly leptokurtic characteristics of data series with some potential signs of skewness. Furthermore, the volatility, presented by standard deviation (Std), is approximately the same for both indices. Also, serial correlations ρ(i), estimated at lag i for each data series, are roughly small, except at the first lag of BELEX15. Such data provides large enough samples to generate robust trading strategies that accomplish long term excess profits.

5. EMPIRICAL ANALYSIS

The remainder of this paper considers the implementation of moving average trading strategies to the series of historical index return data. In this sense, we incorporate six different trading strategies derived from moving average trading rule. These trading strategies differ among one another in the length of short and long moving averages denoted in the parenthesis. Table 3 and 4 shows the results of applying different moving average trading rules and approve further comparison of buy and sell trade signals generated by those rules.

Table 3: Test results for moving average trading rule using BELEX15

Strategy	N(buy)	N(sell)	R_t(buy)	R_t(sell)	R_t>0(buy)	R_t<0(sell)	t-test buy-sell.	p-value	t-test uncond	p-value
ma(1,100)	476	662	0.00102	-0.00002	0.51185	0.49118	2.00164	0.04553	1.55948	0.11913
ma(1,150)	449	592	0.00159	-0.00142	0.54681	0.44026	6.34211	0.00000	4.56152	0.00001
ma(1,200)	420	571	0.00048	-0.00106	0.52643	0.47311	3.42192	0.00064	2.33675	0.01960
ma(5,100)	564	526	0.00121	-0.00116	0.53162	0.44332	5.10662	0.00000	3.74980	0.00018
ma(5,150)	441	597	0.00091	-0.00073	0.52216	0.46718	3.31362	0.00095	2.44021	0.01481
ma(5,200)	420	569	0.00000	-0.00071	0.47917	0.47655	1.49474	0.13522	1.00910	0.31311

First column of table 3 presents short description of applied trading strategy. Therefore, the moving average trading rule is expressed in parentheses with short and long moving averages respectively. Following two

columns N(buy) and N(sell) contain the number of buy and sell signals recorded during the sample interval of time. After those columns, the next two $R_t>0$(buy) and $R_t>0$(sell) are the fraction of buy and sell returns greater than zero in whole sample. The t-test (buy-sell) indicates the test statistics of differences between the arithmetic means of buy and sell signals. The following column, p-value, represents the probability of obtaining test statistics. The rejection of the null hypothesis is indicated by the probability column if p-value turns out to be less than a certain significance level, for example 5%. Finally, t-test (uncond.) presents standard statistics results of testing the difference between buy and sell one-day returns and unconditional one-day mean return.

Applied moving average rule presented in table 3 for BELEX15 demonstrates the existence of a significant difference in the number of generated buy and sell signals among all six trading strategies. However, the appearance of a trading signal does not necessarily represent immediate buy or sell action. A sell signal should be a precaution for investors to avoid potential stock investment activity until another convincing trading signal emerges. Otherwise, a buy signal without making any investment action could be an unquestionable evidence of maintaining the position of given stocks in the investment portfolio. Generally, the first trading signal in potential sequence of buy or sell signals is assumed to be of most interest due to the existing stock price autocorrelation. Such a mechanism of frequent generating trading signals gathers less credibility of the investors, but at the same time inspires the growth of activity at the stock market. Moving average strategies present different average return results considering a whole sample of time interval. Meanwhile, every applied strategy obtains a positive one-day average return on generated buy signals and a negative one-day average return on sell signals. Mentioned averages on buy and sell signals are significantly different than unconditional averages presented in table 1. Because of that, t-test of difference between conditional and unconditional average returns in case of BELEX15 shows significant difference with p-value less than 5% in four of six trading strategies.

Table 4: Test results for moving average trading rule using CROBEX

Strategy	N(buy)	N(sell)	R_t(buy)	R_t(sell)	$R_t>0$(buy)	$R_t<0$(sell)	t-test buy-sell.	p-value	t-test uncond	p-value
ma(1,100)	627	624	0.00023	0.00007	0.49945	0.48603	0.06954	0.94457	0.03316	0.97355
ma(1,150)	537	612	0.00089	-0.00083	0.51441	0.46827	4.73631	0.00000	2.54779	0.01096
ma(1,200)	470	627	0.00054	-0.00074	0.49703	0.48620	3.85213	0.00012	1.96337	0.04982
ma(5,100)	579	620	0.00038	-0.00046	0.48264	0.49169	2.22486	0.02626	1.34446	0.17903
ma(5,150)	545	604	0.00046	-0.00054	0.48545	0.48114	2.66328	0.00783	1.49647	0.13477
ma(5,200)	471	626	0.00013	-0.00029	0.46814	0.48392	0.35697	0.72117	0.18447	0.85368

On the other hand, testing results in case of CROBEX are presented in Teble 4. First impression about results is the increasing number of trading signals compared with the case of BELEX15, although we used the same size of sample in both cases. Furthermore, the fractions of buy and sell return greater than zero are just about the same. Anyway, there are significant differences between buy signals average one-day return and sell signals average one-day return in four of six implemented moving average trading strategies. Such results provide a confirmation that trading strategies produce useful trading signals. Thus the returns made from the trading rule in case of BELEX15 and CROBEX are likely to be predictable. Leaving these inefficient trading strategies, for example ma(1,100) and ma(5,200), this paper proposes a set of moving average trading strategies with significant predictive ability and a high possibility of making profitable investment. Finding the efficient trading rule in both stock market indices supports the rejection of the weak-form efficiency hypothesis. This fact once more reminds on perception improvement of applying technical trading rules in emerging stock markets such as Serbian and Croatian stock market. Both stock market indices indicate similar stock price movement patterns, as well.

Usually, there are more sell signals in observed sample of daily returns. In overall, moving average trading strategies generate sell signals in around 55.9% (BELEX15) and 53.5% (CROBEX) of all trading signals. This epilogue shows the signs of gently to entirely reduced stock market activity and draws attraction to the lack of market capitalization. Altough Pauwels et al. (2012) consider it as a support of the efficient market hypothesis. Despite this, moving average trading rule in case of BELEX15 and CROBEX is capable to generate positive returns over a whole sample period due to the fact that the profit gained by winning trades surpass the losses from losing trades.

4. CONCLUSION

The paper attempted to provide an extensive range of possible moving average trading strategies that are capable to improve forecasting ability of stock price movements in and out of the observed sample. Overall, the results of this study contain strong support for the moving average trading strategies we have investigated and signify that almost all buy and sell differences are positive. According to previous claim, the t statistics mainly reject the null hypothesis of equality between average buy and sell returns or average trading returns and unconditional (passive buy-and-hold) returns. Strictly speaking, adequate implementation of moving average trading rule in case of Serbian and Croatian stock market leads to the rejection of the weak-form market efficiency hypothesis. Furthermore, it is inherent to the emerging stock markets that applied trading strategies generate more losing trades than winning trades.

An implementation of trading rules represents just a fragment of a comprehensive investment portfolio management analysis. As a result, complete perception of the stock price or/and return movement patterns in observed sample of time requires tools of the fundamental investment analysis, which generally rely on experience of financial experts. Nevertheless, applied trading strategies offer insight in the behaviour of the stock markets. Therefore, previously done analysis does not appear appropriate for small investors to implement. Respectively, individual case of stock trades requires analogous procedure of testing performances of moving average trading strategies referred directly to potential investment chances.

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FINANCIAL INTERMEDIATION SERVICES IN THE SYSTEM OF NATIONAL ACCOUNTS

Marija Vulović[1], Dušan Gavrilović[2], Aleksandra Vukmirović[3]
[1]Statistical Office of the Republic of Serbia, marija.vulovic@stat.gov.rs
[2]Statistical Office of the Republic of Serbia, dusan.gavrilovic@stat.gov.rs
[3]Stata.rs ltd Belgrade, Republic of Serbia, aleksandra.vukmirovic@stata.rs

Abstract: *This document presents the basic methodological concepts of national accounts related to the estimation of the output of credit institutions. The focus of the discussion will be the main source of income of these institutions coming from monetary intermediation – loans and deposits. The interest margin as the difference between the interest receivable on loans and interest payable on deposits in the system of national accounts is decomposed in order to disclose the pure property income and service charge - so called FISIM (Financial Intermediation Services Indirectly measured). This rather complicated statistical procedure often is misunderstood by the users of official statistics and in this paper we will try to explain the basic methodological concepts that are behind it and formulas for derivation of this macroeconomic statistical indicator.*

Keywords*: FISIM, SNA, ESA, Monetary intermediation, Interest margin, National Accounts.*

1. INTRODUCTION

Unlike business accounting that is primarily focused on determining the profit and enterprise value, the national accounts as a tool of macroeconomic analysis represents the statistical system aimed to capture the real economic activity of economic entities of a country. Basic statistical indicators that are used in this system, such as „output“ and „value added“ at the micro level of individual companies do not have their " real " or tangible manifestation in the form of cash flows and financial transactions, as is the case with business income and expenses disclosed in the financial statements of enterprises. This distinction between micro and macro level of the observation of economic activity may be most visible in the statistical treatment of credit institutions (banks and other credit granting companies). The structure of National accounts framework and principles governing national accounts are agreed internationally, and are explained in detail in the "System of National Accounts 2008" (SNA08). The SNA is endorsed by the five major international economic and financial organisations: the United Nations, the International Monetary Fund, the OECD, the World Bank and the European Commission. The European system of national and regional accounts – ESA is based on the SNA and represents the European standard for national accounting and is obligatory for all its member states.

Apart from standardized banking services, banks also generate service income by bringing together borrowers and lenders of money and lending at a higher rate of interest than they borrow. In the system of national accounts, the margin earned by the credit institutions from the difference between interest received on loans and paid on deposits is treated as a part of value of production (output) of these institutions together with other service charges and operating income. In the calculation of output, system of national accounts does not include any kind of property income such as interest, rents on land, dividends, extraordinary and non-operating income.

2. BASIC TYPES OF OPERATING INCOME OF CREDIT INSTITUTIONS

Banks and other credit institutions have two basic types of income:

1) Commissions and fees charged to customers (management of checking accounts, issuance of credit cards and processing of credit card transactions and billing, financial consulting, capital market services, wealth management and tax planning, brokerage services etc.). For this service, the bank explicitly charge for their services and there are clearly established tariffs so customers can immediately identify the costs of these services and banks their income and cash flow.

2) Other operating income such as the trade margins on foreign exchange and securities, income from rentals of its own buildings. As we have said, only the “regular” operating income is included in the output of

enterprises. Property income such as interest, dividends and rents on land are excluded from the national accounts concept of “operating income”. Moreover, income gained on sales of used capital goods, gains and losses from holding the financial assets, other extraordinary gains and losses which are part of net profit and loss of companies, in the national accounts methodology are treated as non-economic transactions which do not generate value added so they are excluded from the calculation of the output.

3) The interest margin as the difference between the lending and deposit rates. The largest part of the income of credit institutions comes from the monetary intermediation – i.e. from borrowing money at lower and lending it out at a higher interest rate to customers. In this difference the value of services of monetary intermediation is “hidden”, and for this part of the income does not exist an explicit fee or price because it is already contained in the said difference. Since there is no explicitly determined fee or price, the actual price of these services can vary from client to client and investment risk etc. For that reason this service of monetary intermediation by banks is called FISIM - or "financial intermediation services indirectly measured" and that is the official term which is used in national accounts statistics.

So, FISIM represents the value of financial intermediation services for which there is no explicit tariff but is included together with other components of operating income in the calculation of output of the banking sector. These three main types of income now face the operating expenses (so called the intermediate consumption) and increase the value added of the financial sector and eventually GDP of an national economy. Without this part of the output of the banks would had negative value added and that is the reason why the SNA1993 introduced FISIM as a concept in the system of national accounts.

3. CREDIT INSTITUTIONS IN THE SYSTEM OF NATIONAL ACCOUNTS

In the national accounts, each transaction must be recorded on the two sides - supply and use. The output of each manufacturer must end somewhere on the expenditure side of the system as either intermediate or final consumption. Commissions and fees as part of the output of banks are relatively easy to allocate and determine their “consumers” since the exact data exist in accounting system of banks so as in the book-keeping records of companies and enterprises (In Serbian official chart of accounts for business enterprises they have a special account for the recording of these transactions). But for the statisticians the biggest challenge and was accurately determine the allocation of FISIM by users for which no explicit accounting records both in banks and enterprises exist because and it is a “invisible” part of interest receivable and interest payable. For that reason SNA1993 and ESA95 (prior to the FISIM Regulation 448/98, which amended ESA95 now fully incorporated in the new ESA2010) established simplified rules for the calculation and allocation of this part of the output of the credit institutions, i.e. its use or consumption is calculated in a special way on the expenditure side of the system of supply and use in national accounts.

The solution for this statistical problem was found in the formation of a special, fictitious or nominal institutional sector that will perform the role of the "consumer" of FISIM for the whole economy. So, on the production side FISIM is included as part of the output increasing the GDP. On the expenditure side, now introduced was a nominal sector with only one item on the uses side and it included consumption of FISIM for all institutional sectors of national economy. He is subtracted from GDP as a kind of intermediate consumption of all the sectors of the national economy including so called “rest of the world – ROW” which designates the exports and imports of these services from abroad.

Detailed formula for the calculation of FISIM used by the Member States and which is still used for structural business statistics was presented in the Annex 6 of Regulation No 295/2008 for SBS. The Output credit institution is calculated by the following formula (Eurostat, 2008):

Table 1. Formula for the calculation of the output of credit institutions defined by SBS regulation No 295/2008

PRODUCTION ACCOUNT	**Sign** (+/-)
1) Interest receivable and similar income showing separately that arising from fixed-income securities These items shall include all income from: . Cash in hand, balances with central banks and post office banks . Treasury bills and other bills eligible for refinancing with central banks . Loans and advances to credit institutions . Loans and advances to customers . Debt securities including fixed income securities	+
2) Income from securities including: . Income from shares and other variable-yield securities [Note: The income from participating interests and the income from shares in affiliated undertakings has been excluded, because the income of productive factors received by a enterprise is not considered as production of that enterprise]	+

PRODUCTION ACCOUNT	**Sign** (+/-)
3) Commissions receivable (shall include income in respect of all services supplied to third parties): in particular: . Commissions for guarantees, loans administration on behalf of other lenders and securities transactions on behalf of third parties . Commissions and other income in respect of payment transactions, account administration charges and commissions for the safe custody and administration of securities . Commissions for foreign currency transactions and for the sale and purchase of coin and precious metals on behalf of third parties . Commissions charged for brokerage services in connection with savings and insurance contracts and loans	**+**
4) Net profit or net loss on financial operations (trading/dealing): including: . The net profit or loss on transactions in securities which are not held as financial fixed assets together with value adjustments and value re-adjustments on such securities . The net profit or loss on exchange activities . The net profits and losses on other buying and selling operations involving financial instruments, including precious metals	**+/-**
5) Other operating income	**+**
6) Sub-Total	

PRODUCTION ACCOUNT	**Sign** (+/-)
7) Interest payable and similar charges These item shall include all charges from: . Amounts owed to credit institutions: . repayable on demand . with agreed maturity dates or periods of notice . Amounts owed to customers: . savings deposits . other debts . Debts evidenced by certificates . Subordinated liabilities	-
= 8) Value of production (excluding value adjustments)	

4. CALCULATION AND ALLOCATION OF FISIM

In order to accurately determine the value of FISIM and its consumption, the new methodology introduced in 1998 required full allocation of FISIM to user sectors. The Part of FISIM consumed by business enterprises, government institutions, Non-profit institutions and other financial institutions, since it is a service related to their business oprations i.e. their economic activity is treated as part of operating costs (intermediate consumption) of these sectors and is distributed according to the deposits and loans of these sectors in banks. The second part of FISIM created in retail banking transactions with citizens i.e households (consumer loans, overdrafts, etc.) is treated as a final consumption of households . In this way, only part of FISIM now appears as intermediate consumption and there is no longer the fictitious institutional sector - the consumer of this service. This leads to an increase in GDP of one side and the final consumption of households on the other.

Distribution of FISIM to institutional sectors is based on the volume of deposits and loans which sectors have in transactions with banks and so-called „internal reference rate“. The reference interest rate is "basic" or minimum price of money that banks have to pay to get it and then deploy as loans to their customers. It's pure interbank interest without the risk premium and costs of monetary intermediation. According to the above mentioned EU regulations, the reference interest rate is calculated as the average interest rate on interbank loans). Upon this „pure“ interest rate, banks are adding the service charge for monetary intermediation i.e. FISIM and so a market interest rate is made.

So, interest that customers of banks receive as a income from their deposits is actually only residual from this pure interest that banks pay for obtainining money on interbank money market after the implicite service charge – FISIM is deducted from it. On the other hand, interest that customers pay for their loans and credits is actually the pure interest on wich a margin of service charge for monetary intermediation has been added.

Figure 1. shows the National Accounts concepts of interest received and payable and the distinction between actual interest and the „pure“ interest of banks on which the service charge margin for the monetary intermediation has been added or deducted.

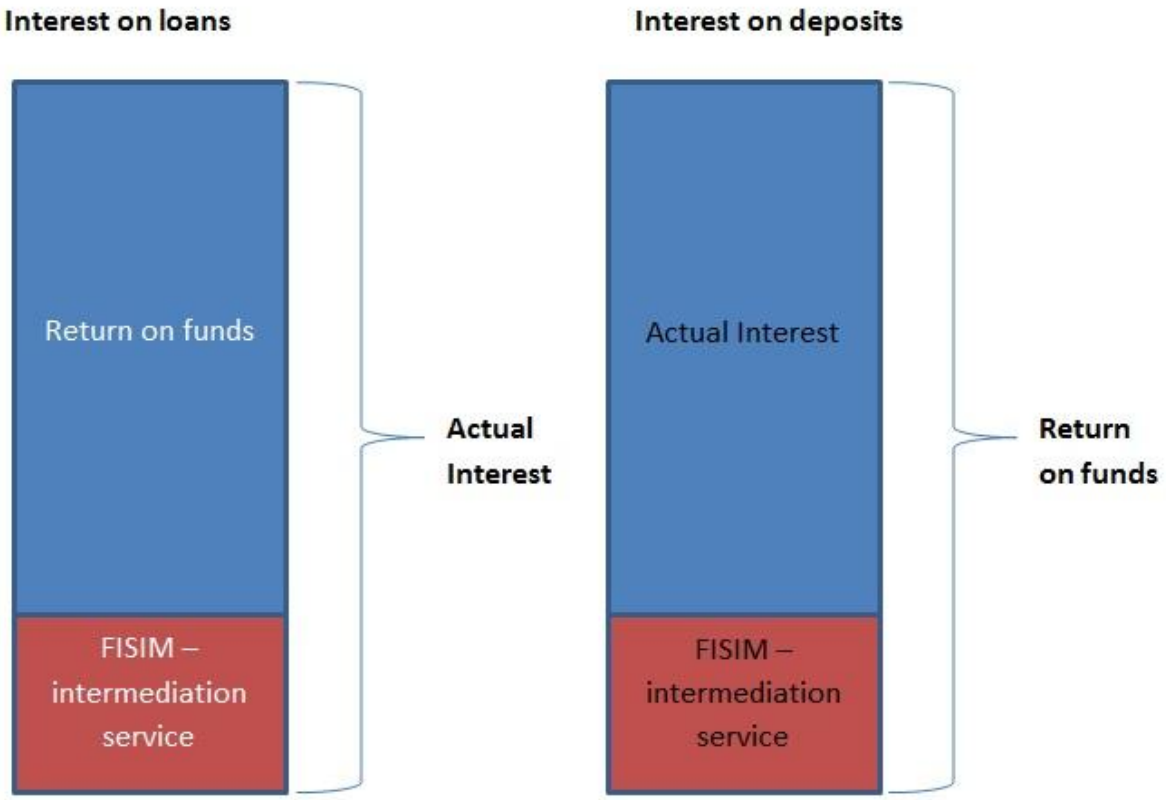

Figure 1: Relationship between different parts of interest in the monetary intermediation

As we have said, the total FISIM by an institutional sector *j* is obtained as the sum of FISIM on loans granted to the institutional sector ($FISIML_j$) and FISIM on deposits of the institutional sector ($FISIMD_j$).

$$FISIM_j = FISIML_j + FISIMD_j = RL - L_j r + D_j r - RD$$

Where RL is interest receivable on loans and RD interest payable on deposits. L is average stocks of loans and D average stocks of deposits. Internal reference rate is represented with *r*.

Rearranging this equation (3), we get:

$$FISIM_j = RL_j - RD_j - (L_j - D_j)r$$

Total FISIM is obtained by summing the FISIM for each institutional sector *j.*

FISIM together with other above mentioned components of operating income represents the value of production of credit institutions i.e. output.

Practically, for the statisticians, the calculation and distribution of FISIM to its user sectors necessiate data on each institutional sector concerning deposits, loans and accrued interest. For the calculation of internal refrence rate i.e. pure interest, data on interbank loans is required.

Now, we will show one simplified example for the calculation of FISIM for the sector of non-financial corporatons:

Reference rate - 5 %
Average stocks of deposit of business enterprise in banks - 100.
Total interest receivable by companies in respect of deposits - 3.
The average interest rate of 3 /100 = 3 %

Average stocks of loans of companies - 200
Total interest expenses of companies - 20
The average interest rate on loans : 20/200 = 10 %

FISIM on deposits will be (5 % - 3 %) * 100 = 2
FISIM on loans will be (10 % - 5 %) * 200 = 10
Total FISIM is 10 +2 = 12

The total interest margin is 20 - 3 = 17. If we subsctract from this interest marigin actual net interest 5 (200-100)*5% we will have the service charge for monetary intermediation.

The same formula applies for the other institutional sectors and the for the estimation imports and exports of FISIM data on deposits and credit transactions with non-resident credit institutions are required together with „external reference rate“ – interbank reference rate in transactions between resident and non-resident banks. The above presented calculation should also include finance leasing companies and other credit granting institutinons.

The ESA methodology for the calculation of the output of credit institutions and its allocation of in all EU countries has led to an increase in GDP because one huge part of it is now not deducted as a intermediate consumption but as a final consumption of households. Depending on the share of loans of households in the total volume of loans, the impact was larger or smaller.

5. CONCLUSION

Measurement of the output of banks and credit institutions in the system of national accounts represents rather complicated statistical procedure that requires reliable data on structure of deposits and loans as well as interest rates by different institutional sectors of national economy. National accounts methodology makes distinciton between actual inerest and „pure“ interest on which costs of intermediation service charge in the form of FISIM is added and charged to customers. In order to calculate the output of credit institutions SNA2008 and ESA2010 determine procedure for derivation of this statistical indicator and its separation from interest as property income.

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POSTAL AND FINANCIAL INCLUSION

Dragana Šarac [1], Milan Marković [2] Bojana Rogić [3]
[1] University of Novi Sad, Faculty of technical sciences, Novi Sad, dsarac@uns.ac.rs
[2] University of Novi Sad, Faculty of technical sciences, Novi Sad, markovicmilan5256@gmail.com
[3] University of Novi Sad, Faculty of technical sciences, Novi Sad, bojana.r.ns@gmail.com

Abstract: *Inability and/or difficult access to financial services consequently forces individuals, especially those most vulnerable, to look for solutions outside of authorized financial institutions. Such solutions are usually less safe and more expensive, and for this social group actually mean a return to the vicious cycle of poverty. Postal financial services are used by more than a billion consumers worldwide. The data suggest that several hundred million people who do not have accounts with banks or other financial institutions, use the Post for basic services, payment services, money transfers, money orders in the domestic and international financial transactions. In this paper, we have analyzed the role of postal financial services in the process of financial inclusion. By applying the survey method we have analyzed the following: the involvement of residents in the financial sector of the Republic of Serbia, the expectations of the financial sector and the opinions and level of satisfaction with the postal financial services. On the basis of obtained results, concrete proposals for further development of postal financial services in the Republic of Serbia are presented.*

Keywords: *post, finance, services, inclusion.*

1. INTRODUCTION

In the postal sector, there are numerous successful examples of postal-financial services, such as: the Postal Savings Bank of China, which has 475 million customers; Brazil's Correios with 10.2 million accounts opened in 10 years through a partnership with a bank; Namibia Post, which banks 20% of the total population in the country; India Post, which covers risks for 20 million people through its postal life insurance policy and holds 250 million of savings accounts; Papua New Guinea Post which is one of the three main competitors for mobile financial services in the country; Serbian Post which makes 150 million financial transactions per year in a country of 7 million inhabitants and so on (Berthaud&Davico, 2013).
Postal operators, in all their activities, have always relied on a business model based on large volumes and low cost. Financial services combined with the universal postal service and public postal network give the mandate to the Post to become a part of global fight against financial exclusion of the population.
Three major historical patterns explain the reasons why the postal organizations have begun to provide financial services:

- *First*, in most countries, the government has mandated the postal administrations or post savings banks to become an active participant in government development policy through the provision of public services to population that has no access to banks in the country. A good example of this is the formation of Postbank Lao and Vietnam Postal Savings Company (World Bank, 2006). The government's goal was to use the postal network to deliver the funds to enterprises and local government in rural and remote areas, such as Sri Lanka and India. Most countries in Western and Central Asia used a similar model. Not long after, the option of saving as another public service was offered.
- *Second*, offered financial products - mainly the service of savings via the post can be a source of government financing. The Post invests collected savings into government bonds or other financial instruments, as it is the practice in most African countries. The practice in India and Pakistan serves as another alternative, where post offices serve as the Government representatives in the sale of securities.
- *Third,* the government had in mind the income arising from financial services as resource for covering the cost of the universal postal service.

Post office's range of services depends on the legal and regulatory provisions under which financial services are offered. Post uses several models and methods of providing financial services, such as:

- *The Post as a part of the Ministry of Telecommunication and Postal Services* do not represent a separate entity, they do not have separate structure and are managed by the Minister (India, Yemen). Provision of financial services is performed within the same legal framework.
- *The Post is a separate legal entity whose ownership belongs to the state.* Within the post there is a sector which conducts financial services without a certain balance or statement of profit and losses.
- Many different legal entities (such as postal savings banks and postal services) conduct/provide financial services (the Philippines, Serbia, Montenegro). There may be a cooperative agreement (agreement on the type/level of services) which regulates the quality of services, payment of commission, cost-sharing,

training of personnel, accountability. This agreement defines the conditions under which these organizations work together and use the term "postal".

- *Post and postal savings bank wholly or partially belong to private investors* , which is not in accordance with protection of the principles of the public interest (Kavanagh, 2013).
- Post Offices focus on their core business, while financial services are handed over to specialized institutions such as commercial banks (Brazil, Malaysia, and United Kingdom). Financial products are sold under the brand name of postal organizations (Estonia) or the operator providing that service. The contract binds the post and financial institution. Posts can choose their partners by means of tenders, which has been done in the case of Brazil's Correios in Brazil, when the firm *Bradesco* was selected. However, in some countries (India, Pakistan) post offices on the basis of agent agreement, sell state bonds and other financial services (World Bank, 2006).

2. IMPORTANCE OF FINANCIAL INCLUSION AND THE ROLE OF POST IN THE PROCESS OF FINANCIAL INCLUSION

The concept of financial inclusion appeared for the first time in the UK in 1995. At that time, financial exclusion was primarily observed in the context of geographic accessibility. Nowadays, it is more than clear that financial exclusion is far more complex and that it does not only include access to variety of financial products and services, but also the possibility of their use.

The European Commission stresses that the "financial exclusion refers to a process whereby people encounter difficulties accessing and/or using financial products and services in the mainstream markets, and these products and services meet their needs and enable them to lead a normal social life in the society to which they belong" (Petrovic & Kaplanovic, 2012).

According to a survey by MasterCard "The Road to Inclusion", millions of people in Europe are fully or partially excluded from the financial flows. The average age of people who are completely excluded from the financial flows is 40 years old. The largest part of this financially excluded group (40%) in the last three months did not receive any form of payment, salary, welfare or anything similar. 35% received some type of salary in that time frame. 81% of them have lived in the same country all their life. Rather than benefiting from the characteristics of bank accounts such as transferring funds from one account to another, electronic banking or even the subsequent ability to buy merchandise at a discount over the internet, most people in these groups use cash to pay the rent (98%) and bills for utilities (95%), and stash their money in a secret hiding place in the house. Only in Western Europe, there are 93 million people who do not have a bank account or partially use services of banks.

United Nations – UN defined goals of financial inclusion as follows:

- Access at a reasonable price for all households to a full range of financial services, including savings or deposit services, payment and transfer services, insurance and credit services (Leonelli, 2002)..
- Sound and safe institutions, governed by clear regulations and standards.
- Financial and institutionalized sustainability, continuity and certainty of investment.
- Competition to ensure choice and affordability for customers.

Universal Postal Union - UPU has repeatedly made detailed studies and initiated activities to identify the role of post in the process of financial inclusion. The aim was to provide basic financial services (savings, payments and money transfers) to population without access to such services.

Advantages of post in achieving financial inclusion over other providers of financial services[1], particularly in relation to the banking sector, are reflected in the widespread postal network and confidence that post has especially among the poor.

Postal sector worldwide has more than 660,000 post offices, which makes it one of the largest distribution networks. This is particularly important for developing countries where, according to the World Bank study, the number of postal units and offices (500,000) is almost twice higher than the number of branches of commercial banks (275,000). Moreover, what is particularly important is that widespread postal infrastructure allows the postal system to provide services to the whole population. This is what differentiates the postal financial system and the private banking sector which seeks to allocate their institutional resources to the wealthier segments of the population, in order to obtain maximum profitability.

In addition to the extensive network of postal branches, advantage of post is also computer network for electronic data exchange. It facilitates the provision of payment system (Abdallah&Shakurova, 2012)..

[1] Financial services providers, can be divided into groups:

- Major commercial profit-oriented providers (banks and insurance companies);
- Commercial social-oriented providers (savings banks, postal banks and joint organizations):
- Alternative commercial (savings-credit cooperative and other micro financing institutions); i
- Alternative commercial profit-oriented financial services providers.

A typology of business models for postal financial inclusion (Berthaud&Davico, 2013) can be represented as follows:

- Post as a real estate provider – post can rent the space within postal units to financial service providers. Process of financial inclusion will depend on the financial partner which rents space from the post.
- Post is CM (CM - cash-merchant) – Post offers a single private partner or multiple partners the use of its units and staff for transactional financial services.
- Postal transactional financial services - Postal money orders generally form part of the traditional financial postal services and are a part of its core business.
- Post and partnership with a financial service provider - In this business model the Post usually offers the whole range of products of its partner.
- Post and unlicensed postal and financial services - This model involves provision of savings and credit services directly by post. In some countries, depositors of savings accounts benefit from a preferential tax exemption up to a certain amount. Northern, Western and Southern Africa, Western Europe, South Asia, East Asia and the Pacific are the regions with the highest postal savings. In Algeria, for example, the post has 15.1 million, i.e. 63% of savings accounts of the total 24.1 million accounts in the country. The Post in Algeria performs this service on the basis of the Postal Act, which allows the Post to offer these services without a banking license.
- Post and licensed postal financial services - More and more countries are exploring the possibility of creating a postal bank. The Post of Japan generates 90% of its income by its financial services, France with 23%, and Morocco with 62%. However, creating a postal bank is followed by some challenges. First, there is a regulatory challenge in securing a banking license. Second, capital requirements are a major obstacle (government and private sector). In Belgium, postal bank is a joint venture with the private sector, i.e. the Post owns 50% of the capital while a large banking group owns the rest.

The World Bank defines 6 basic types of financial products and services (World Bank, 2006):

1. insurance,
2. bank accounts,
3. savings,
4. credits,
5. transfer
6. financial consulting.

In developing countries, 2.7 billion people or 70% of the adult population does not use financial services of authorized financial institution (Mylenko, 2010).

Inability and/or difficult access to financial services consequently forces individuals, especially those most vulnerable, to look for solutions outside of authorized financial institutions. Such solutions are usually less safe and more expensive, and for this social group actually mean a return to the vicious cycle of poverty. More than 100 million people, i.e. 27% of the population in Central and Eastern Europe and Central Asia are located outside the banking sector or poorly covered by it. Proportion of the population that is not involved in banking relations varies from 25% in Central Europe to over 80% in Central Asia. The lowest offer of financial services is in rural areas (Petrovic & Kaplanović, 2012).

The current crisis solicits the need for the state to conduct an active policy of financial inclusion. In many countries and in different ways, such a policy is already implemented. The fact is that the postal sector, known for its values (user trust, quality, reasonable prices) receives a significant role in the implementation of this policy (Petrovic & Kaplanović, 2012).

The purpose of financial inclusion, and therefore the role of the post office is to bring excluded populations to regulated financial flows in order to provide financial support and improve the quality of their life.

The concept of financial services provision through the post office is not new, but in the practice it had a large number of unsuccessful implementation. The latest challenge is to determine what more can be done in order to offer postal financial services to the population without access to a bank, according to their needs, while on the other hand ensure that the postal network performs these services on a sustainable basis.

Postal network can have an active role in bridging the policy of digital division by connecting postal units through the platform for networking and with adequate technical support and internet (e-government, e-sales) to rural areas.(World Bank, 2006).

Inclusion through the postal network can be viewed at three levels: local, regional and global:

- Inclusion at a local level is provided on the basis of the proximity of access to basic financial services for low and middle income households, access to integrated commerce, communications, delivery/shipment and payment services to micro, small and medium enterprises (MSME) and access to the total population.
- Regional inclusion is provided through integration of MSMEs into regional chains of trade and supply.
- Inclusion at the global level is achieved through special services for migrants in relation to their remittances and postal accounts, as well as through international trade benefits for MSMEs.

The process of financial inclusion, in addition to positively affecting financially excluded population groups, also has significant positive effects for the post. Combined with traditional postal services, postal financial

services, and especially postal savings through more intensive use of the postal infrastructure, in return give the post reduced costs and increased efficiency. The total income generated from financial postal services in the world (excluding Japan) grew in the period from 2001 to 2008 from 14.1 to 29.4 billion dollars.
There are different projects and institutions which support financial inclusion worldwide.
Alliance for Financial Inclusion (AFI) is the largest and most important network of financial inclusion in the world. AFI was founded in 2008, as the project funded by Bill & Melinda Gates Foundation and supported by AusAID to promote the development of a reasonable policy of financial inclusion in developing countries. AFI network counts more than 105 institutions from 88 member countries from 2008 to 2013. In 2011 AFI has adopted Maya Declaration, a set of common principles and objectives of the development policy of financial inclusion.
Center for Financial Inclusion (CFI) is a movement that was formed in 2008. To help establish financial inclusion around the world, CFI defined full financial inclusion as sustainable if users have access to complete package of financial services, at affordable prices in a unique way, equally, without discrimination. The vision of CFI is to fully implement the inclusion through a stable and competitive service provision. Access to financial services is accelerated as a result of the following: micro insurances are booming and reaching half a billion of insured people; the potential market is between 1.5 and 3 billion people; a large number of financial policy makers throughout the global community promotes financial inclusion The *Basel Committee on Banking Supervision* (*BCBS)* and The *Financial Action Task Force* ((*FATF*)). Central banks and ministers of finance from over 80 countries participate in the Alliance for Financial Inclusion (AFI); focus is on the importance of the customer. Generally, financial inclusion involves various directions and steps, such as:

- Opening a bank account without unnecessary details and conditions, available to almost the entire population. Banks are advised to enable an overdraft on this account.
- Simplification of procedures and norms for opening an account.
- The involvement of intermediaries in providing financial and banking services.
- Using technology: Banks are advised to make effective use of legal, informational and communication technologies and to provide easy performance of all banking services through intermediaries.
- In order to assist the poor and vulnerable, cheap an easily accessible credits are available for this layer of population.
- Establishment of permanent bank branches in rural areas.

Financial inclusion has its shortcomings and risks. Above all, risk of excessive debt of population. This problem is solved by defining an optimal set of basic financial services. However, the benefits of financial inclusion are numerous, from the lower prices of financial services to greater access to the financial sector, and the development of competition in the banking market and the development and improvement of existing financial services.

3. FINANCIAL SECTOR IN THE REPUBLIC OF SERBIA, POSITION AND PERSPECTIVE OF THE POST OF SERBIA

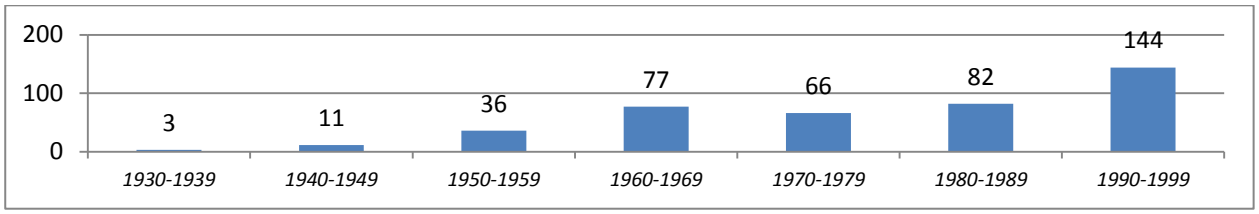
At the end of the first quarter in 2013, 32 banks were doing business in Serbia. Banks owned by foreign entities continue to have a dominant share in the banking sector by approximately 75% of the assets and profit of the banking sector. Banks which originate from the European Union have the share of 70.7% (69,2% from countries where euro is used) and the banks originated from Russia and USA have the share of 3,6% and 0,3% respectively. While the relation of asset to capital according to the origin of ownership in banking sector is almost the same, banks owned by domestic entities (primarily state-owned banks) still have more developed branch network, as well as a larger number of employees, i.e. 36% of the organizational network and 28, 4% workforce in contrast to 25,4% share in balance sheet and capital. Of the total number of banks, 22 of them operated with a positive result that is a total of 12.63 billion dinars, while 10 banks operated with losses of total 1.78 billion.
Financial services that are performed in the units of postal network in the Republic of Serbia can be divided into:

- services performed in the name of post and for their own account,
- services performed on behalf of the bank and for the account of bank.

Post performs various financial services as a part of their own business to private and legal entities, in accordance with the regulations governing this area (laws, regulations, manuals, price list etc.) and contracts signed with clients. Services performed by post but on behalf and account of bank are also regulated by general laws, special agreements with banks, as well as internal regulations, which were adopted by both the bank and post office for the performance of these services.

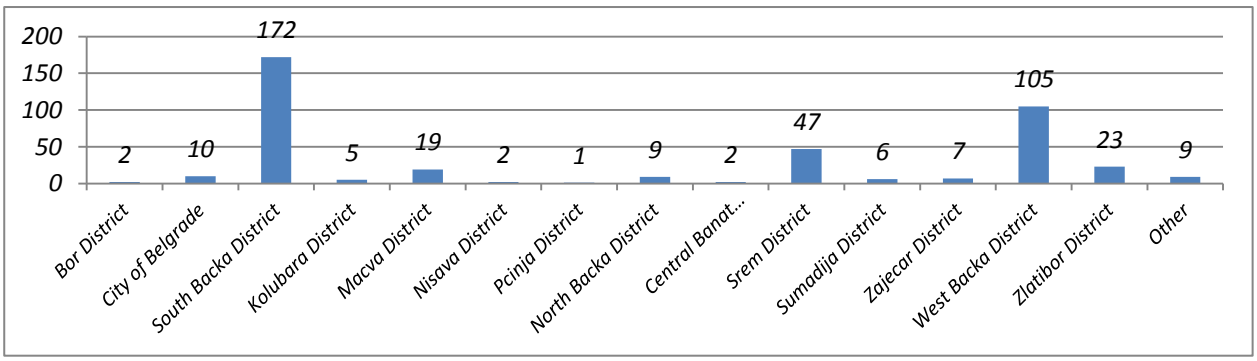
3.1. Analysis of the involvement of people in the financial sector

For the purposes of this study, 419 inhabitants of the Republic of Serbia were surveyed of whom 191 (46%) were males and 228 (54%) were female. The average age was 36 years. The oldest respondent was 72 years old and the youngest 19 years old. The graph 1 shows the number of respondents by age.



Graph 1. number of respondents by age

Graph 2 shows the number of respondents per the administrative districts of the Republic of Serbia. The largest number of respondents came from the South and West Backa District (277). Although the survey included the respondents from other districts (133), as well as residents of the Republic of Serbia whose permanent place of residence is outside the Republic of Serbia (9).



Graph 2. respondents by place of residence

Of total 419 respondents, 162 (38.66%) are employed in the public sector, 63 (15.03%) are employed in the private sector, 7 (1.67%) are entrepreneurs, 168 (40.09%) are unemployed and 19 (4.53%) are retired. Confidence in the banking sector has presented 222 (53%) respondents. 102 respondents are satisfied with their financial situation, while a higher number is not satisfied (319 respondents). Another interesting fact is that 40 out of 168 unemployed persons are satisfied with their financial situation. This fact indicates that these people make significant income while unemployed in the form of gifts, income from property, and income from deposits, insurance fees, scholarships and other.

220 respondents regularly receives income from employment (of which 28 respondents have other sources of income), 42 respondents have income outside regular employment occasionally working on contractual basis (of which 16 respondents have other sources of income). 36 respondents receive pension, of which 19 receive old-age pension and disability pension, while others receive survivor pension, and belong to the group of unemployed persons (those are usually students and persons who earn income outside of employment). Public aid (welfare, material benefit, alimony, child support, scholarships) receives 44 respondents and they also have other forms of income such as gifts and awards. Solely from gifts and gains, 46 respondents generate income. 373 respondents have bank accounts, while 46 respondents do not have a bank account. It is also indicative that the of 46 respondents who do not have accounts, 22 of them receive earnings from casual employment in cash, while 14 respondents receive money from pensions and public through money order.

Of the total number of respondents, 268 are partially satisfied with the services of banks in Serbia, while 58 respondents are not satisfied with the service. Even though 9 respondents have not used banking services, but the number of those who used several different banking services (current accounts, loans, electronic banking, etc.) is bigger than this. 17 respondents use cards to pay over the Internet, 89 own credit cards, while 190 respondents use debit cards. Credits that are most commonly used are: cash loans (50 respondents), residential (27 respondents), consumer (19 respondents). Electronic banking is used by 59 respondents.

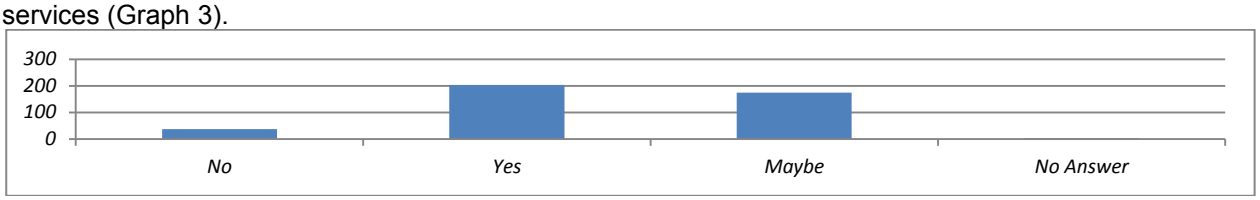
At the same time, respondents were asked about the services they are unable to use and there is a demand for these services. Therefore, 74 respondents are in need of e-banking services, but need more information about those services, and 115 respondents are in need for some form of credit, but their personal financial situation or the conditions under which these are granted, does not allow their use.

Respondents have listed reasons for not using banking services and those can be broken down as follows:

- no need for additional services (45)
- inadequate working hours of banks (29)
- The Bank has no branch in their neighborhood (5)
- lack of information about the services of banks (125)
- poor personal financial situation (172)
- bad portfolio of banking services with high commission and bank interest (14)

3.2. User expectations of the financial sector

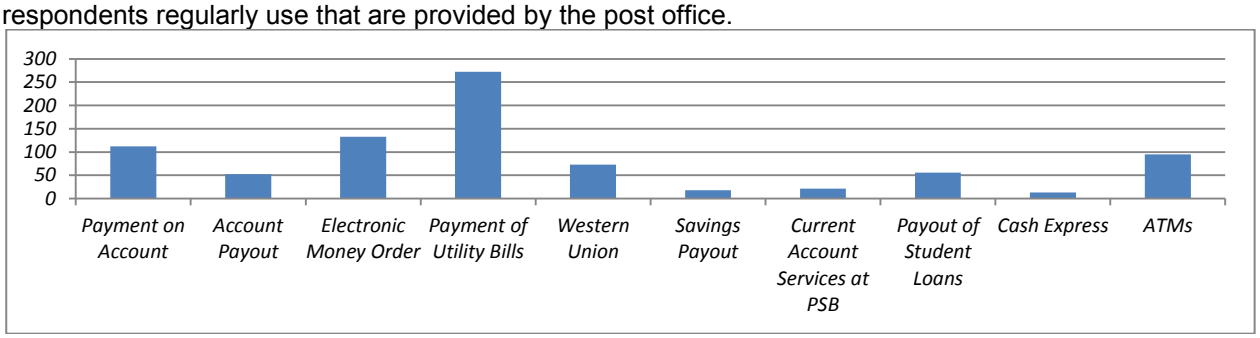
Respondents expect the banks to decrease bank interest and commission (154). Mainly, people expect lower interest rates on cash loans and overdrafts. Then, credits without interest and loans to pay for food for the winter, fuel, utility costs (heating and electricity), taxes and other costs incurred in order to satisfy the existential and basic needs. Greater availability of insurance (health and pension) is expected on behalf of 10 respondents.
A larger number of respondents (203) believe that the post office can provide greater availability of financial services (Graph 3).



Graph 3. Do you think that post can provide greater access to financial services?

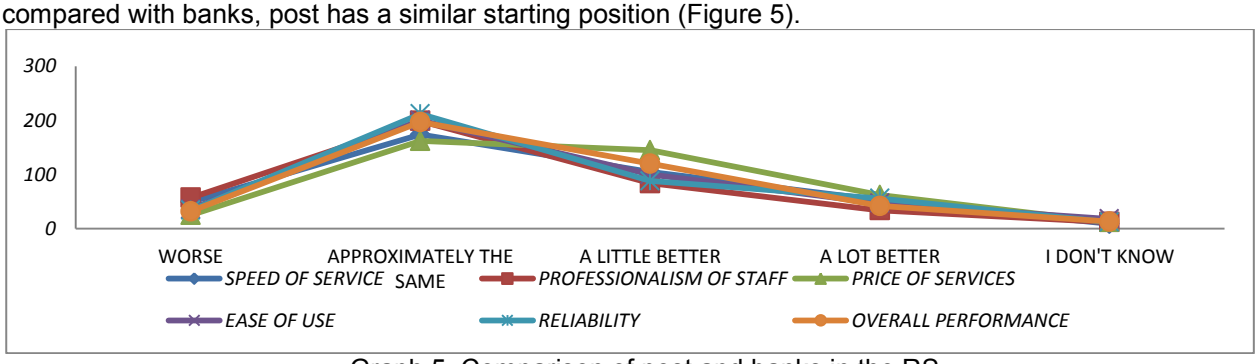
3.3. Assessing the role of post in the development of financial sector

Respondents use certain payment services regularly and give priority to the use of these services at the post office in relation to the bank (for example, payment of utility bills). Graph 4 represents services that respondents regularly use that are provided by the post office.



Graph 4. Services that customers regularly use in the post

Certain aspects of postal financial services (cash operations) such as speed of service, professionalism of staff, ease of execution, range of products and service quality, respondents have assessed as satisfactory, and the price of services as moderate in relation to quality. Availability of service information is satisfactory, as well as availability of forms and the speed and efficiency of handling documents.
Respondents believe that the post has yet to act in order to improve each of these aspects. However, compared with banks, post has a similar starting position (Figure 5).



Graph 5. Comparison of post and banks in the RS

3.4. Perspective of post and redesign of postal financial services

Based on different evaluation of respondents and valuing resources of post, such as:

- Developed ICT solutions (computer network PostNet, technological application solution PosTis, the certification body of the Post, participation in e-government project, etc);
- Postal network with approximately 1,500 locations throughout the RS;
- Contractual relationships with banks, utilities and other organizations and institutions, we have concluded that the process of financial via Post of Serbia can be implemented.

The following arising question relates to the choice of model which will be used. So far, posts in the RS have not performed full set of contractual business/obligations/agent services for banks (credits, savings, issuing credit cards etc.).

Its operations have primarily been based on cooperation with the Postal Savings Bank, which is an independent business entity. Apart from the expansion of the network and services of the Postal Savings Bank, the issue of providing banking services to vulnerable population and that in rural areas the RS, which are geographically and economically excluded from the financial services sector, still remains unsolved.

Post in RS, in the process of financial inclusion should improve the quality of existing financial services, customer relationship and ensure provision of new services such as:

- service of user profiling of favorable financial services based on e-government, with the aim of reducing the cost of obtaining the necessary documentation from different parts of the administration (land certificates, proof of unemployment, confirmation of the amount of social benefits, the number of household members, etc.).
- services for vulnerable and poor population - loans with no interest or loans with a lower interest rate for food, clothing and footwear, housing costs and treatment, based on the earned income (public aid, welfare, scholarships, etc.);
- insurance services, primarily health care and retirement, with the possibility of savings and access to funds prior to the expiration of the insured period (bearing in mind the social profile of the user).

This approach requires a broader initiative with the support of the government and the financial sector. Current provision of this type of services by post is only possible through a contract with banks on the performance of agent activities, and participation of state funds for subsidizing these types of crediting and e-government services.

Another possibility is that post performs these services without a license or to be provided with a banking license to a limited set of services.

4. CONCLUSION

Development of the financial sector in the Republic of Serbia in the future will depend on availability of certain financial services and opportunities that a large part of the population becomes involved in regular financial flows. If the current trend still continues, there will be a reduction in the number of branches of banks, and greater geographic exclusion of the population. Post as a provider of financial services and a public postal network as a resource, this can quickly stop this trend and assist in the implementation of services for socially deprived part of population.

In further research, it is necessary to define the criteria for profiling users of financial services and to determine the set of services that will optimally meet their needs.

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CREDITING AND INSURING EXPORT BUSINESS

Dragana Drinić[1], Miloš Dragosavac[2]Nina Kisin[3]
[1]Novi Sad Business School, dragana.vps@gmail.com
[2]Novi Sad Business School, dragosavac.vps@gmail.com
[3]Novi Sad Business School, ninakisin.vps@gmail.com

Abstract: *Export credit agencies are financial institutions that promote exports and facilitate investment in foreign markets that are considered risky. These agencies can be organized as banks, insurance companies or financial corporations and are mostly owned by the state, and do business in order to support national exports and investment. Special emphasis is placed on the work of the Berne Union, as an important link in the chain of world trade. By establishing special agencies for export financing and providing capital for their activation, state creates capital by which export credit is continuously funded, and thus the main branches, pillars of the industrial development of the country and the state, are maintained and developed.*

Keywords*: export business, export credits, export financing, credit insurance, export credit agencies, the Berne Union*

1. INTRODUCTION

The development of international economic relations, increasing intensity of foreign trade and growing competition in the global market require that the method of payment of exports of goods and services represent an increasingly important element of competitiveness in the global market. In today's business environment, international trade financing is one of the most common forms of business financing. International trade of goods and services is done in very difficult conditions which are linked to a number of risks that are far greater than those that occur in domestic (internal) trade. Due to the possible adverse consequences, it is of great importance for exporters to neutralize the negative effect of export risk or at least to minimize it to a certain extent.

Many countries highlight export growth as the primary goal of their economic policy. In this way, a certain foreign income is ensured, thereby strengthening macroeconomic stability, increase in production and employment and providing regular servicing of external debt. Considering this, the whole set of measures is developed by economic policy-makers with the principal aim: export growth. As a part of this system an important place is occupied by export credit agencies. Established as agencies they are provided to support local businesses in entering foreign markets, primarily through financing and insuring export activities and investment. Almost all countries have this type of agencies, and they have a particularly significant role in the initial stages of development and in terms of market penetration and development of activities on high-risk foreign markets. These institutions may be part of the state apparatus (NEXI, Japan and the ECGD, UK), a special state agencies (the Ex-Im Bank, U.S. and AOFI from Serbia), institutions of private capital under the state influence (Hermes AG, Germany) or mixed-ownership institutions (SACE, Italy). The development of the globalization process and the establishment of regulations on the multilateral level have led to the introduction of rules on the work of export credit agencies. This partly limited their work, but their importance is still relevant, so that they still occupy a special place even in developed countries.

The Berne Union (International Union of Credit and Investment Insurers) has led to the cooperation at the international level and embracement of sound principles in export credit insurance and investment abroad, as well as to equalize the conditions under which the coverage of export credits and investment is approved abroad. The globalization of the world economy imposes the need for our country to be included in the global flows and the exchange of goods and services, labor and capital and thus to define the modern models of support for exports.

2. CREDITING AND INSURING EXPORT BUSINESS

With growing competition in a global market the ability to sell goods and services increasingly depends on the terms of payment. Manufacturers sell their products on credit in order to be more competitive in the global market and provide a greater product placement. In addition to crediting exports of capital goods, other activities are credited that enhance the placement on foreign markets, such as: market research, project development, preparation of production for exports, import of the necessary raw materials and components needed for manufacturing, etc. An international trade crediting is one of the most prevalent forms of international business financing of business entities in international economic relations. Crediting international commercial transactions is realized through export credits. Export credits can be repaid under commercial market conditions or with the official state support through export credit agencies. Depending on

to whom is export credit granted, and who is the user of credit,we can make difference between: supplier's credit and buyer's credit.

Stimulating exports, due to their positive effects on the growth of national income, is a continual task in almost all countries. An important place in this field occupies facilitating export financing under more favourable conditions.(Mladenović, 2010, p.126) The term ***export financing*** involves two interrelated transactions:

- Export credit insurance against commercial and non-commercial risks and
- Providing financial support for exports by issuing guarantees and credit approval toexporters or buyers abroad by commercial banks or specialized institutions for export financing and insuring. (Vapa – Tankosić,2010,p.119)

Supplier's credit / exporter's credit is the financial arrangement of export credit agencies in which supplier / exporter of goods and / or services is credited and may be in the form of direct financing of exporters, refinancing or co-financing through commercial banks' supplier, that is, exporter. Export credit agencies approve this type of credit to domestic suppliers / exporters based on the concluded foreign trade transaction, and in accordance with the general and specific rules for crediting export transactions. Credit approval is conditioned by acceptable collateral, as well as by ensuring payment of export business (insurance policy assigned for the benefit of creditors) and the transfer of receivables based on export contract to the agency. In addition to direct financing of exporter / supplier, agencies may exercise refinancing of export transactions through commercial banks of exporter, wherein the agency places its funds through commercial banks with a more favourable interest rate than the market rate. In case of co-financing exporters, the agency places a part of the funds to the exporter under the agreed conditions (conditions depend on the category of exporters and export business), while the other part of the credit is financed by a commercial bank under the terms of the agency agreement. One form of export credits with the official state support, that are approved by agencies for crediting export transactions is ***a credit to foreign buyer or buyer's commercial bank***. It is a financial arrangement in which a bank or financial institution approves the credit directly to the foreign buyer or the bank of the importing country for financing the purchase of goods and / or services. They are usually in the form of interbank credit lines aimed at establishing long-term relationships with financial institutions in countries that are of strategic importance for exports.For exporters this business of exports on credit is virtually cash credit, because it is charged by the real creditors (a bank), and a foreign buyer repays the credit to the bank creditor based on the contracted repayment schedule, so that this bank bears the risk of debt collection. An agreement to credit buyer or buyer's bank is a financial arrangement that is very favourable for exporters, since the exporter is charged immediately after the delivery, while the credit is repaid by the buyer / bank from abroad. Thus the exporter avoids the risk of export charges and ensures liquidity in the banking business. This type of credit agreement is conditioned by acceptable credit insurance. Consumer credit program or a commercial bank abroad may also be in the form of:

- independent credit to customer or a bank abroad or
- in the form of co-financing export transactions together with commercial banks.

The amount of credit that can be approved by agencies can even be 100% (usually for credits with repayment period of up to two years) to the maximum 85% for export transactions with repayment period[1] up to 10 years. In accordance with the rules of the OECD (The Organisation for Economic Co-operation and Development), the repayment period for financing the construction of hydroelectric, thermal power stations and renewable energy sources can be up to 15 years. Interests for credit users are determined based on the creditworthiness of the bank, the State of export, the types of foreign trade transaction and the like, although one must comply with the minimum interest rates established by international rules (the rules of the OECD). This type of crediting is conditioned by, in addition to the usual collateral (mortgages, pledges, deposits, etc.), credit insurance with export credit agencies, and the insurance premium is usually paid in advance.

3. THE METHODS FOR APPROVING AND EXPORT CREDIT INSURANCE

Crediting as an important factor that affects the competitiveness of exports is closely related to the emergence and development of export credit insurance, because a significant part of the foreign trade transactions is concluded on credit. Hence receivable arises from the foreign debtor that carries a number of

[1]The repayment period is the time from the moment of the obligation to pay for goods or services to the moment of the final payment and depends on the type of goods and services that are exported. For the export of raw materials, intermediate goods and consumer goods, short-term credits are mainly granted with repayment period of up to one year. For the export of equipment and capital goods credits are approved with repayment period of 1-5 years, while long-term credits are approved for implementation of investment projects abroad, delivery and installation of plant investment and their repayment period is over 5 years.

risks and the inability to collect debt. There are basically three types of approval and export credit insurance, and these are:

- export financing or refinancing,
- subsidizing interest rates,
- guarantee and export credit insurance

Governments of countries usually analyze the effects of interest rates on the price of export products and the competitiveness of exporters. Interest rates are subsidized most frequently, so that the bank that approved the credit charges fewer funds than exporters. This is done by a mechanism of refinancing credits granted by commercial banks.

The purpose of the insurancemechanism is that the state should provide sufficient security (reduce the debt collection risk) for the banks which finance exports and stimulate them to grant export credits. The insurance contract is defined as the contract by which the insurer with the premium charge undertakes to indemnify the insured in case of insolvency of the insured person, who is credited by the insurer within the provided coverage limits. (Radović,1989,p.39)

Credit insurance for exports is often performed by specialized agencies for credit insurance for exports through export insurance and financing. This is a case-in-point for all countries. However, these agencies may differ from country to country in terms of status and organization, as well as other characteristics. They may be state-owned, privately owned, or they may be private, but work on behalf of the state.

Export Credit Agencies (ECAs) may (in whole or in part):

- directly finance exporters for export of goods and / or services on credit;
- co-finance exporter with exporter's commercial banks;
- refinance commercial banks for credits that they granted to exporters and foreign buyers for export of goods or services on credit;
- subsidize the difference in interest rates on the funds mobilized in the capital markets at commercial interest rates and lower interest rates by which export credits are approved to foreign buyers.

Some of these agencies provide cover for short-term business and some just for medium-and long-term business. Regardless of the differences in terms of ownership, state-owned agencies are more prominent. Exceptions are: Austria (*OeKB*), France (*COFACE*), Germany (*Euler Hermes*), Portugal (*COSEC*) and the Netherlands (*Atradius*), which have agencies for credit insurance against political and commercial risks in private ownership. Export credits with the official state support are largely conditioned by the participation of the goods of domestic origin in exports (usually a minimum of 50%) and insurance claims while respecting international credit conditions (minimum interest rates) and insurance (minimum premium amount) in order to avoid unfair competition, or subsidizing exports. Export credits with the official state support aim to facilitate and promote national exports, and therefore the national economy as a whole.

According to the operations carried out, that is, the types of instruments that are used to achieve the goals, agencies are divided into:

- Agencies that perform export credit insurance exclusively, while financing activities are left to the banking sector. Such agencies include: Office National du Ducroire (Belgium) , Serviziassicurativo del Commercio Estero - SACE (Italy) , ECGD (The UK), Guarantee Institute for Export Credit - GIEK (Norway);
- Agencies that provide export business, whose activities are supported by a special agency that finances exports. Thus in France, COFACE is a leader in credit insurance, while Natexis finances exports. In Germany, HERMES provides export business, and KfW finances exports, while in Sweden the Exportkreditnamnden - EKN is in charge of insurance, and AB SvenskExportkredit - SEK is in charge of export credits;
- Agencies that provide services of insurance and crediting of exports and issuance of guarantees in export business. These agencies are: Ex-Im Bank (The USA), Export Development Canada - EDC (Canada), Slovenian Export Corporation - SEC (Slovenia) and ATRADIUS NV (The Netherlands).(Berneunion, http://www.berneunion.org/about-the-berne-union/berne-union-members/)

Another important activity of the agencies in addition to credit and export insurance is ***to provide information and consultancy services***. This activity involves the supply of information to exporters, which in terms of breaking into a new market can be of great importance. (Kjell& Kirsten, 2005, p.676-695) In this context, agencies provide their clients with a wide range of information on the creditworthiness of customers,

banks, institutional framework and legislative regulations in the country of (potential) importer, etc. These pieces of information provide a clear picture of a particular country (foreign partner) by whichrisks are reduced to a certain extent, and therefore the hidden costs of doing business.In this sense, a positive example is the Canadian EDC (Export Development Canada), which supplies its customers with a set of databases including research of regulatory environment and economic conditions in certain countries. In addition, the EDC has the function of mediator in the sense of establishing contact between Canadian exporters and potential partners from other countries, which greatly facilitates the undertakingof initial steps of Canadian exporters on the road to conquer new markets.

4. INTERNATIONAL UNION OF EXPORT CREDIT INSURANCE - THE BERNE UNION

International union of credit and investment insurers - the Berne Union has led to an international cooperation and embracement of sound principles with export credit insurance and investment abroad, as well as to equalize the conditions under which coverage of export credit and investment abroad are approved. The Berne Union was founded in 1934, by a group of private and state-owned export credit insurers from France, Italy, Spain and the United Kingdom. (Berneunion, http://www.berneunion.org/about-the-berne-union/) Registered headquarter is in Bern, which means that the law of Switzerland is applied, but headquarter of a very active secretariat is in London. During time, this extremely important and influential international non-profit association, widened its membership and broadened the range of activities.

The main condition for membership in this association was that an institution ensured*receivables*to significant extent from*non-commercial*–political risks. Insurance claims from commercial risks is also present in these institutions, with the difference that the insurance of *non-commercial* risksis the main characteristic and purpose of association due to its multiple features, non-compactness of these risks, opportunities for simultaneous occurrence of a large number of risks, difficult or almost impossible actuary in a way that it exists in all other types of insurance, insurance institute combinations and measures of foreign policy, geopolitics, national export strategy and development, diplomacy and other public law elements.

Since the mid-nineties until now, the national export credit agencies has joined this association and / or other organizations from countries that have completed the process of transition as well as some countries that have succeeded in an attempt to move from the status of developing countries to the status of developed countries. (Stamenković&Rujević – Džodžo,2008, p.25)***The main aim of the Berne Union*** is the promotion of international practices of export credit insurance and foreign investment, and the acceptance of common principles of insurance, mutual exchange of information about customers, banks and countries. It cooperates closely with international financial organizations. The changes in the market of credit insurance in the early nineties had a major impact on the organization of the Berne Union.Namely, along with the globalization of the world economy came a major expansion of network of branches and subsidiaries of insurers, members of the Berne Union, privatization and acquisitions.

Special activities of the Berne Union include the acceptance of harmonized basic rules and standards in the implementation of insurance, that is,export credit guarantee and investment, and the development and implementation of insurance-related innovative financial products for export and debt collection. The Berne Union, within determining insurance policies, forms the key guidelines for export credit insurance for certain types of products and services, relies on the categorization by the OECD, regarding a list of risks of countries, brings the basic principles and recommends requirements in export credit insurance, guarantee of payment, investment insurance in some investment countries.Members of the Berne Union, in relation to the official export credits (export credits with state support mostly through ECAs and for the corresponding products and the duration over two years), are obliged to adhere to the OECD Agreement on guidelines for officially approved export credits (height of a minimum advance payment, the credit duration depending on the type of export, development of a country, credit risk and country risk, the minimum interest rate, provided that these conditions are reviewed every six months, and the interest rate on a monthly basis, appropriate protective clause, etc.). The present arrangement does not cover the export of military equipment and export of agricultural products.With regard to the premium insurance, since 1998, the OECD members have reached an Agreement on minimum premium rates that must be charged with export credit insurance, in order to avoid the possibility of subsidized transactions, in case of applying lower premium than the prescribed minimum. This agreement is known as "The Knaeppen" packageand within it all the countries are divided in eight categories (the OECD countries with high amount of annual income tax, very low political risk etc. belong to the category "O"), so that the premium is determined depending on the category to which a ranked country belongs in terms of risk, the percentage of credited part of a business and life insurance coverage. Categorization of the OECD countries according to the level of risk is reviewed every six months.

Table 1: Rules of the Berne Union in terms of the credit duration

Types of goods and services	Credit duration
Raw materials, primary products and semi-finished products	Maximum 6 months
Consumer goods and consumer services	Maximum 6 months
Durable goods	Maximum 2years
Parts and components including related services	Maximum 6 months, , exceptionally up to 5 years if it is justified
Quasi capital equipment, including related services	Depending on the contract value, maximum 5 years
Capital goods and project services	Maximum 5 years, or more if it is in accordance with the agreement with the OECD
Complete factories	Maximum 5 years, or more if it is in accordance with the agreement with the OECD

Source: Bern Union General Understanding, January 2001

Depending on the type of goods that are exported, members of the Berne Union agreed on the maximum duration of the credit, as shown in Table 1.

The Berne Union and its members are an important link in the chain of world trade and its member states record a steady growth in business, or in the extent of coverage of export business and investment with state support. The Union concludes agreements, issues recommendations and encourages the exchange of information through three committees - for short-term business, for the medium / long-term business and through the committee for investment insurance. According to estimates, about 90% of world trade is carried out with the support of one or more instruments of trade finance. (Kovačević, 2013, p.12) The importance of export credits mostly includes the following information on the insured amount of export credits.

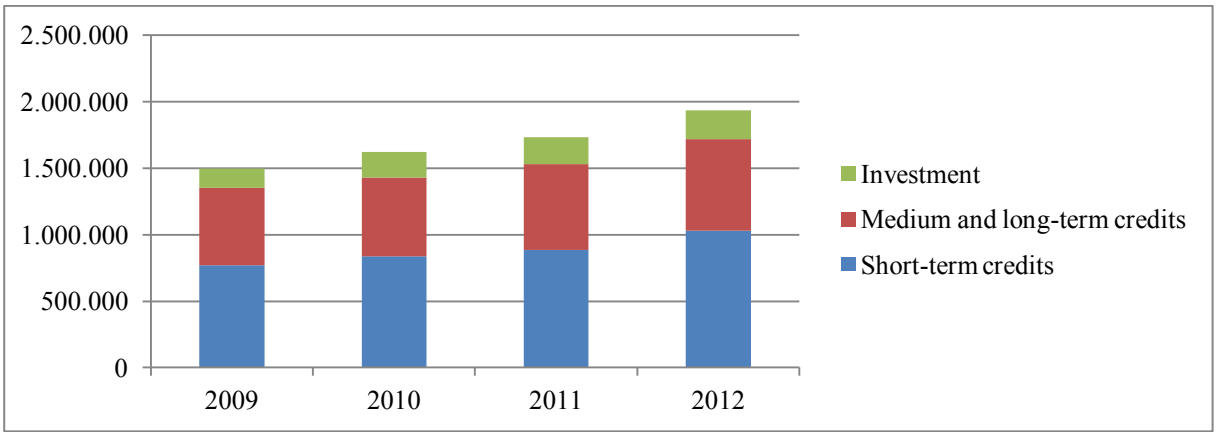

Figure 1: Investment, medium and long-term credits, short-term credits

Source: Berne Union Statistics 2008-2012, http://www.berneunion.org/wp-content/uploads/2013/10/Berne-Union-2013-Charts-and-numbers-for-website.pdf

From the chart we can observe a dominant share of short-term credits (up to 12 months), with a tendency of growth in the period 2009-2012. The same tendency can be seen in the movement along the demand for medium-and long-term credits. The increase in demand for insurance of medium-and long-term credits is characterized by the appearance of environments in which systemic risks occur, and in this segment of the market credit agencies play a crucial role. During the current crisis they mitigated the basics of credit insurance and increased the offer in order to reduce market tensions.

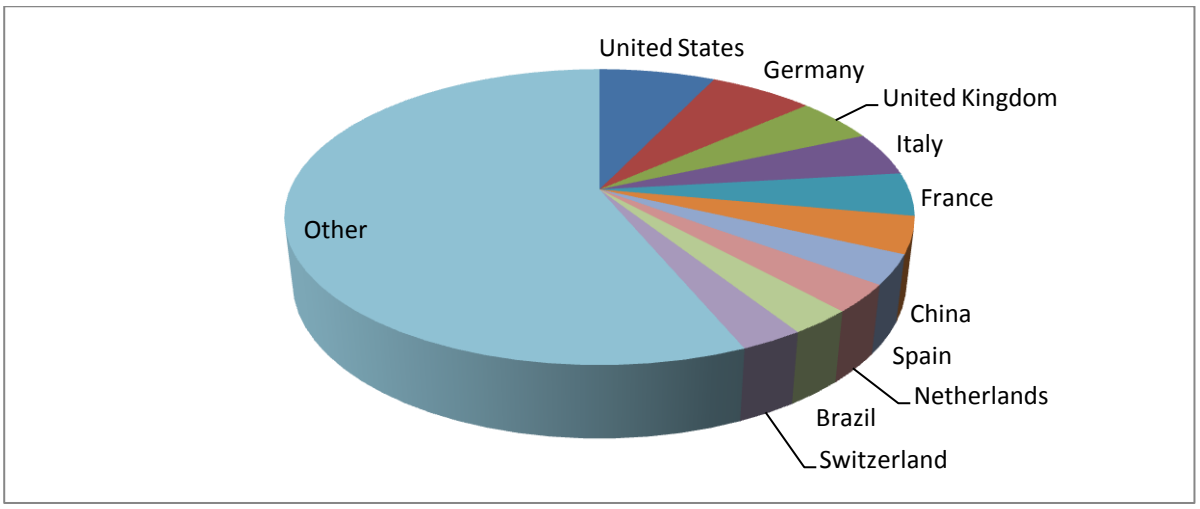

Figure 2: Short-term credit insurance by countries

Source: Berne Union Statistics 2008-2012http://www.berneunion.org/wp-content/uploads/2013/10/Berne-Union-2013-Charts-and-numbers-for-website.pdf

The previous chart illustrates the participation of short-term credit insurance by the countries with the highest credit amount. The United States has the largest amount of insured short-term credits amounting to USD 73,538,000, and immediately after the approximate amounts of short-term export credits belong to Germany and the United Kingdom.

When it comes to the insured medium- and long-term credits by countries, Russia has the highest amount of these credits amounting to USD 9.386 million, and immediately after, the United States amounting to USD 9.224 million. The share of the ten countries that have the highest achieved volume of insured medium-term and long-term export credits can be seen in the following chart:

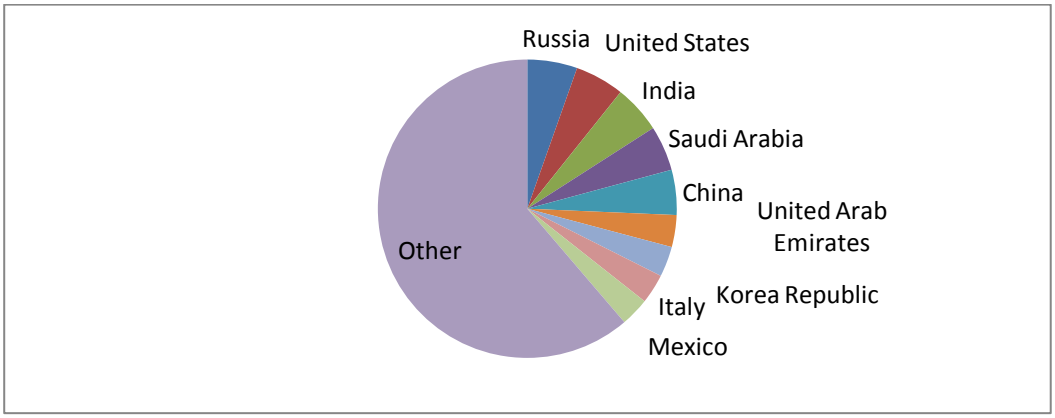

Figure 3: Medium and long-term export credit insurance by countries

Source:http://www.berneunion.org/wp-content/uploads/2013/10/Berne-Union-2013-Charts-and-numbers-for-website.pdf

In addition to the Berne Union, there are other associations of export credit insurers worldwide with state support. One of them is the International Credit Insurance & Surety Association (ICISA), which has 40 member states, and some of them are members of many such associations (e.g. Euler Hermes, Atradius and Coface, as well as the leading reinsurance companies Munich Re, Swiss Re, Hannover Re, Partner Re and Converium). Similar to the Berne Union, ICISA sets as its main aim the mutual exchange of information, promotion of international practices of export credit insurance and representing the interests of insurers at the international level (in the EU, the World Bank, the UN, etc.). The total number of registered agencies (public and private) that deal with financing and export credit insurance is 163 in 79 countries, provided that in this area there are a number of multilateral agencies (Corporation Andina de Fomiento, Banco Latino Americano de Exportaciones, MIGA, Afrieximbank, Inter Arab Investment Guarantee Corporation).

5. SERBIAN EXPORT CREDIT AND INSURANCE

In the mid-fifties, Yugoslavia began to export capital goods and carried out investment projects abroad, along with the demand for export business financing. Our country was among the first developing countries that started the implementation of the crediting system and export credit insurance and investment abroad. From 1957, which is taken as the starting year, a number of phases in the development of export support were allocated, in particular, medium-and long-term exports:

- period from 1957 to 1965 when this was the responsibility of the *Yugoslav Bank for Foreign Trade (later Jugobanka)*;
- period from 1968 to 1979 when the *Export business credit and insurance fund* operated;
- period from 1979 to 1997when the export business support through the export insurance and financing instruments was performed by *the Yugoslav Bank for International Economic Cooperation* in accordance with the specific Law;
- period from 2002 until today: in 2002 with the establishment of the *Insurance and Financing of Foreign Affairs Fund* (at the federal level) and in 2005, with the *Agency for Export Credit and Insurance of the Republic of Serbia*.

Financing exports of capital goods and implementation of investment projects abroad started in 1957, and it was the responsibility of the *Yugoslav Bank for Foreign Trade* - later Jugobanka. (Trifunović, 1988, p.59-67) Until 1965 funds for crediting exports were provided by the General Investment Fund of the Federation and by the Yugoslav Bank for Foreign Trade. The beginnings of export credit insurance are linked to the *National Insurance Institute* and the decision making about the management of the National Insurance Institute that assigned, among other things, the performance of the insurance of export credits.(Gazivoda, 2004, p.34)However, due to the lack of a legal instrument that would determine more precisely how this activity would be performed and due to the lack of experience in the field of export business insurance, the country resorted to adopting the business concepts of foreign insurance companies. Thus we adopted *The Regulation for insurance claims from foreign and public utility services and other companies for exported goods on credit*, by following the model of the internal rules of German insurance company *Hermes*. The commercial risks were the subject of insurance exclusively, while the *Yugoslav Bank for Foreign Trade*dealt with the non-commercial risks insurance. Non-commercial risks insurance could not be provided without the adequate state guarantees, and funding from the budget.

The Agency for Export Credit and Insurance of the Republic of Serbia Inc. (*further referred to as* ***the Agency***) was founded by the Law on the Agency for Export Credit and Insurance of the Republic of Serbia in 2005, as well as other state institutions with the aim to "encourage and promote exports and development of economic relations between the Republic of Serbia and other foreign countries." (*Official Gazette of the Republic of Serbia,2005*)
The task of the Agency, in order to improve the strategic requirements of the export economy and to change the structure of exports of the Republic of Serbia, is to act jointly with all the development, financial and other institutions, and private companies and institutions when there is a mutual interest. An initial funding for the work of the Agency for Export Credit and Insurance of the Republic of Serbia in the amount of 25 million euros has been earmarked from the budget of the Republic of Serbia.
The Agency in its business policy defines the following services:

- crediting export business (including direct crediting, co-financing and refinancing credits through commercial banks of exporter);
- insurance claims of exporters on the basis of export business;
- international and intrinsic factoring;
- issuance of state guarantees (this service is not yet approved, but, according to information from the official website, it is under review); and
- consulting. (The Agency for Export Credit and Insurance of the Republic of Serbia,www.aofi.rs)

First of all, it is evident that the Agency for Export Credit and Insurance of the Republic of Serbia in its operations, such as the Fund, supports mainly short-term business. The Agency, according to its business policy requires certain conditions when it comes to foreign affairs and exporters who apply for certain services.
Conditions are divided into general and specific, that is binding and non-binding.

- General Binding: export in value of at least 1.0 million euros in the previous year; a net operating result in the previous year; share of domestic origin goods at least 51% of the value of goods subject to exports and financing;
- Specific binding conditions: positive creditworthiness of the borrower; positive profitability of export project; positive quality assessment - the collateral safety;

- Additional non-binding conditions (the fulfilment of these conditions implies the favourable conditions in obtaining services, such as the achievement of positive net export effect and a major exporter status. (Unković&Stakić, 2011, p.132)

Based on these conditions it can be concluded that the conditions are primarily formulated in order to achieve basic principles for agency formation - liquidity, safety and profitability. Only hints of support for a certain goals of economic policy (net financial effect) are found at additional, non-binding conditions. Agency is allowed in the discretion to determine by its acts the conditions and the way to maintain the real value of assets, as well as other measures to protect against the risk of its operations. Business policy of the Agency is largely based on the previous principle, which can best be seen from the fact that the credits are granted to a foreign currency, while the exchange rate at which the repayment of credit is done cannot be lower than that at the time of closing a business. Thus in case of strengthening the domestic currency, revenues of the Agency increase based on exchange rate differences.

The Agency pays a special attention to establishing and maintaining successful relationships with international financial institutions, development banks, export credit agencies and commercial banks. It actively cooperates with chambers of commerce and other state institutions in order to find the best solutions for their clients. From 2011 it has been affiliated to the European Association of Public Banks and they have signed a cooperation agreement with a Greek state export credit agency-ECIO.

In 2011, the Agency concluded 58 contracts of insurance claims based on the export activities of domestic customers in relation to 1124 foreign buyers.(The Agency for Export Credit and Insurance of the Republic of Serbia, www.aofi.rs) From May 2006, when the first insurance policy of export receivables against commercial risk has been issued, the number of insurance contracts has significantly increased. In the main part of the insurance portfolio the most frequent is the metal industry with a share of 20.38%, followed by paper manufacturing with a share of 17%, wood processing with 7% and chemical products with 6%.

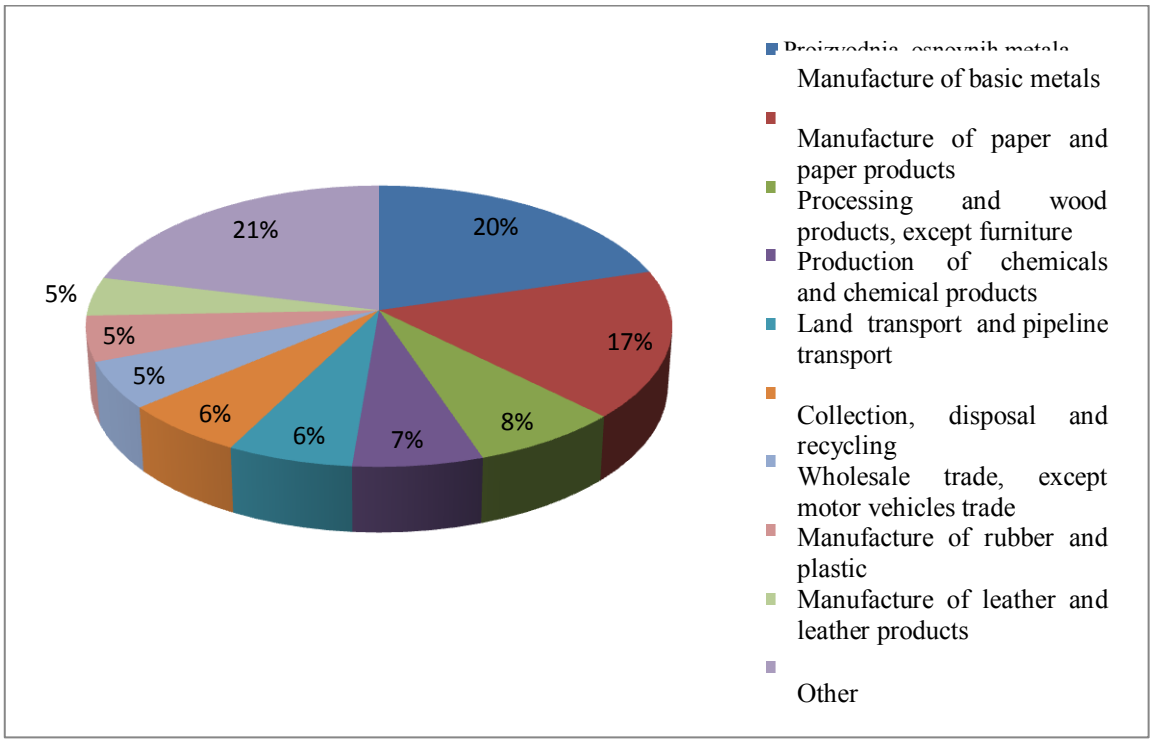

Figure 4: Diversification of the main portfolio in relation to industry branches
Source: The Agency for Export Credit and Insurance of the Republic of Serbia http://www.aofi.rs/wp-content/uploads/2011/12/AOFI-GI-2011-srp-web1.pdf

The EU countries are leading in the total amount of exposure in the structure of export business. Among them Italy has the predominant participation.Countries in the region are significant destination of Serbian export products. Diversification is the branch of activity and represents the measures implemented by the Agency in response to the still current world crisisin order to achieve the effect of reducing the harmful effects of the crisis. The effects of the economic crisis are particularly reflected in the area of buyers' liquidity. In 2011 the Agency received a total of 36 damage claims. During the reporting period 8 damages per insured events were paid (settled), and according to the amount of damages Germany had the largest

share.Through the possibility of paying compensation, Serbian exporters recognize the importance of risk sharing arrangements and insurance debt collection, as well as its impact on preserving the liquidity of companies.

During 2011, the Agency granted 57% of realized credits with a maturity of 6 months, while the remaining 43% of the credit had a maturity of up to one year. Given the evaluation of professionals and acceptance of a controlled risk in its portfolio, the Agency, despite the effects of global economic crisis on Serbian exporters, achieved the collection of overdue credits of about 95% with the use and activation of a variety of collateral, while the remaining 5% of delayed credits were covered by high-quality collateral.

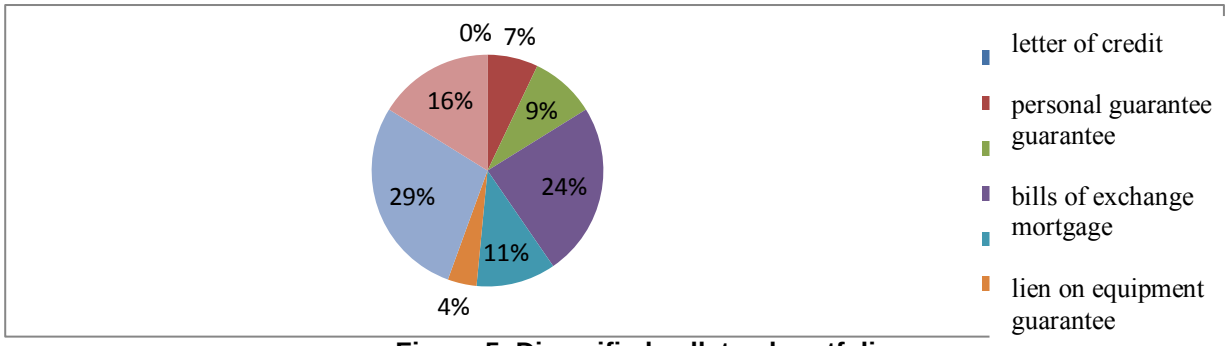

Figure 5: Diversified collateral portfolio

Source: The Agency for Export Credit and Insurance of the Republic of Serb -content/uploads/2011/12/AOFI-GI-2011-srp-web1.pdf

During 2011, the Agency has realized 64 credits amounting to EUR 10.575 million to exporters who belong to small businesses, 70 credits amounting to EUR 21.74 million to exporters belonging to medium-sized enterprises and 56 credits amounting to 43.97 million to exporters-large enterprises, as can be seen in the chart below.

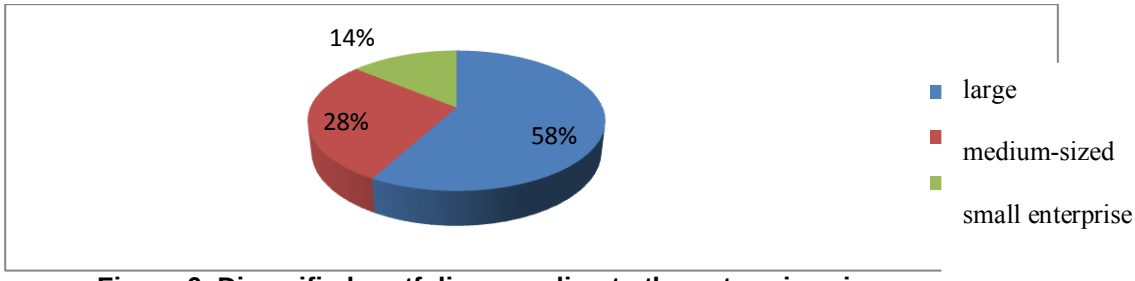

Figure 6: Diversified portfolio according to the enterprise size

Source: The Agency for Export Credit and Insurance of the Republic of Serbia, http://www.aofi.rs/wp-content/uploads/2011/12/AOFI-GI-2011-srp-web1.pdf

Businesses operating in the food industry had the highest share in the use of short-term credits, amounting to EUR 30.415 million, representing 40% of all placements. Companies of manufacturing (40% of all placements) and metal (10% of all placements) industry also had a significant share in the credit portfolio of the Agency. The share of other industries can be seen in the following chart:

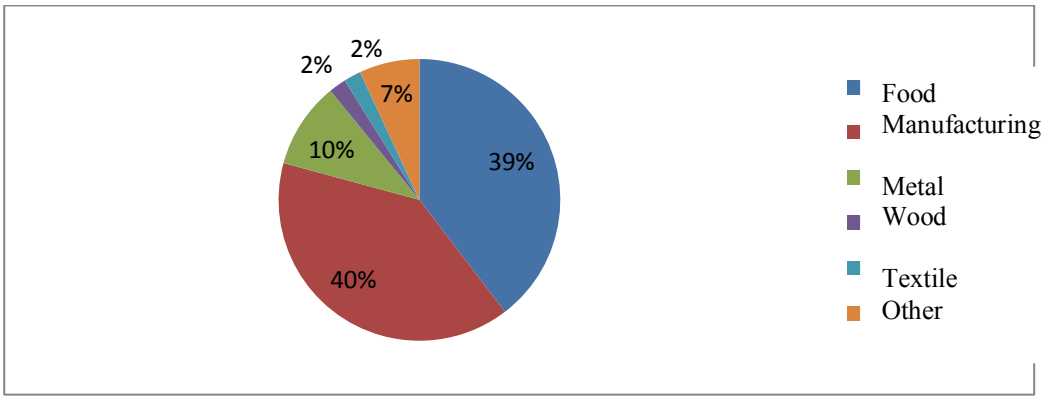

Figure 7: Diversified portfolio according to the industry

Source: The Agency for Export Credit and Insurance of the Republic of Serbia, http://www.aofi.rs/wp-content/uploads/2011/12/AOFI-GI-2011-srp-web1.pdf

The EU affairs have the largest share in the structure of credited export business amounting to about 59%, because precisely there are the biggest trade partners of Serbia. Then, there are:export business with the former Yugoslav republics, which participate with 29% of the Agency's portfolio and operations with Russia with an amount of 12%. By crediting concrete export contracts, the Agency supported the export of goods to the Russian market with EUR 9.12 million, EUR 8.07 million to the Dutch market, EUR 6.77 million to the Italian market, EUR 6.58 million to the market in Bosnia and Herzegovina and EUR 5,540 000 to the German market. The presented data are shown on the following chart:

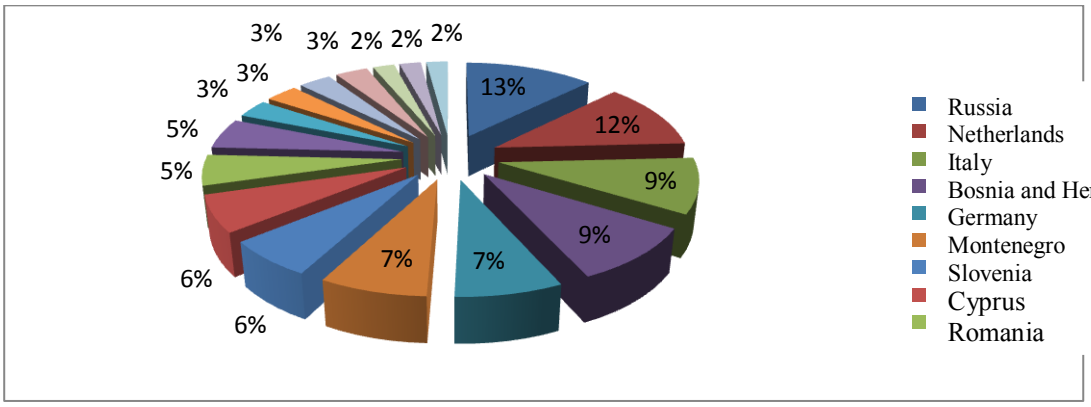

Figure 8: Diversified portfolio according to the country of export

Source: The Agency for Export Credit and Insurance of the Republic of Serbia, http://www.aofi.rs/wp-content/uploads/2011/12/AOFI-GI-2011-srp-web1.pdf

After the commencement of the transition process, that is, from 2001, Serbia has faced with the problem of high foreign trade deficit, and the current account deficit. As an imperative, there is a need for increasing exports in the future. Despite the existence of export credit agencies, Serbia still does not have the sufficient capacity to support stronger exports. In order to provide more efficient support to their exporters, the Agency provided its clients with information on the creditworthiness of existing and potential customersin addition to crediting under favourable conditions in cooperation with the similar agencies in the region and credit-rating agencies abroad.

6. CONCLUSION

Organized institutional support for exports is of great importance, because in this way the competitiveness is strengthened in the market. A demand for agencies for crediting and insuring exports grows by intensifying foreign trade. This should enable the secure exchange of goods and services. In developed countries, insurance agencies are specialist institutions that employ the export crediting programs in the name and on behalf of the Government and by their support for crediting exports, the risks and costs of conquering new markets are significantly reduced. Agencies for Export Credit and Insurance differ from country to country, and we cannot say that there is a typical agency.
It is important to highlight that the state is of great importance and plays an important role in supporting export credit agencies.State aid to the exports is a part of a general economic policy of the state because it has the task of contributing to the achievement of positive effects of national enterprises in foreign markets within the support of exports. State support of exports is usually in the form of insurance, which means that the state issues guarantees, on its behalf and for its own account, on the basis of insurance business and export financing, so it may be the insurer or reinsurer of risk and thus can provide favourable financing conditions for its exporters or commercial banks. The work of government agencies for insurance and financing export business is subject to international regulations that coordinate the work of these agencies at the multilateral level.

In the area of regulation, the Berne Union, the OECD, the World Trade Organization and the European Union achieved the long-term results. The Berne Union and its members are an important link in the chain of world trade and its member states record a steady growth in business, that is, in the extent of coverage of export business and investment with official state support. The Union concludes agreements, issues recommendations and encourages the exchange of information through the three committees - for short-term business,for the medium / long-termbusiness and through the committee for investment insurance. There is a dominant share of short-term credits (up to 12 months), with a tendency of growth in the period from 2009 to 2012. The same tendency can be seen in the movement of demand for medium-and long-term credits.The increase in demand for insurance of medium-and long-term credits is characterized by the appearance of environments in which systemic risks occur, and in this segment of the market, credit agencies play a crucial

role. Countries that were analysed, through its economic policies indirectly affect the performance of foreign trade activities, since export growth is one of the key factors that affect the economic prosperity of the country, andthe USA, Russia and Germany have a dominant share of insured credits.

The awareness of Serbian economic characteristics and current export performance of the domestic economy imposes the need for designing appropriate economic development strategy with special emphasis on the strengthening of the export sector. Policy of strengthening the export sector should be supported by a strong economic sector with a large number of competing companies that operate in a competitive environment. Only under such conditions, the existence of adequate export credit agencies may be additional support to strengthening the export sector. For this purpose it is necessary to redefine the current role of export credit agency that would facilitate the fulfilment of its basic function, in the optimal way and under the given conditions.When designing the policies for encouraging exports through strengthening export credit agencies, special attention should be paid to regulation in this area. Due to the fact that Serbia is still not a member of the European Union there is a possibility for more flexible operation of existing agencies. That possibility, along with the necessary condition for enhancing the competitiveness of the domestic economy and the existence of clearly conceptualized system of export incentives, provides a reasonable basis for the growth of the export sector and the creation of realistic assumptions for long-term economic development.

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ACHIEVING SET DEVELOPMENT GOALS WITH ECONOMICAL EXECUTION OF PUBLIC EXPENDITURES

Milena Knežević[1], Branko Tešanović[2] Saša Trandafilović[3]
[1]Rectorate University of defence milena.knezevic@mod.gov.rs
[2]Military akademy University of defence brate@ verat.net
[3] University of defence sasa.trandafilovic@mod.gov.rs

Abstract: In this paper we presented a model of program budgeting as a contribution to modern trends of an economical handling of public expenditures. It will also be the topic of this paper to prove that certain development goals of public institutions and authorities can be achieved by economical execution of planned expenditures. Links between the realization of the goals and execution of expenditures will be displayed using the developed model of program budgeting, which otherwise is not possible with line budgeting of expenses.

Keywords: execution of expenditures, program budgeting, carriers of execution, development goals, capabilities.

1. INTRODUCTION

In the first decade of the twenty-first century in the Republic of Serbia a preparation for the introduction of multi-year budgeting according to the model of most countries in the region was started. The result is the fact that since 1st January of 2014 all public expenditures within the budget of the Republic of Serbia must be expressed through program budgeting. While in the world multi-year ("mid-term") budgeting began in the 60's and early 70's, today this approach has become more or less universally accepted in most countries.

Modern strategic form of budgeting which soon became represented in more than 72% of countries around the world is the model of program budgeting. Because the program budgeting focuses on planning, that is the expected results, as well as monitoring which was achieved in the previous period by using of the approved resources. Also, program budgeting clearly introduces the component of liability (for direct users of budget resources) for implementation of the program and thus comes to improving the process of managing performance of the program.

Phases of the model of program budgeting are: planning, programming, budgeting and execution. Planning, as the first phase of the model of program budgeting involves making plans continuously, from long-term to short-term with established goals of development of public authorities and institutions. Programming is the second phase of the model of program budgeting of defense expenditures with which adopted planning documents are translated into programs, projects and activities for a specific time period within available resources, for the purpose of maintaining and developing the capacity of public authorities and institutions. Budgeting involves making a financial plan for the purpose of expressing funds required for the implementation of plans and programs. The focus of this phase model of program budgeting is to convince the Government of Serbia and the members of the National Assembly of the Republic of Serbia with arguments that it is necessary to provide the necessary resources to implement the program and to develop and maintain the established level of capability. Execution is the last stage of the model of program budgeting. The point of this phase is to provide consistent implementation of plans, programs and budgets, and with a goal to build capacity of established public authorities and institutions.

Planning and execution, as the first and last phase of program budgeting are ongoing processes that, unlike programming and budgeting phases are occurring continuously, while the phases programming and budgeting are occurring in cycles in accordance with the budget calendar of activities of the Law on the budgetary system of the Republic of Serbia.

In most scientific and expert papers mainly the phases of planning and budgeting are dealt with, while the programming and especially execution phase have remained least explored. Therefore, the case of this study is to track the execution phase of expenditures and/or financial plan according to the set activities and programs, taking into account the already mentioned limitations, in order to achieve the specific goals of state authorities respecting the principle of economy.

2. PROCESS OF EXECUTION OF PROGRAM BUDGETING

The process of execution of program budgeting takes place with the realization of planned subsistence needs through engagement of arranged budget resources and creation of obligations for payment, as well as payment of obligations created, that is final expenditure of budget funds according to the annual plan.

Execution phase in the process of program budgeting is a dynamic process that permeates all three previous stages of this process, as shown in Figure 1. It is very important to note that as a result of the execution phase, is the answer to the question of whether the set goals are reached.

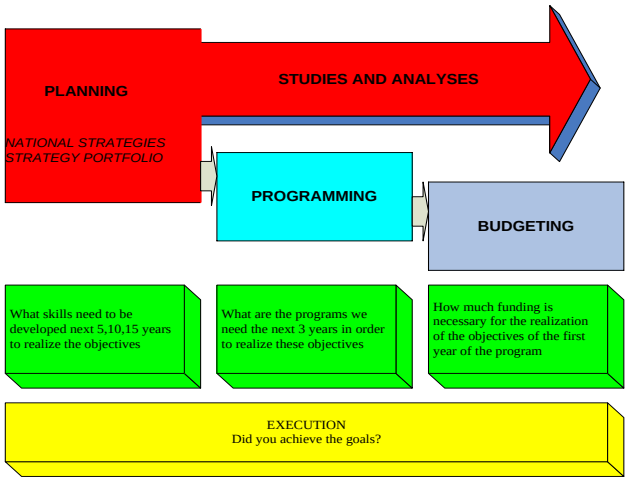


Figure 1: Phases of program budgeting

Monitoring the execution phase is a process by which supervision and control of the implementation of plans, programs and financial plan is done in order to achieve the expected results and achievement of goals. By analyzing the execution of plans, programs and financial plan the degree of achieving the goals, deviations, causes and proposal of corrective measures is determined.

With corrective actions consistent implementation of plans, programs and financial plan is achieved. Correction of plans, programs and the financial plan is done by a competent body in case of a change of the situation or when their execution is not possible. The execution phase is viewed through the implementation of plans and programs. However, following the execution of the financial plan, realization of activities, projects and programs is followed as well, for whose realization funds are necessary, so it is especially described in this phase.

Optimal management of execution of tasks in the planned dynamic requires the presence of back links that provide timely and accurate information on the functioning of the process of program budgeting.

Regardless of the reality of assessment of planned assumptions and rigor of the taken proceedings in relation to the planned regulation, it is normal to expect some differences and discrepancies between planned and actually completed tasks. To minimize the generated differences between the actual and planned conditions it is necessary to establish mechanisms for successfully organized collection and

transmission of data on the actual situation, determine the difference between the actual and planned conditions, and efficient functioning of corrective factors that include additional actions with a goal to minimize deviations of actual in relation to the planned situation.

The difference between planned and actual results may occur as a result of lack of data, thus misjudgment and ultimately inadequate plans. In addition, it can occur as a result of inefficient organizations and oscillations of influencing factors in the environment.

By monitoring the implementation of the annual plan by using computer technology or other standard procedures, variations of possible interventions are determined, with which the results of possible deviations will be reduced to tolerance limits. By choosing one of the possible variants of correction of the flow of information in the return turn continues, until the system is brought into balance.

3. PLANNING BASED ON RESULTS - TARGETED PLANNING

Planning based on the results or targeted planning, involves selection of the best action for the realization of the given goals and results of the defense system. As shown in Figure 2, the model of program budgeting, which is based on the results, in reality usually involves "confrontation" of defense's objectives and available resources.

System analysis allows, in this context, the decision-maker to select the preferred option among alternative choices and the program through selection of variants and models for estimating the optimal alternative (Method Pattern, CPE, Elektra, stochastic analysis, game theory and coalition, scenario method, Delphi survey, multi-criteria analysis, simulation model, matrices of realization of the objectives of Morris-Hills etc.). In essence, system analysis allows, "adaptive slipping" from the global long-term plan to an encrypted plan with iterative graphics, respecting aleatory boom variables and time horizons of alternative strategies in the simulation of the program (F.S.Quade). This basically determines the policy of distribution and allocation of resources within a long-term strategic planning, mid-term program orientation and annual operating budget choices.

The development process is different for each budget beneficiary. The development process of budget funds user can be viewed as a process of changing its structure and a way of functioning which has a goal to present the existing potential of the existing state (S0) into a new better state (S1). This conversion is a complex and dynamic process that, according to Nikola Čubra (1973), can be symbolically displayed in the following way (p.25):

„a) stages of development (translation) of the system from one state to another:

$$S0 \rightarrow S1 \rightarrow S2 \rightarrow S3 \ldots\ldots\ldots\ldots\ldots \rightarrow Sn \quad (1)$$

b) the quality of the system in each subsequent stage should be higher than the previous:

$$K0 < K1 < K2 < K3 \ldots\ldots\ldots\ldots < Kn \quad (2)$$

c) the intensity and speed of development show positive trends:

$$(K1-K0) < (K2-K1) < (K2-K3) < \ldots\ldots\ldots\ldots < (Kn-1) \quad (3)“$$

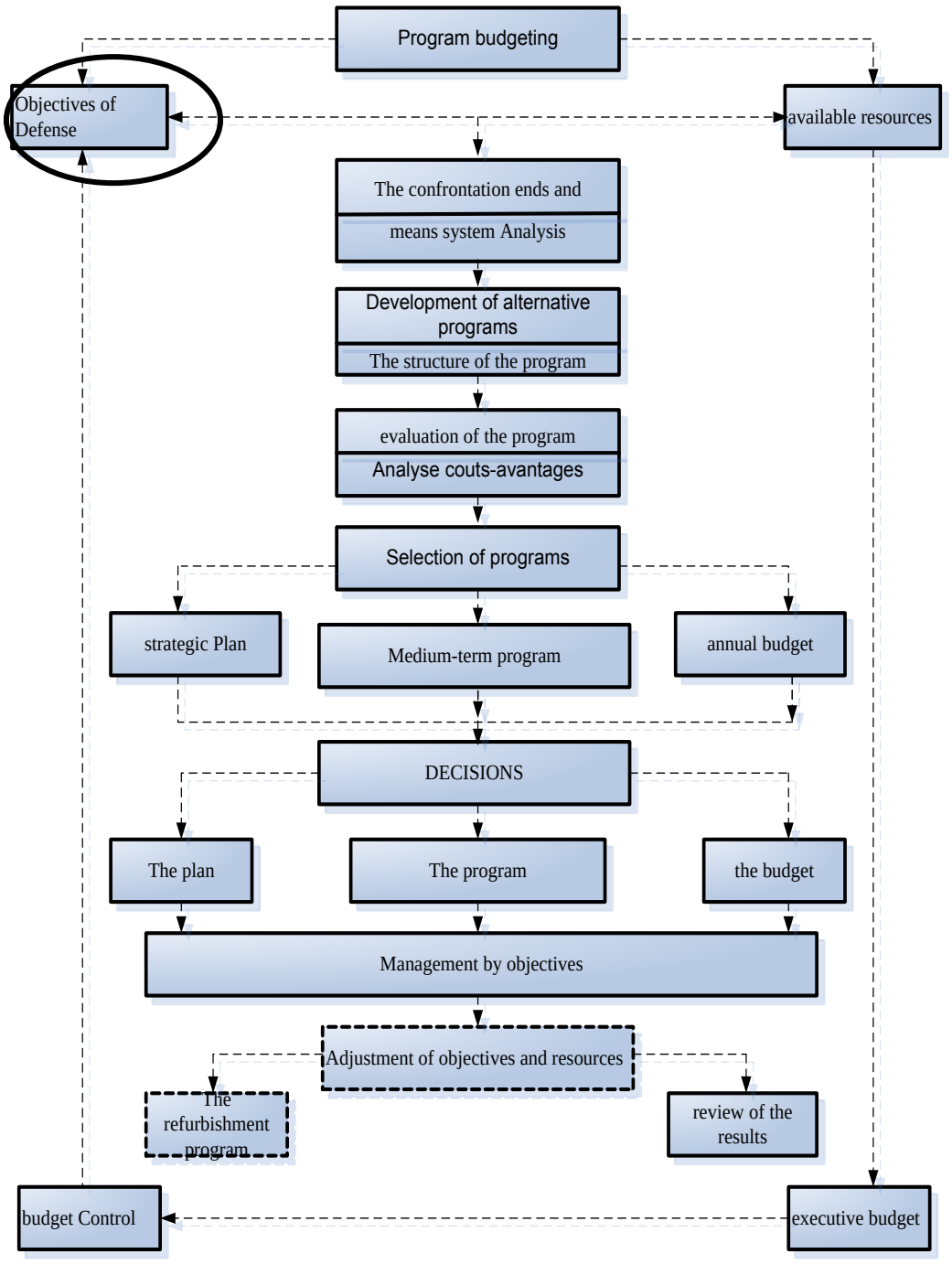
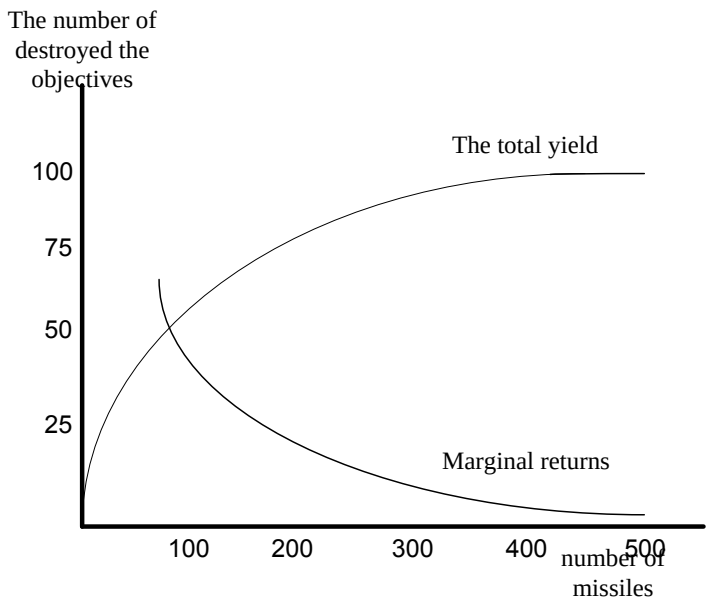


Figure 2: Ristic (1989) „The ratio of available financial resources and stated goals" (p.544)

Based on the presented data, we can conclude that the system evolves continuously, which means that it is not desirable that any development phase is skipped. However, the transition from previous to the next state can be significantly facilitated and accelerated if, among other things, in planning, budgeting and execution of needs and expenses of users of budget resources, such organizational solutions, methods and procedures are used by which even with unchanged material conditions, a greater efficiency, that is, higher level of efficiency and effectiveness of budget beneficiaries is achieved or, what amounts to the same thing, with less expenditure of funds for expenses of budget funds it maintains its current level of efficiency which is considered sufficient.

Graph 1 Stiglitz (2001) „The role of marginal analysis in defense" (p.340)



For example, the use of marginal analysis, according Hitch (1966) for assessment of whether you should spend more on defense, it is necessary to know how much additional "protection" will you get from additional expenses in the amount of one billion dinars. Let us assume that the probability of successful hitting of the target with a rocket is 50% and there are 100 targets to destroy. So 100 missiles launched at targets "would achieve an expected score of 50 hits, 200 rockets - 75 hits, 300 rockets - 87 Hits", as shown in **Graph 1** (p.50-51).

It is noticeable that there are very severe diminishing returns. Each target can be destroyed only once, and some of the missiles will fall on already destroyed target. While the first hundred missiles would destroy 50 targets, the number of missiles increased from 400 to 500 would increase the number of targets destroyed only by three. Therefore, one shouldn't ask the question whether the 97 targets destroyed are worth spending 500 missiles, but rather, whether the goal of destroying three extra targets is worth spending hundred additional missiles. This type of analysis is not easy. Linking defense expenditures with its goals and demonstrating what could be gained from additional expenditures, it can be expected that it will bring much more rational decisions about how much is enough.

In the above mentioned the basic aim and essence of modern planning, programming, budgeting and execution of the needs and expenses of defense is contained. The main measure of quality is, therefore not at any price greater efficiency but sufficient or the greatest possible efficiency of the defense system in the current (real, actual bearing) economic and overall social conditions.

Selection and matching of the needs and expenses that are required for high-quality performance of all activities in the organization and preparation of the defense system in terms of actual, economic and socially real opportunities is a necessary but not sufficient condition for the effective execution of the stated objectives of the organization. The quality of use and consumption of available resources, i.e. the degree of economic rationality, also has an impact on the effective achievement of set goals of an organization. This is achieved through adequate and modern normative legal regulation of the financial functions of the organization as well as quality management of its resources.

4. ESTABLISHING LINKS ON IMPLEMENTATION OF FINANCIAL ASSETS WITH REALIZATION OF THE GOALS

Execution phase in the process of program budgeting is a dynamic process that permeates all three previous stages of the process, according Trandafilovic & Knezevic (2013). It is important to note that as a result of the execution phase, as shown in Figure 3, an answer to the question of whether we

achieve the set objectives, as defined in point A and represent the desired state - point B is got, (p.210-214).

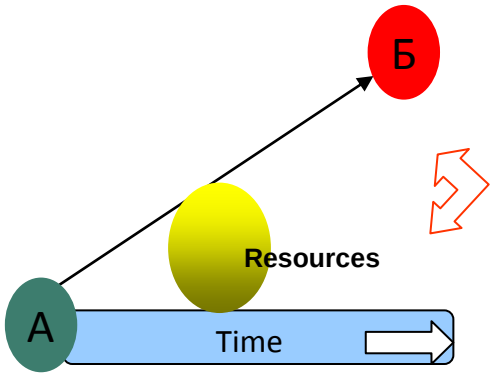


Figure 3: Defining the goals

If it is determined that the mid-term objective of the organization in the period from 2012 until 2014 is the following: "The financial position of employees is actually improved by 10% and the living and working conditions are favorable", and that for its implementation in 2012 is necessary to use 231.75 million dinars, in 2013. 297.90 million dinars and in 2014. 266.61 million dinars, which for the entire period amounts to 796.25 million, then it is precisely known for the projects and activities in the observed years how many of them contribute to the realization of that objective and how much it costs.

In Table 1, mid-term goals and projects are shown with activities for the realization of this goal in given years. Financial assets shown by years are expressed in millions of dinars. All three projects are shown, but for simplification, only the first project is presented with its activities while the second and third are with no activities with total expenditures by the observed years. Projects and activities are indicated numerically.

For the implementation of the mid-term goal, "The financial position of employees is actually improved by 10% and the living and working conditions are favorable" in the period from 2012 to 2014 were determined by three projects:

1. Redesign and construction of residential buildigs with signs O24, O25, O28, O29 and O32 at location "2 MZ Bežanijska hair" labeled 04-01-01;
2. Urbanization and construction of social housing marked 04-01-02 and
3. Buying apartments labeled 04-01-03.

During this period, expenditures are presented for the realization of the given projects for each year in total. However, in the project documentation all expenditure by economic classification of accounts are shown, so it is simplified to monitor the implementation of projects through the implementation of the financial plan and ultimately realization of the given mid-term objective.

In the framework of the given project activities for their implementation with related expenses per year are summarized. The sum of the costs of all activities in the project within one year is the cost of the project in a given year. The sum of all costs within the project during the entire period of its realization represents is its total cost.

Table 1. Realization of goals with projects

The financial position of employees is actually improved by 10% and the living and working conditions are favorable				
Designation of the project/activity	2012.	2013.	2014.	Total
IN TOTAL:	231.750	297.900	266.610	796.250
04-01-01	8.540	56.560	74.900	140.000
04-01-01-01	700			700
04-01-01-02	840			840
04-01-01-03	4.760			4.760
04-01-01-04	1.400			1.400
04-01-01-05	840	1.260		2.100
04-01-01-06		2.100		2.100
04-01-01-07		2.100		2.100
04-01-01-08		1.120		1.120
04-01-01-09		3.500		3.500
04-01-01-10		46.480	69.720	116.200
04-01-01-11			3.080	3.080
04-01-01-12			420	420
04-01-01-13			280	280
04-01-01-14			1.400	1.400
04-01-02	39.100	125.350	75.716	240.166
04-01-03	184.104	115.992	115.992	416.088

5. CONCLUSION

Introduction of program budgeting model by the Government of the Republic of Serbia is certainly a step towards to a more efficient and rational management of public expenditures. Compared to the old way of planning the budget, whose main focus was the appropriation by economic classification, i.e. budget

planning by expenditure items, the focus of program budgeting are the results that are realized and objectives that are achieved by engaging all of the planned resources (human and material). Thus, program budgeting is an approach, or a process whose goal is establishing a connection between the involved and proposed resources and the achieved results.

Defining objectives and building capacity is not at all an easy job, on the contrary. Because, in a situation of lack of financial resources, as is the case in recent years, goals must be redefined and some capacities have to give up from or accept the strategic gap and not give up anything that was already planned.

Programming creates the preconditions for the choice of the best variant implementation for the realization of set objectives using available resources. So, programming makes visible the connection between the abilities of the defense system and the budget, as well as between long-term vision and short-term plans, making them understandable to decision-makers and key stakeholders.

In order to link the execution of expenditure with realization of objectives, it is necessary to fulfill the following conditions: to ensure continuity in the planning, of long-term over mid-term till short-term

plans; for the programs to be compatible with mid-term plans (that arise from long-range plans); for programs and individual projects arise from defined long-term goals and present a realization of mid-term objectives; for the activities to be planned in the framework established by the program or projects and the expenses for the years are related to activities.

Observing short term positive effect of the introduction of program budgeting is that the purpose of the spending public funds is known. In long term growth of state institutions and organs is expected with optimal costs, and probably, the whole economy and society as a whole.

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INNOVATIVE BUDGETING EXPENSES OF DEFENSE

Sasa Trandafilovic [1], Paun Lučanović[2], Milena Knežević[3]
[1] University of defence sasa.trandafilovic@mod.gov.rs
[2]Ministry of defence paun.lucanovic@mod.gov.rs
[3]Rectorate University of defence milena.knezevic@mod.gov.rs

Abstract: *This document presents a system of programming budgeting, that is a model management with a goal of establishing relations between engaged and proposed resources, in fact achieved results. Special attention is dedicated to the need as well as to the achieved results of the applied model in order to dispose rationally and finally in order to conduct determined tasks efficiently..*

Keywords*:* programming budgeting, development, resources, management, defense system.

1. INTRODUCTION

Changes in society and therefore in state, that occurred in the last decade of the 20th century and in the first decade of the 19th century, have influenced by the fact that the rooted attitudes and opinions have changed within the society which are a reptil of old times when it was thought that the education and defense are too important from a political, sociological and human aspect to be able to undergo some kind of economic calculations. On the contrary, in the today's situation, management structure of the system of defense must act immediately and make concrete decisions according that and, also, being faced with the problem of limited resources.

The additional problem for the defense system of the early 21st century, is that the previous system of financial resources, particularly budgeting, was not sufficiently effective and did not corespond to the complex requirements that were demanded of the management structure of the defense system of Serbia. The planning area of the defense system of Serbia was largely undeveloped and the need to regulate this in a qualitatively new basis was reported as an imperative. There were no mechanisms to provide sufficient information if the planned goals and objectives of the defense system would successfully implemented, and whether if an appropriate allocation of the resources for the realisation of the planned objectives would carried out.

Managing of financial resources was reduced to an allocation of available financial resources, without interconnections between the tasks of defense and financial plans. Also, there is problem of converting strategic objectives into financial plans that can be linked to budget resources. The fact is, of course, that many aspects of pre-defined objectives are implemented within the regular activities in the defense, but without feedback.

Financial planning, mechanisms for the preparation of financial plans and regulations for their enforcement haven't, until recently, provided sufficient information on whether the defined objectives have implemented successfully in practice. Because of this it was very important to improve the links between financial plans and strategies, to provide appropriate mechanisms for monitoring the effectiveness of their implementation and consideration of future needs. The introduction of functional programmatic dimension into the existing budget classification was one of those mechanisms.

The modern view and the view of overcoming problems of increasingly limited incomes also in the public sector of the Serbian government, found the solution in the 'budget directed to results' or program budget. The role and place of the state in financing defense system is characterized by compromise in conflict resolution: to achieve the defined goal with minimal financial investment. The cause of this discrepancy is primarily the needs of the various growth opportunities that defense functions of the state require and its limited material and financial resources. However, the government of every state is obliged to, on the one hand, consider the economic situation of the country, and on the other hand, to give stable defense system, racionally using limited resources.

Management structures of the defense system, as an integral part of society and its problems were faced, already in the 20th century and in the first half of 21th century, on the one hand, with the problem of transmission of liabilities from year to year, rising debts to suppliers, costs of court udgements for the delay in payments, penalty and interests for late payments of accrued liabilities, and on the other hand, with limited

and insufficiently available financial resources. What necessarily required news and changes in management of financial and other resources of defense.

The significant changes have been implemented in the system of defense of The Republic of Serbia in recent years. The overall objective of the changes is the transformation of the system in line with modern security challenges and threats, that is needs and opportunities of The Republic of Serbia.

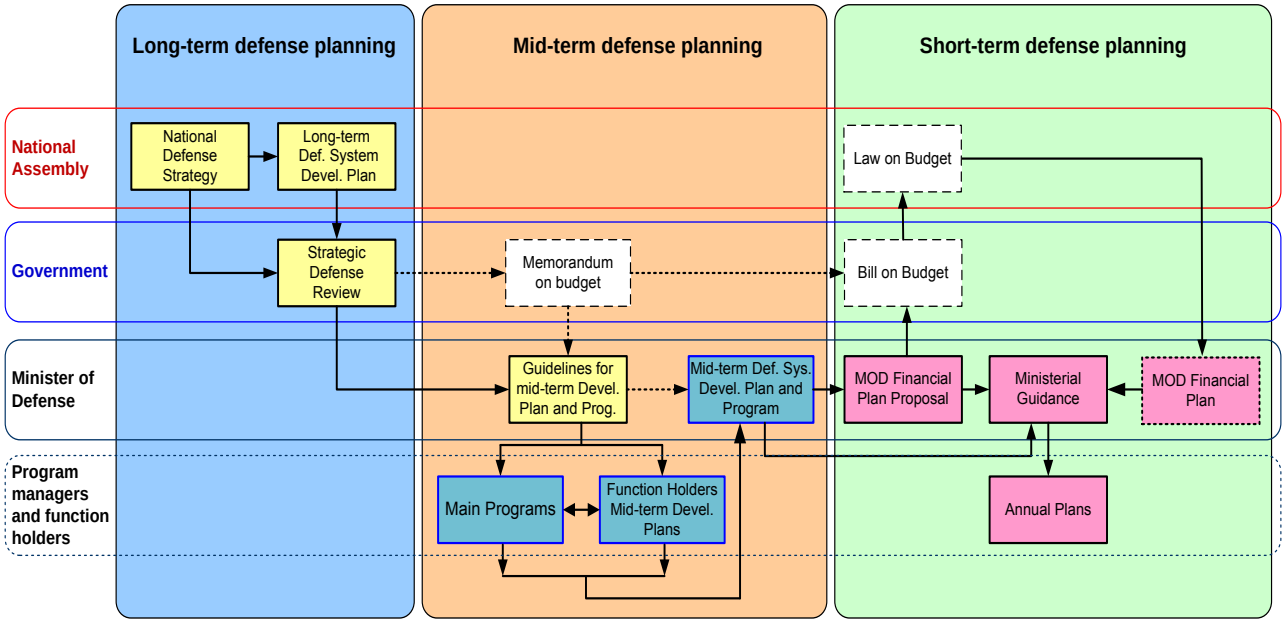
In order to ensure continuous growth in the quality of defense capabilities, increase efficiency of execution of the defense tasks, rational use of available resources, ensuring adaptability and flexibility of the process executing the defense tasks and coordination of development components of the defense system with the overall development of the State in the Ministry of Defense and the Army of Serbia in 2008. the system of planning, programming, budgeting and execution (PPBE) was introduced as a new management system of defense resources and in the final funding of developing programs and projects of defense system.

2. BUDGETING ANALYSIS OF DEFENSE SPENDING BEFORE AND NOW

Planning of the development of the defense system in the period before the introduction of program budgeting model was disintegrated and there was no continuity in the planning process. The development plans were made by the the office holders of the defense system each of them for themselves individually. Disintegration of planning functions, that existed before the introduction of a new defense resources management process, was a reflection of the existence of a large number of office hlders dealing with problems of planning. A particular problem was reflected in the lack of legislative and normative framework that would regulate this area.

Integration of the functions of development planning of the defense system, as it introduced a model known as program budgeting system PPBE, contributed to increase the overall performance of the Ministry of Defense and the Army of Serbia, because the defense system is viewed as a whole, fortified with all the tasks and resources required for their completion. Of course, the global financial crisis further complicates the problem, because the fundings for the tasks laid down by the Ministry of Defense and the Army of Serbia is getting more and more restrictive.

Decision makers in the defense system chose to introduce an integrated system of defense resource management, in order to bridge the created situation and to coordinate the requirements of the defense system and the possibilities of our society. Due to adoption and implementations of the PPBE system, integration of planning function as a first stage in the process of defense resource management comes into play.



Picture **1:** Model of Serbian Defense Planning-now

Continuity in the programming phase is ensured with the development and adoption of long-term development plans of the defense system on which the medium term plans and development programs are

made, which later serve for the development and implementation of short-term plans. Planning model which is represented in the defense system of the Republic of Serbia in 2011.is presented in picture 1.

Long-term planning is the process of setting objectives of the defense system for a longer period of time, as well as methods for their implementation. The long-term defense planning is an interdisciplinary process that involves many different activities. Activities are mutually dependent and precise coordination is needed. An interdisciplinary approach to planning requires close cooperation between the planners and military commanders, various specialists, political authority, etc.

The purpose of long-term defense planning is to consider the mission and tasks of the defense system and to establish realistic long-term objectives adjusted to the missions and tasks, as well as to determine the strategy of its realization. Long-term planning is oriented toward the relatively distant future and that represents a problem for planners as they face many difficulties that are the consequences of uncertainty in the future. Also, long-term defense planning should enable the appropriate development of defense system and avoidance of unwanteded effects.

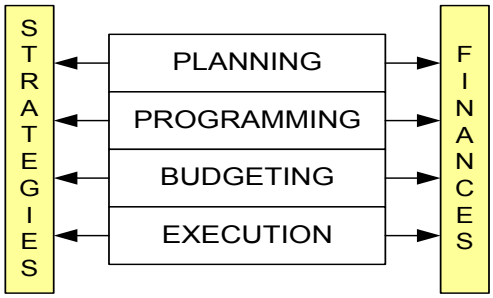
Medium-term planning is the process of determining the objectives of the defense system for medium-term planning period and the ways of their implementation. The objectives and priorities are determined by factors of development capabilities of the defense system that need to be realistic, purposive, implementable, measurable, time limited and classified according chronological and logical sequence.

Short-term planning is part of an integrated planning process that operationalized the medium term planning. In the defense system of the Republic of Serbia it includes a one-year planning period. Successful implementation requires the preparation of annual plans of a number of different plans that are differents in content, level of detailing, the time interval covered etc.

3. PROGRAMME BUDGETING EXPENDITURE OF THE DEFENSE SYSTEM

In the public sector reform and within it performance-based budget or PPBE system, expenditures are classified according to programs and projects, operational objectives of each program are determined , and performance indicators are established for each program and activity. PPBE system is one of the important components of a wider process of reform of public finances. Specifically, it means the introduction of an effective mechanism for monitoring the achievement of defined objectives.

In the current environment of public finances, it is difficult to translate strategic objectives into operational plans and projects of development of the defense system, which can be linked to the budget means (picture. 2). The fact is, of course, that many aspects of already defined objectives are being implemented within the ordinary activities of direct budget funding.



Picture 2: Converting strategic objectives into financial plans

However, operational planning, mechanisms for the preparation of financial plans and rules for the enforcement of them, within the line budgeting, which was represented by 2008. in the defense system, did not provide enough information about whether the defined objectives are being successfully implemented in practice. It was therefore important to improve the links between financial plans and strategies in order to provide appropriate mechanisms for monitoring the success of their implementation and consideration of future needs.

Therefore, the program budget is a comprehensive system of defense resource management - a system of monitoring results (performance management system). Key feature of the program budget is in a change of

budget focus from budgetary commitments on short-and long-term results and reached objectives of the defense system.

However, limited resources imposes, in fact, wanted it or not, accepting different, basically an economic standpoint, which is characterized by:

1. the need for the best utilization of resources available for the specific purpose
2. the influence by the consequences of decisions in the present to a quality of development in the future
3. the necessity to be efficient, which correspond to a care that the set objectives achieve with adequate real available resources and
4. the obligation to legally dispose and permanently control the expenditure of resources for implementation of planned needs.

To increase the efficiency of the management structures of the defense system, changes in the sphere of budget expenditures were necessary, just because of limitation and scarcity of available funding. Otherwise the time and attention of management structures would be focused on securing funding for a reconciliation of the regular needs of defense and would be lost to the efficiency of doing the basic tasks.

4. SECTOR PROGRAMS AS AN INOVATIVE WAY TO BUDGETS EXPENDITURES OF DONATIONS OF DEFENSE

Defense expenses are financed by funds from the budget and donations from the European Union through Sector Approaches (also known as Sector Wide Approaches – SWAps). Sector Approaches are usually seen as programme-based approaches (PBA) operating at the level of a sector. PBA is defined as follows, (European Commission, 2007):

„A programme-based approach (PBA) is a way of engaging funds EU in development sectors programme, such as a National defence strategy, a sector programme, a thematic programme or a programme of a specific organisation (defence).PBAs have the following features:

- ✓ leadership by the host country;
- ✓ a single comprehensive programme and budget framework;
- ✓ a formalised process of donor coordination and harmonisation of donor procedures for reporting, budgeting, financial management and procurement end
- ✓ efforts to increase the use of this systems for programme design and implementation, financial management, monitoring and evaluation.“ (p.24)

The European Commission (EC) is committed to delivering "more and better aid" for "legitimate strategies". One of the legitimate strategies is National defence strategy.

Sector approaches or sector-wide approaches (SWAps) are processes aimed at the development of coherent sector policies and strategies. They involve governments, donors and other sector stakeholders in a unified process and framework.

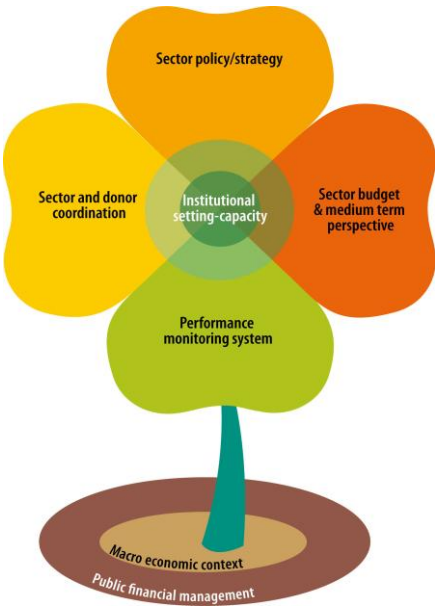
As mentioned above, EC decisions about whether and how to support a sector programme are based on assessments in seven key areas, (European Commission, 2007):

„The five elements of a sector programme

1. The sector policy and overall strategic framework
2. The budget and it medium-term perspectives
3. Sector and donor coordination systems
4. The institutional setting and existing capacities
5. Performance monitoring

And the two additional elements influencing the sector programme's performance

6. The macroeconomic framework
7. Public financial management (PFM) systems“ (p.27-35)



Limitations EC provide an insight into the basic concepts that are relevant to each assessment, identify key issues to be addressed and point to additional sources for more detailed guidance. The aim is to assist programme managers throughout the cycle of operations of EC support in reviewing the quality of sector programmes and deciding on appropriate support modalities.

Assessment of these areas would start during the programming and identification phases of the sector politics cycle, with the analysis then being completed during formulation. During implementation, these assessments would also need to be updated regularly in order to keep abreast of developments in the sector politics and each of the areas.

There are many overlaps between these assessments (for example, there are obvious connections between sector expenditure strategy, the macroeconomic assessment and the review of public finance management; all the other assessments may feed into the institutional and capacity assessment, and so forth).

Also, many of the assessments are also required for other aspects of EC work (e.g. a macroeconomic assessment will have been undertaken as part of limits preparation and to support any sector politics and so on. Those working on analyses should first of all draw on given limits, and if necessary update, existing assessments. Wherever there are relevant preexisting studies and materials, these should be drawn upon.

When it is possible, the EC works jointly with other donors, as well as with the partner government, on such assessments, and does so in ways that support the development of partner country capacity. The assessment required at the design stage of an politics sector is part of a continual process of monitoring and review of key issues. There are few, if any, absolute criteria involved in the assessments. Balanced judgements are required, which identify opportunities as well as risks, and which assess the direction of change as well as current levels of performance.

5. CONCLUSION:

The introduction of the new model of program budgeting, situation in the field of management of defense resource is changing drastically. Namely, there is a process that takes place continuously. All plans and programs are integrated into one unit. The financial plan of the defense, as a function of plan holders, serve to establish a connection between the proposed appropriation of resources and results achieved. Mechanisms for monitoring the implementation of goals achieved are being introduced, which is advantage compared to the state so far.

The system of financial management of defense resources is becoming a complex, dynamic, interoperable, and integrated process. The main purpose of this process is management of maintenance and capacity building of the Ministry of Defense and the Serbian Army to achieve the defense objectives of Serbia. Finally, the purpose of defense resource management process is the provision of conditions for achieving the mission and tasks of the defense system.

However, the process of resource management is not just a technical procedure, but also an important political process. In the event that there is no political will and consistency in terms of sustainability of the planned and predicted values, there is a risk that the budgeting process could turn back into the allocation of available financial resources, as it has been the case until the year of 2010.

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BASIC COMPONENTS OF INTERNAL CONTROL IN PUBLIC SECTOR, WITH A VIEW TO THEIR ROLE IN THE MINISTRY OF DEFENCE AND THE SERBIAN ARMY

[1]Ass.Prof. Colonel Rade Zugic,PhD; [2]Major Radan Kostic, MA; [3]Milica Radojkovic,cadet -1st Sgt
[1]Defence Inspectorate, radezugic@sbb.co.rs
[2]Human Resources Department, radan.kostic@mod.gov.rs
[3]Military Academy, 25masha@gmail.com

Abstract: *The basic concept of control is to create a process that ensures the achievement of objectives with quality, conservation and management of funds within the law compliance and other regulations and procedures, preparation and production of reliable financial and business reports. The compliance of the requirement means that the business is complied with applicable laws, regulations, standards, agreed policies, postulates and with all the forms of behavior that these processes make legal and socially acceptable . With the implementation of internal financial control in the defense system, it is achieved and provided an efficient and rational using of funds for financing the costs of defense, on the one hand, and on the other hand, considerably reducing the possibility of significant irregularities, fraud, corruption and the emergence of organized crime .*
Keywords: *Public sector, budget system, internal control, financial management and control, Ministry of Defence, Army*

INTRODUCTION

With signing of the Stabilisation and Association Agreement between the European Communities and their Member States on one hand and The Republic of Serbia on the other hand, in Luxembourg on 29 April 2008, The Republic of Serbia, among other things, signed commitment to gradually harmonize its legislation with the achievements of the Union and their consistent application. Article 92 of the Agreement regulates cooperation in the area of public internal financial control (PIFC) and external audit, i.e. public internal financial control (including financial management and control and functionally independent internal control) aand external audit systems in Serbia, in accordance with internationally recognized standards and methodologies as well best practices in the European Union.
The current projection of internal control in public sector defined by the Law on the Budget System and the existing internal regulations are good basis for establishment of a comprehensive integrated system of internal control in the MoD and SA, which the Strategy for the Development of internal financial control in the public sector of the Republic of Serbia relies on. The Strategy is projecting both common activities aand the activities related to internal control and to the implementation of financial management and control in public sector until December, 2014.

1. INTERNAL CONTROL IN PUBLIC SECTOR

Internal control is defined as a process that is carried out by employees in an organization with the intention to achieve certain goals. The definition is broad and it covers all aspects of business control, thus making direct concentration on the specific goals easier.
The system of internal control is defined by the International External Audit Standards as "a system that includes all policies and procedures of internal control which the management of a legal entity has accepted to assist in achieving its objectives in terms of ensuring that the business is conducted properly and efficiently to the greatest extent possible, including adherence to management policies, keeping of the assets integrity, prevention and detection of fraud and error, accuracy and completeness of financial records and timely preparation of reliable financial information." [1]
The goal of a system of internal control establishment is a successful management and accomplishment of the mission, i.e. the set goals of the organization, and providing conditions for good and economic managing of public funds.
When talking about internal control in the public sector, it should primarily be based on the analysis of: the system of internal financial control (PIFC) and the system of financial management and control (FMC) .

[1] Savez racunovodja i revizora Srbije, (2002), Ocena rizika i interna kontrola, Medjunarodni standardi revizije, Serbia: Belgrade, p. 173

2. INTERNAL FINANCIAL CONTROL (PIFC)

Internal financial control in public sector is a term developed by the European Commission in order to assist in understanding and application of well-developed control systems in the EU accession process.
Internal financial control in public sector is a comprehensive system of financial and other controls established by the head of an organisation in public sector, with the aim of successful management and achievement of the organization's objectives. [2]
Besides, the internal financial control in public sector includes the entire system which is established by the government in order to control use of the budget funds and it includes all measures for control of government revenues, expenses, assets and liabilities and all internal control systems as well as procedures in the public sector, thus helping to create conviction that public funds are spent and used purpesfully. [3]
Internal financial control in the public sector should be considered within the overall field of public finance, which extends from creation of the state budget, through the approval and its execution, to the safe deposit issue, fiscal and debt management, including accounting, reporting, procurements, internal control etc. The system of internal financial control in public sector also includes financial management and control in public funds, internal auditors of public funds and the harmonization and coordination of financial management and control and internal audit carried out by the Ministry of Finance - CHU.
"*Financial management and control* involve the entire system of financial and other controls and is implemented by the policies, procedures and activities with the mission to provide reasonable assurance that the organization will achieve its objectives.
The internal audit is an activity of independent and objective persuasion, but a consulting activity as well, designed with the aim of creating business improvement of an organization. It is functionally independent in its work, it is not a part of any business process or organizational unit of the organization, and in its work it is directly responsible to the manager of public funds. Functional independence is provided by independent decision-making about: the field of auditing, way of performing the auditing and reporting on the performed audit.
CHU is a special section in the Ministry of Finance which elaborates and directs the process of internal financial control in public sector. It carries out and is responsible for providing professional development, certification and monitoring of the internal auditors' work, professional development of managers and employees in public sector, in accordance with the internationally accepted standards. " [4]

2.1. The regulatory framework

The reform of internal financial control and internal audit in public sector in The Republic of Serbia which started in 2002 by adoptioning of the budget system Law as well as a number of secondary law acts, the internal audit on central level was established in the Ministry of Finance. Obligation of establishing the internal control system was regulated by the amendments of the Law on the Budget System [5] in October, 2006.
Based on this Law and in order to develop and implement the internal financial control in public sector as a comprehensive system of internal control, the bylaws regulating this area have been passed.
If certain laws passed in order to regulate this area are considered, two of them can be taken in special consideration - the new rulebook regulating the financial management and control and the rules governing the internal audit. Compared to the previous one, the new rulebook on financial management and control underwent minor changes in the title, while the major substantive has not been changed. Substantial changes primarily related the differences in defining of the terms, and defining of new terms, such as the managers' management responsibility, risk management, audit trail, etc. Other differences can be recognized in defining of the methods of reporting in such a way that the deadline by which the head-user of public funds has to report to the Minister of Finance on the adequacy and functioning of the financial management and control has been prescribed.
The system of internal financial control is built into the legislation and its aim is to provide the benefits of transparent and healthy system of internal control for numerous stakeholders in the entire process led by the

[2] Zugic, R., Kostic, R. (2012), Kontrola i revizija u funkciji izvrsenja finansijskog plana MO, SYMOPIS 2012, Serbia: Belgrade, p.1
[3] Leko, V., (2008), Vrhovna drzavna revizija javnih sredstava, Faculty of Law, Serbia: Belgrade, p. 304
[4] Zugic, R., Kostic, R. (2012), Kontrola i revizija u funkciji izvrsenja finansijskog plana MO, SYMOPIS 2012, Serbia: Belgrade, p.2
[5] Zakon o budzetskom sistemu, („Sluzbeni glasnik RS", no. 54/09, 73/10, 101/10, 101/11, 93/12, 62/13 ispr. i 108/13), articles 80 to 83 is defined establishing of a system of financial management and control, which should be carried out by policies , procedures and activities, with the main task to provide reasonable assurance that a user of public resources will achieve their goals.

government. Therefore, based on the legal framework, it is necessary to fully establish the organizational structures, job descriptions and criteria for monitoring and evaluation of the employees' work results, the way of delegating tasks and ways of reporting in the system of internal financial control in public sector. It should also be said that the Action Plan together with Strategy, is a plan of activities related to development of the internal financial control in public sector which includes: joint activities, activities related to internal audit and implementation of financial management and control, and the plan is scheduled to be carried out in the period from October, 2009 to December, 2014.

2.2. Directions of development of the internal financial control system

The concept of internal financial control in public sector developed by the European Commission, is functional in terms of raising awareness and prevention, primarily through a number of conceptual, legal and organizational activities. For this concept the starting point is that the government, recognizing the necessity of raising the level of transparency responsibility and accountability, should start analysis of its internal control systems. [6]

The abbreviation PIFC is often used inn literature relating internal financial control in public sector: [7]
P *- Public Sector;*
I *- Internal to the organization;*
F *- Financial systems mainly but not exclusively;*
C *- Control based on internationally accepted and recognized standards.*

PIFC involves a comprehensive system established by the Government, i.e. public sector organizations for financial management and control, internal auditing and reporting on the use of public and the EU funds. The aim is to ensure that the management and control of public funds (including foreign funds) are in accordance with the regulations, description of the budget and the principles of sound financial management i.e. efficiency, effectiveness, reasonable distribution and transparency.
Internal financial control can be defined as an activity undertaken by management, boards, and other factors of management of the systems in order to improve risk management and increase the likelihood of achieving the goals.
The internal control system is established by the head of the organization, or by a person authorized by the head to establish a system of internal control. Internal control is an important component of risk management. It is implemented on all levels, in all organizational units and all workplaces. When establishing the internal control, it is the head's obligation to to draw up Plans for establishing internal controls for all organisation units in its composition. After the first phase, i.e. the adoption of the Plan, the next step is creation of Procedures for financial risk management of the business and the Ordinance on internal control and internal control procedures.
Based on the foregoing, it can be concluded that the model of internal financial control in public sector covers not only the entire system of financial controls but also other sorts of control established by the head of the organization, with the aim to successfully manage and accomplish the objectives of the organization.
All the issues considered so far clearly show that the internal control, during the work-process, exercises control of the following issues: whether the business is conducted in accordance with the prescribed procedures, whether the solutions and decisions have been made in accordance with rules and regulations, whether the contracts are in accordance with the Regulation on job classification, whether coefficients of the workplace are in accordance with the Regulation, and whether the process of procurement has been conducted in accordance with the regulations, plans and financial plan.
PIFC is a system that takes into account all aspects, i.e. it combines internal control and internal audit into one system like with the COSO model, plus a new element ,i.e. a centralized organization which is responsible for harmonization and coordination of both internal control and internal auditing standards, as well as the rules applied to all parts of public sector.

2.3. The future role of PIFC

PIFC concept has evolved gradually as response to a variety of inter-related events. Since the internal control systems in the EU Member States were not harmonized, the candidate countries could not know

[6] De Koning, R., (2007). Initiative of the European Commission to build a new structure of public internal control in the candidate countries and third countries, Belgium , p.24.
[7] Zugic, R., Kostic, R. (2012), Kontrola i revizija u funkciji izvrsenja finansijskog plana MO, SYMOPIS 2012, Srbija: Beograd, p.1

which system was to be considered as example of good practice. That is why these countries asked the European Commission to recommend the best practices in terms of choosing the best system. They were advised to focus on introduction of the activities and institutions that would influence upon increase of the public interest in sound financial management in private and public sectors and upon creation of strong awareness of the far-reaching consequences of corruption, fraud and embezzlement.
PIFC concept has become a strategy in order to give an answer to a great concern that all countries have regarding corruption and to develop the principles of responsibility and transparency. The only system was the only one which could be, and actually is based on the principles of democracy and obeying the laws. It represents harmonization of the standards and procedures and synchronizes the public internal controls with the appropriate international standards. It should be emphasized that the harmonization concepts are logical and useful, so this concept should be enrooted and expanded in all the countries which have accepted it.
It is important that PIFC concept provides a strategic framework that is regularly reviewed and updated, which is available and supported by the highest authorities in charge of control. Within PIFC, CHU should develop and promote a self-assessment procedure in control and audit institutions. As for annual basis, a report on the state of PIFC should be made and submitted to the government. This concept has become a concept with a practical purpose, and its continues to develop as a tool by adopting latest relevant examples of good practice.

3. FINANCIAL MANAGEMENT AND CONTROL SYSTEM (FMC)

Financial management and control encompass the entire system of financial and other controls, including organizational structure, methods and procedures, not only the financial systems but also the operational and strategic systems of organizations in public sector.[8] This definition, as well as the entire contents of the basic principle of financial management and control, have been literally translated from the EU documents, i.e. the EU member states. However, by detailed analysis of individual member states, i.e. the ways in which certain terms are defined, the authors of this paper have presented and shown their way of understanding of financial management and control.
Financial management and control is the overall system of internal controls established by heads of the organizations in the public sector and the heads are responsible for that system. This system, through the risk management, provides evidenceassures that budget and other funds are managed and spent in a proper, ethical, economical, efficient and effective manner.
An internal control system is not an irrevocable chart carved in stone. On the contrary, an internal control system should be changeable according to the changes in its constantly changing surroundings and it should be constantly upgraded. This is especially important if the state leadership is in the early stages of the control nature changes, i.e. where the internal control system is on an early stage of development.

3.1. Purpose and importance of internal control

General purpose of internal control is supporting of public sector in achieving its mission.[9] Each organization should design its own internal control system in order to meet the needs and properly respond to the organization surroundings,environment of the organization, as well as to reach the set goals.
The first category of objectives is about compliance with laws, regulations, policies, plans and procedures relating the organization in public sector. It should be mentioned here that the laws and regulations represent a kind of mandate-authorization given to the organization in public sector in relation to the way of collecting and spending of the national and international means.
The second category of objectives deals with preparation of relevant, reliable and useful financial and management information, also including financial reports (interim and summary), which improve the decision making process and provide transparency and effective monitoring and surveillance.
The third category deals with *the main objectives* of a public sector organization, including level of its success (performances) and operational objectives, outcomes and results. "Effectiveness" refers to the objectives achievement, i.e. the extent to which the outcomes and results of specific activities, programs and projects correspond to the objectives or intended effects. "Efficiency" is the ratio between the already used

[8] Ministarstvo finansija RS, (2011), Centralna jedinica za harmonizaciju, Prirucnik za finansijsko upravljanje i kontrolu, Ernst & Young, Serbia: Belgrade
[9] CHU has defined in its internal documents (specifically Introduction to Internal kontorlu, Module 1, Ernst & Young , Belgrade , 2010), which are the official translation of legislation that is developed and applied by the EU, certain terms that need to be familiar with the beginning of the introduction to the basic characteristics of the financial management and control. The primary objectives of internal control are to ensure: 1) compliance with laws, regulations, policies, plans and procedures; 2) reliability and integrity of data and information; 3) the effectiveness and efficiency of operations and use of resources; 4) protection and preservation of resources.

resources and outcomes, and the results in achieving the goals. This means that the minimum resources should be invested to achieve the given result , i.e. the maximum result with the given quantity and quality of invested resources.
The fourth category includes protection and preservation of the organization's assets in public sector against misuse, losses, damage, mismanagement and mistakes. The key question related to the assets safeguarding is asset management, i.e. procurement, use and way of managing the assets.
Successful internal control system helps in streamlining processes and improves the level and quality of services, providing a reasonable assurance that the general objectives will be achieved. Internal control should increase the possibility to detect the frauds, to reduce the damage, misuse or mistakes, to prevent inappropriate activities, thus improving compliance Internal control is also the responsibility of all the employees and each ministry should provide conditions for integration of the internal control into these activites. The employees should be trained in methodology and concepts related to the internal control system.

3.2. The functions of compoonents of COSO model

COSO model describes internal control through its five basic elements-components, or financial management and control includes the following elements:

- Control environment;
- Risk management;
- Control activities;
- Information and communication and
- Surveillance and monitoring.

The internal control consists of five major interrelated components that are inherent in the way how the management lead the organization. These components are mutually connected and they are used as criteria for determining of the internal control effeciency. Among these five components (control environment, risk management, control and internal control activities, information and communication, and monitoring) there is a synergy and connection through which an integrated system that dynamically responds to the changed circumstances is formed. The internal control components are mutually connected and stem from the way in which business entities conduct business and they are integrated into the management process.
Control environment establishes the "tone" of the organization and influences upon awareness of the employees about the controls. It is the foundation for all other components of internal control, providing discipline and structure. If the foundation is not strong and if the control environment is not positive, the general system of internal control will not be effective enough.
Risk management involves identification, assessment and control of potential events and situations that may have an adverse effect on the achievement of the objectives of the public funds users. The precondition of risk management is defining of the general and specific objectives the organization should achieve. The task of risk management is to provide reasonable assurance that the objectives will be achieved.
Control activities are written policies and procedures and their implementation established to provide reasonable assurance that the risks of achieving the objectives are reduced to an acceptable level defined in procedures for risk management. They are implemented throughout the whole organization, on all levels and functions, by all employees and in accordance with the established business processes and job descriptions.
Communication is the exchange of useful information among employees and organizations as *support* to the decisions and coordination activities. The information should be transferred to the management and other employees who need them, in the form and within the timeframe that will help them to accomplish their duties.
Monitoring involves the introduction of a system for monitoring the financial management and control by assessment of adequacy and effectiveness of its functioning. Monitoring and evaluation of the system include consideration of the activities and transactions of the organization in order to assess the quality of work in a certain period and to assess the effectiveness of controls. Management should direct the monitoring activities toward the system of controls and accomplishment of the organization's mission. Monitoring and assessment of financial management as well as control done by checking of current situation, self-assessment and internal audit.

4. INTERNAL CONTROL IN DEFENCE SYSTEM

In order to provide conditions for the implementation of the budget as originally planned and approved by the highest authorities (Parliament), the budgetary control is organised in all contemporary budget systems.

As for establishing a safe and effecient internal controls in the defense system, the commanders are those who are responsible. The internal control process is carried out permanently in business activities with the beneficiaries through a formal, substantive check as well as control of the figures in the accounting and accompanying documents. [10]

Formal control of accuracy of the accounting documents determines if the documents have all the essential elements - attributes (the completeness of the documents and its preparation in accordance with applicable regulations are the issues that are determined).

Essential control of accounting documents accuracy determines whether the transaction contained in the accounting document has really been created by volume, structure, quality, time and other features.

Control of arithmetic accuracy of accounting documents determines the accuracy of the required calculations and accuracy of the results presented in the document. Control of formal, essential and arithmetic accuracy is confirmed in the accounting document by putting the clause "controlled by", the signature of the person who controlled the document and the date when the control was carried out. [11]

On the other hand, the system of financial management and control systems are established with all public funds beneficiaries. The person who gives orders is responsible for establishment of a financial management and control system, and both the person and the employees implement it in practise. Financial management and control system are established in accordance with the adopted regulations which regulate establishment and development of the Internal financial control system in public sector of The Republic of Serbia .

Monitoring is a special form of internal control and it is part of regular duty of the managers of organizational units of the Ministry i.e. commanders of material and financial authority on all levels, as well as the persons on other duties who are responsible for organization and implementation of financial and material business activities. This is a very efficient and cost-effective form of control, because it binds and integrates the component of control into the function of command and control, and builds it into the system of responsibility and accountability assumed by a subordinate, and all that in accordance with the principle of subordination. Monitoring is carried out: *on daily basis* by personal insight into work of the subordinates and *occasionally* by personal insight into the state, keeping and maintaining of the the property. Each MoD member, irrespectively of the duty MoD or SA, after detecting violations and irregularities in work and use of the resources, has obligation to submit a written report to the commander in charge and to suggest the measures to be taken to solve the found irregularities.

As for the aspects of use and management of budgetary resources of The Republic of Serbia, there are the following forms of internal financial control in Ministry of Defence and the Serbian Armed Forces (Figure 1): [12]

- *monitoring* – constant, daily control of resources and work carried out by army officers who are in charge of giving the orders;
- *control of legality, correctness and preparation of documents relating business transactions,* done by expert services personnel and financial agencies functioning as bookkeepers;
- *control in the Accounting centre*;
- *inspection activities of defence in Defence Inspectorate* which is, besides other activities, in charge of control of material and financial operations;
- *detecting and giving evidence of organised crimes, money laundering and corruption* (abuse of power, trading in influence, bribery) by the Military Security Agency and Military Police Agencies.

[10] Ministarstvo odbrane i VS, (2011), Pravilnik o finansijskom poslovanju u MO i VS, („ Sluzbeni vojni list“, no.17/11)

[11] Ministarstvo odbrane i VS, (2011), Pravilnik o finansijskom poslovanju u MO i VS, („ Sluzbeni vojni list“, no.17/11), article 93

[12] Zugic, R., Kostic, R. (2012), Kontrola i revizija u funkciji izvrsenja finansijskog plana MO, SYMOPIS 2012, Srbija: Beograd, p.3

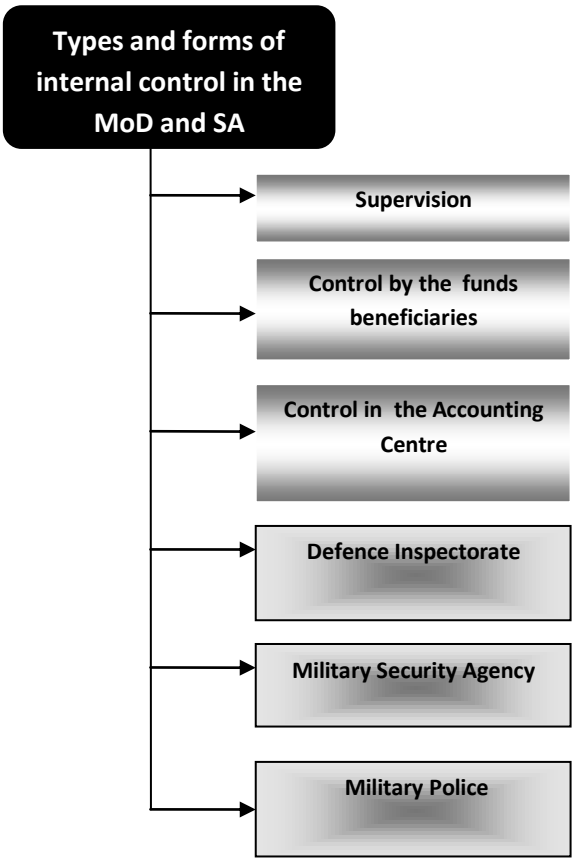

Figure 1: Types and forms of internal control in the MoD and SA

Based on the aforemntioned facts, it can be said that there is an organized system of internal control of spending and use of the budget funds in the Ministry of Defence and the Army. The system is based on accounting - financial data with the direct perpetrators of the approved budget funds and the Accounting Center of the Ministry of Defence.

5. FUTURE DIRECTIONS OF DEVELOPMENT OF INTERNAL CONTROL

The current system of control has been established neither in relation to the objectives planned by the public funds beneficiaries nor the risks which can influence upon achievement of the objectives. The existing controls are mainly directed to providing legality and regularity, but not to economy, efficiency and effectiveness.

To improve functioning of the internal controls in public sector of The Republic of Serbia, among other things, it is necessary to:

- prepare, harmonize and adopt the rules and procedures for financial management and controls in ministries and public sector organizations;
- develop a strategy for training of persons responsible for financial management and control in public sector organizations;
- establish the mechanisms for cooperation and monitoring development of financial management and control system;
- completely apply the Law on Public Procurement and controlled use of public expenditure in order to reduce the level of corruption.

To improve functioning of the internal control in the system of defense, it is necessary to:

- upgrade and improve the existing regulations, practices and organization of work in order to increase efficiency of material and financial operations and inspections;
- especially upgrade and improve model of instruction - the reminder for exercising the control of material and financial operations in the Army of Serbia, in order to prevent the occurrence of failures and eliminate risks in business and in inspections;
- especially exercise control of material and financial operations, that is to say, not within the control of compliance with laws, rules and regulations, or

- if control of material and financial operations is carried out within the control of compliance with laws, rules and regulations, to prolong the time for exercising the control;
- harmonize the existing standards of control in order to reduce the number of controls of all kinds and from all levels, and to provide the conditions for prolonging the time for exercising the controls.

It should be kept in mind that the entire system of internal control can only help public sector organizations to achieve their goals. It is not an "all-purpose remedy" and it can only provide control information related to progress or lack of progress of the organization in terms of achieving the goals.

CONCLUSION

Internal control means integration of the activities, plans, attitudes, policies, resources and efforts of the employees in an organization who work together in order to achieve all the goals and missions of the organization. Accordingly, the internal control is concentrated on the organization's mission.

Internal financial control in public sector, as a new concept of the budget system of the Republic of Serbia, establishes efficiency of public expenditure management along with introduction of multiple control systems. The emphasis is primarily on introduction of the internal control system of direct and indirect budget beneficiaries and mandatory social insurance.

The essence lies in the fact that it is necessary to improve the internal control of national and international budget funds, i.e. it is necessary to take certain steps which will guarantee long-term success in achieving benefits for public sector.

Financial management and control in public sector and in the defense system should be fully established and directed in such a way that the focus of the control exercising is not on the legality and regularity, but on the economy, efficiency and effectiveness of spending the public expenditure. Accordingly , the financial management and control system will function in an easier way and it will deal less with irregularities in business activities, thus being able to pay more attention to prevention and giving advice to the management. In that way, the risks in business will be reduced and the management will be assisted in making better decisions.

As a concrete conclusion, it can be emphasized that this issue should be constantly analyzed and updated, and that each organization should create its own system of internal control which will meet its needs and the environment in which it functions.

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THE IMPORTANCE OF A PUBLIC - PRIVATE PARTNERSHIP FOR TRANSITION COUNTRIES

Silvana Ilic[1], Dalibor Miletic[2], Marija Stevanovic[3]
[1] Faculty of Management, Zajecar, Megatrend University, Belgrade
[2] Faculty of Management, Zajecar, Megatrend University, Belgrade
[3] Thermal Power Plant Morava, Svilajnac

***Abstract**: Long-term practice of developed countries shows that partnerships between the public and private sectors are an effective way to achieve the objectives of the public and private sectors. The interest of the public sector is that, as a partner who defines the type and scope of work or services, to transfer the business of services to the private sector, and the interest of the private sector as a partner is earning profits, with a commitment of quality fulfillment of contractual obligations. Various forms of cooperation are used within which the public and private sector pool resources and capabilities in order to facilitate their effective use.*
Last year records showed a significant increase in cooperation between the public and private sector countries in transition such as Serbia. The PPP project is aimed at developing infrastructure and infrastructure management, public utilities, health care, environmental protection.

***Keywords:** public - private partnership, sustainable development, transition countries*.

1. INTRODUCTION

The need for public-private partnership was gradually developed since the beginning of the 80s of XX century, when serious criticism appeared on the inefficiency of public service providers and their inability to respond to identified needs. The role and importance of public-private partnerships as an effective way for a more rational use of limited resources and potential for development was growing. Peteri (2010) point out that "a partnership between the public and private sector are used to promote the business of stakeholders from different sectors in all countries" (p. 8).

Public-private partnership is based on the concept of risk sharing. There are a number of factors that influence the success of management of joint public - private projects. Large and technically complex infrastructure projects, with complex funding scheme, depend to a large extent on external factors. Peteri (2010) point out that "this is especially true in situations where the demand for these services is influenced by political decisions on the justification, the price to be paid for the service and the level and form of social subventions (p. 10).

The possibility of failure due to any of these factors is just one of the risks of success with public-private partnerships. There are other, internal risks, which are influenced by internal factors, such as the construction, management and technology. There is no single agreed definition on the concept of public-private partnerships. In practice, there are various definitions relating to the substance of public-private partnerships.

In a broader sense, the public-private partnership is defined as the implementation of all known types of cooperation between public and private partners, which, in many cases, leads to the establishment of joint ventures. Vladkov and Markov (2010) point out that "European Commission guidelines for successful public-private partners, define a public-private partnership as a partnership between the public and private sectors for the purpose of delivering a project or service traditionally provided by the public sector" (p. 22). Through this partnership, the strengths of each of the two sectors (public and private) are complemented in the provision of services or construction of facilities for the benefit of specific communities. Since each of the sectors is doing what it is best in, the services and infrastructure are offered to society in the most effective way, in economic terms. Such partnerships are characterized by the division of investment, risk, responsibility and profit among partners institutionalized public-private partnerships include the establishment of a joint venture by the public and private partners. The joint venture has a task to perform community service or providing public services.

In Member States, entities of public authorities sometimes resort to these structures, especially in the area of public service delivery at the local level. Institutionalized public-private partnership may be established either

by establishing a joint venture by the actors of the public and private sectors or taking control of existing public company by a private sector entity.

2. EXPECTED BENEFITS FROM THE PUBLIC-PRIVATE PARTNERSHIPS

Public-private partnership is one of the possible forms of cooperation, and it's based on recognition of the benefits that both the public and private sector achieve by pooling financial resources, knowledge and expertise to provide quality services to all citizens. For countries in transition this model is significant because it represents an alternative to full privatization. This partnership model provides a combination of social responsibility on the need to resolve a number of infrastructure problems and providing of quality services to citizens with finance, technology, efficient management and entrepreneurial spirit of the private sector.

Taking into account the advantages and disadvantages in providing public services, it is important to note that the most important role of public-private partnership to act as a new model of financing capital projects.

The main argument for the establishment of public-private partnership is the ability to obtain benefits for service users and local authorities, as a result of participation of private partners in investments in infrastructure, public services and public service management. In some countries, such as, for example, Hungary and Serbia, where public institutions, because of the legal and administrative constraints, were less able to respond to the needs of private companies, state government hoped that the stakeholders from the private and NGO sector be able to provide more and better.

Aleksic (2009) point out that "public-private partnerships are necessary during the fiscal restrictions, when the pressure on the public sector to reduce the number of employees and the total cost is extremely powerful. In some forms of public-private partnerships, public sector employees are employed by the private partner or licensee, thereby reducing the number of employees in the public sector. Public-private partnership aims to attract more resources into the public sector" (p.74).

The form of public-private partnership allows the public sector better access to modern equipment and management techniques. It is expected that the public-private partnership are going to improve the economy, because the existence of contractual obligations means that projects are completed on time and that their costs are rarely grow during implementation. The role and importance of public-private partnership is different and depends on the achieved level of social and economic development as well as the experiences, both positive and negative, in their implementation. The research practice shows significant benefits of public-private partnerships, as well as the problems that arise in their implementation.

Bogdanov (2010) point out that "the contribution experiences of public-private partnerships are relatively modest in countries in transition as the cooperation of the public to the private sector is still new and still have enough relevant empirical data to confirm the feasibility of cooperation. It can be concluded, based on the stages of development of public-private partnerships in developed market economies (U.S., UK, Denmark, Germany, etc...) that, in countries in transition, the cooperation between the public and private sectors are at the level of the first phase of development" (p. 221).

However, public-private partnerships must be used with great care. They are, without a doubt, more effective than the traditional means of public investment. Public-private partnerships can be used to exclude from the budget the investment and the need of the country to borrow. Yet on the other side of the state still bears most of the risk and potentially faces significant costs that could be borne by taxpayers. Each partnership is specific considering its form, duration of certain phases, the speed of the transition to the next phase, the intensity of cooperation and level of involvement. Because changes are permanent, it is necessary to continuously review the position of each actor. "Risk matrix" consisting of three different groups of risk: (http://www.easwmc.org/download/postconf/Hans%20Wiesmeth.pdf)

Table 1: Benefits and problems in the implementation of public-private partnerships

Use	Problems
Stable economic and social development of certain sites or companies	Insufficient experience in cooperation between the public and private sectors

The cooperation of a number of different stakeholders contribute to positive changes and improvements in various areas of the economy and society	Greater focus on the form and inadequate focus on the content of the cooperation within the framework of public-private partnerships
More efficient use of the limited resources of the community and the company, risk sharing	Incorrect assessment of the potential benefits, the necessary resources and credibility of partners in public-private partnership
Creating new capabilities and competitive advantages as a result of learning, acquiring and distribution of knowledge	Asymmetrical competence and power of stakeholders
Efficient implementation of strategies of all the entities involved	Abuse of political and economic power in the establishment of public-private partnerships
The affirmation of the concept of social responsibility of public and private sector	Institutional complexity of public-private partnerships and imprecisely defined partner accountability
Greater synergy effects and successful positioning of all stakeholders	Uncertainty in the design of new policies and strategies of public and private sector
Stable public-private partnerships bring greater flexibility of different subjects and groups, improving the image of certain locations (municipalities, cities, regions, countries) and businesses subjects	Blocking of new ideas as a result of delegating decision-making to others and the increased bureaucratization of decision-making
Enhancing national, regional, local and business competitiveness	Issues in the evaluation and implementation of control strategies

Source: Nenezić, Radulović, 2012, p. 67

Risks of construction consist of the following:

- Who is responsible for planning investments?
- Does the contract primarily specify the volume and quality of the services or the conditions relating to the characteristics of the property that is necessary for the provision of services (size, design and technical quality of the assets that will be used)?
- Does the state or contractor of public-private partnerships bear the risks arising during the implementation of the investment (for example, the risk of increased costs, and risk of financing due to poor project/performance)? What sanctions can be applied by the client in the event of failure, delay or inadequate realization of the investment?

Availability risk involves the question of whether the entire risk is borne by the state or a private contractor: (http://www.easwmc.org/download/postconf/Hans%20Wiesmeth.pdf)

- Who bears the risks that may occur during the operation (for example, the risk of downtime due to failures or natural disasters)?
- What are the sanctions that apply if the contractor is temporarily unable to ensure the availability of resources in the quality which is specified in the contract?
- Can it be possible that the state must contribute to finance property maintenance?
- Which party is responsible for maintenance and insurance of the property?
- What are the sanctions applied by the relevant ministries in the event of inadequate quality of service?
- Who bears the risk of an increase in operating costs?

Demand risks include: (http://www.easwmc.org/download/postconf/Hans%20Wiesmeth.pdf)

- Who bears the risk of demand?

- Is the private partner entitled to compensation in the event that the demand is less than expected or the one specified in the contract?
- Who bears the costs in case of a higher demand than expected or those specified in the contract?
- Can the contractor use the created goods for providing services as part of their activities to third parties?

Most of the project risks are allocated to the private partner, while mainly risks that they are considered to be a sector with a greater possibility of influence and management are allocated on the public sector. The entire risk of construction and demand risk and availability risk is expected to bourn by the private partner.

Ilic an Pasic (2011) point out that "public-private partnership aims to attract more resources into the public sector. PPP helps public companies to comply with restrictions relating to the public debt. It is of great importance in the EU member states with regard to the fact that one of the criteria is that the public debt should not exceed 60% of GDP. Form of PPP allows the public sector better access to modern equipment and management techniques. It is expected that the PPP will improve the economy, because the existence of contractual obligations means that projects are completed on time and that their costs are rarely grow during implementation" (p. 507).

3. CONCLUSION

For the success of public-private partnership it is essential that the partnership is established and developed on strong and sound foundations. It should be borne in mind that each partnership, as well as public-private, can be successfully implemented only if the objectives of the key players are compatible. In the case of public-private partnership that would include an appropriate level of quality service at a reasonable cost and with reasonable levels of return on assets.

In order for PPP to be successful it needs to have the character of long-term and stable cooperation between the partners. We should also not ignore the very important fact that PPPs increases the efficiency of use of public funds, and with the introduction of competition, reduces the corruption that is in the interest of all citizens and society as a whole.

It can therefore be concluded that the PPP is the future of joint financing, construction and management of infrastructure facilities, especially in countries in transition, in which the quality of infrastructure is a bottleneck in overall economic development and every quality investment in infrastructure is motivating impulse for the dynamic development of economy as a whole.

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INCREASING CAPACITY LEVEL OF FINANCIAL MANAGEMENT IN PUBLIC SECTOR

Danica M. Leko
National Bank of Serbia, Nemanjina street 17, 11000 Belgrade, Bank Supervision Department / Off-site banking supervision division, danica.leko@gmail.com

Abstract: *Target of this paper is to, in an adequate way, articulate activities of financial management in public sector, and therefore, to make the research and recommend adequate measures for increasing capacity level of financial management in public sector, consecvently providing rational managing of public sector' assets.In the paper are used appropriate and adequate commonly used scientific research methods. Assessed is utilization of available legal and professional regulations for the follow-up and utilization of public assets.*
During the research and preparation of this paper, we came to the following conclusions:

- *financial management in public sector has a specific task: determining of needs for assets from public sources, their legalized utilization, with a purpose and availability of control over public sector*
- *financial management in public sector gets a new role and task by transferring to programing budget: obtaining of efficiency and effectiveness in providing public services*

It is specifically stressed (and to that conclusion, as a novelty, we came to in the paper) that all managers in public sector should participate in financial management, considering that budgeting, allocation, funds' management, accounts' setting, are very important skills of all managers in public sector. The paper can be used for the improvement and modification of public sector.

Keywords*: public sector, budget, program budget, financial management, efficiency and effectiveness of public sector' management, financial reporting, supreme audit institution of public assets****.***

1. INTRODUCTION

Public assets are the base for the application of public policies, and therefore for the realization of all basic functions that state has the obligation to provide. In the past, in all of the developed countries of the world, by custom, it was enough to present that the assets are utilized in accordance with appropriate laws, regulations and standards. Traditional responsibility finalized by providing simple proofs on execution according to legislations, whereas results measurement was based on respect of regulations and proof of respecting limitations defined by the budget.

Democracy development and development in general have drastically increased of the state responsibility. Many new democratic, social and other functions have been introduced. These are the characteristics of reached level of national development and national standard, having as a consequence increase of public sector and public expenditures. By increasing level of democratic development, public expectations are changed as well as of the citizens on the questions of transparent expenditures of public assets, and on effectiveness of the policies government is applying. In contrast to private sector, where the optimal effectiveness is equal to the optimum of high standards, in public sector this is not the case and benefit for citizens must be supplied by another way, whereas the final target has to be maximal efficiency of public sector and in given circumstance maximal benefit for nation.

Financial management function in public sector, therefore, acquires significant meaning.

This paper is particularly speaking on the subject of development and increase of the capacity level of financial management in public sector and contains specificities, needs and necessity of its establishment and functioning. Especially, it pursues analysis of responsibilities (accounts' setting of financial management).

2. STRUCTURE OF THE PAPER

The paper consists of the following parts:

- Main characteristics of the public sector
- Specificities of financial management in the public sector
- Capacity development of financial management in public sector
- Responsibilities (account setting) of financial management of public sector
- Concluding remarks

3. MAIN CHARACTERISTICS OF THE PUBLIC SECTOR

Public sector are the state and all of its entities having access to public assets and state property. These are: state agencies, public administration, army, central bank, entities of local self-government, independent regulatory bodies, and legal entities in which state or municipalities have major allotment. Public sector is a synonim for a government sector.

Purpose of public sector existance is satisfaction of public needs and performing of public functions. Public sector is, by IAS and IASPS in relation to national government, regional regulatory bodies, local municipalities, and similar governmental entities.

Public sector consists of:

- All beneficiaries of public assets
- Territorial autonomies and local administration
- Organization of obligatory social insurance
- Budget public funds
- National bank (in the part considering utilization of public assets)
- Public companies founded by the public assets client
- Public companies founded by the state
- Public companies in which capital or management are public assets client

4. SPECIFICITIES OF FINANCIAL MANAGEMENT IN THE PUBLIC SECTOR

Financial management in public sector comprises of affirmation of needs for funds from public sources, its assigned expenditure, keeping of accounting evidences and reporting on results and money spending. It has significant emphasis on legal functioning of governmental institutions and corporate management of state companies. It provides supervision over public sector and represents important factor of credibility of governmental institutions and companies.

Financial management represents aggregate of methods and techniques that provide public sector to manage funds in a systematic, effective, transparent and legalized way.

> Provides information for decision makers, introduces controls that prevent frauds and are creating motivation for sound public service and are helping public sector in money collection, funds' allocation, funds' expenditures, measurement of expenses and benefits of various programs, keeps evidence on funds, reports on funds' quantity used and plans on a long term.

Financial management encompasses methods and techniques for management of assets under disposal of public sector.

Institutions and companies from public sector possess significant fixed assets, and its' evidence, valuation, and amortization is subject to financial management. Budgeting of capital investments (building of facilities and purchase of equipment) also represents one of the domains of financial management. It provides respect of procedures, keeping of evidences and reporting. All of this is crucial for determining controls in institutions and companies of public sector, as well as public awareness that the needs of citizens are appropriately serviced and that budget assets are used in a legal way.

Financial management in public sector consists of three segments: Budgeting (obtaining and allocation of funds), Control of budget achievement (control of money spending), Reporting on budget accomplishment (accounts placing for spent money).

Budgeting comprises of money collection and allocation of resources. Major part of money in disposal of public sector originates from taxes, fees and other government incomes. Public sector incomes are not linked with defined assignments, but are allocated in the process of budgeting on various activities. There are also exceptions, when specific taxes and fees are allocated to specific programmes. Budget indicates to the publicity in which way the government intends to spend funds collected from the citizens. Budget represents limitations for expenditures, and at the same time certifies state representatives to spend budgeted assets.

Control of budget accomplishment. From the state representatives is expected to spend appropriately funds from public funds. Therefore, financial management implies existence of expenditure control. Government has to periodically and systematically supervise cash flow and to report to publicity. In this way it is ensured that accomplished financial activity will be aligned with the planned financial activity. Roles and responsibilities of different subjects, as well as dynamics of reporting, are defined by law. Information systems in public sector should assist these roles, in order to follow-up their development in achievement of planned financial activity.

Reporting on budget accomplishment. Public sector must prove to the publicity that collected funds are spent as per assignment. Usually information expected represent answers to the following questions: is the money appropriately allocated, is the money spent in assigned and legal way, are the expected results achieved, can we check the way of funds expenditure, is the external overview carried away or audit of financial reporting. Financial business in the past must be presented, revised and compared with the budget, in order to provide to the government and publicity proof that the funds are appropriately spent. Financial reports of governmental institutions and companies represent basic documentation on which evaluation of financial business in public sector is assessed.

5. CAPACITY DEVELOPMENT OF FINANCIAL MANAGEMENT IN PUBLIC SECTOR

Ability to provide resources necessary for realization program targets (budgeting), maximization of programing benefits in the budget scope (allocation), effective managing of budget assets (funds management) and realization of the results in a legal way (accounts setting), represent important skills of all managers in public sector. In practice, all managers should take roles in financial management.

Financial management means engagement of all managers. Managers in public sector often do not perceive themselves as managers who manage available resources, but rather managers who are carry out policies of certain specialized functions in the sphere of public sector. Due to complexity of public sector, financial function has its managers who are performing separately from managers on other functions (operational

managers). Often, certain pressures occur between financial and operational managers and they are considered as expected, even useful if contribute to solving problems in work.

Financial management in public sector should cover, i.e. establish methodology and strategy of development of three basic segments: budget methodology, control methodology and reporting methodology.

Budget methodology

Budgeting should have two main goals: determination of priorities of spending and effectiveness and efficiency of given services by public sector.

Fact that budget in public sector annual plan of expenditures in monetary units is legally defined. Expenditures are linked to satisfaction of population needs, but is timely limited plan, by which resources needed for goals' realization in each unit of public sector are defined. Budget is in fact a document by which different opinions, contained in governmental policies, are transformed into specific activities by resources' allocation. It articulates expectations on incomes and expense of government ministries, agencies and other institutions and therefore, presents basis for control of organization's work in public sector.

In terms of on financial management in public sector, managers have direct tasks:

- To manage cash assets during the current monetary year
- To participate in planning of cash assets for the following year and
- To justify utilization of cash assets in the past, as well as the way the funds have been used.

From this, it stems that the main goal of this way of budgeting control of expenses and responsibility of financial managers is to maintain expenditures of some categories of expenses on budget level. However, financial management should compare effectiveness and efficiency of public expenditure through linking of financing of organizations of public sector with results achieved (information could be used on the effect for realization of this link as for example evaluation ratio, results of the program, etc.). Primary goal of such financial management-budgeting is better determination of priorities in expenses, as well as establishment of closer link between financing and results. Especially such, as newer way of budgeting, is developed in the last three decades. Only in such way it is possible to increase pressure on public sector organizations to improve its effectiveness and efficiency of services provided. Financial management of public sector must provide more clear picture on the level of services provided, the amount of money, and with which results, in other words to link budget assets with the results.

Further development of the financial management level, actually capacity level of financial management should go in the way of program budgeting establishment, meaning to show purpose of expenditures or the way in which public assets are allocated by specific program. Assets are assigned, allocated to operational organization units or specialized programs in the way they will be spent. In such way, expenditures will be in a direct way linked with the purpose, actually with the goals of assets' beneficiaries, meaning that expending of public assets will be done in a meaning way.

Programing budgeting contributes to strengthening of responsibilities as people are appointed for each responsibility in some programs of public sector organizations and from them is expected to report on realization of those programs (such way of budgeting in Serbia in financial management of public sector should be applied from the year 2015).

Process of preparation and budget approval represents one of the most important tasks in each organization of public sector. Such task can be more or less complex depending on the business of each organization. Budget process must be transparent. Possibility of review is assumed in all activities that contributed in budget approval. Organizations' budgets from public sector are the subject of intensive

supervision. Not only by the management itself and the ministries, but also by all beneficiaries of goods and services that are financed through budget assets. Especially is important role of managers in public sector during the budget apporval process, as it is expected from them to „defend“ financing of their organizations and programmes.

Control methodology

Control of budget realization and expenditure of public assets should be organized through:

- Management control
- Risk management
- Cash flow management

From this, it is concluded that entire burden of control is not only on the financial management.

Management control system consists of organizational structure, processes and systems developed in public sector organizations for achievement of their goals. All of this can be perceived as series of different controls or control framework meaning: defined organization goals, delegated responsibilities and roles, standards for different types of effect, system for risk management, defined policies and controls, system for the follow-up of achieved results and system of internal and external audit. In which extend this system (control framework) will be effective depends generally on the importance of the controls in public sector organizations. Especially it is important that managers, on the highest levels of decision-making in the organizations, promote importance of the controls by their own behaviour and performance. Managers on the lower levels of decision-making should also participate in development of the system of management control and in their own sector respect requests from the system. Effective system contributes to achieving high level of performance on all organizational levels and more successful understanding of risk and decreasing of effects of adverse circumstances on the organization.

Risk management represents core of management control. Control implementation means anticipation of risks and diminishing of adverse consequences coming from different types of risks. For risk management it is crutical to establish steps and management systems for identification and risk assessment, as well as for diminishing their influence on the organization. In the context of financial management, risk management is related to the risks that could bring to financial losses and to risks that could adversely influence to the organization goals achievement.

Cash flow management includes step-by-step control during the monetary year related to follow-up of financial performances. These are additional steps, apart from „ex ante“ and „ex post“ procedures. It allows to make changes in the approved budget, in case of necessity. It allows answers on various questions set during the monetary year. System of cash flow management is effective if provides: projected cash flows on which comparison between achieved cash inflows and outflows is made, reports to responsible management levels on budget achievement, on necessity in budget changes and on reallocation of assets surplus and timely information related to assets inflow and their expenditures and on results organization is achieving and on which basis decisions could be made on possible changes in budget, on obtaining additional assets, as well as on reallocation of unnecessary assets. Goals of system development are: disposal of cash for payment of bills (liquidity), utilization of budget assets by purpose, but in a way that they wont be unused, expenses in the framework of approved budget, assurance of organizational assumptions and resources for timely reaction on program changes and activity plans and reallocation of available funds for financing

urgent, short-term priorities. In public sector organizations cash inflow happens according to the approved budget, therefore providing of funds for reconciliation of debts should not be an issue for managers. Therefore, more attention is given to expenditures’ management, in other words on cash outflow.

Reporting methodology

Reporting on budget achievement should cover accounting-financial reporting (accounting standards and principles, accounting basis, types of financial reporting, responsibilities for used public assets as well as audit of financial reports).

Budget accounting provides qualitative financial information and has following characteristics: it is based on the principals for collecting and presenting of financial information, prepares financial reports with the summary of all transactions effects, prepares information on achieved results for comparison with planned results, and exists for the public interest, as it shows in which way money is spent from the public funds. It covers various activities that are repeated in cycles, therefore for the functioning of accounting characteristic is accounting cycle.

Financial reporting presents process of building of financial reports at the end of accounting cycle, considers application of standard methods and given reporting forms, provides to publicity overview into organizational functioning in public sector. Result of reporting process are the most important financial reports: Balance sheet, Income statement and Cash Flow report.

Financial reports could be based on accounting or cash basis of accounting. We will give just in brief basic characteristics of both accounting basis, having in mind that from their choice depends improvement of financial management in public sector organizations.

Accounting basis of accountancy, is based on the principal of causality. Recognition (evidence) of incomes in accounting evidences when “earned” and recognition of expenses when goods and services are “used” for creation of incomes. Purpose is measurement of activity results th?at are achieved during the accounting period. It is more complex then cash base, as in accounting two additional important accounts are introduced: Receivables from customers and Payables. Allows more qualitative financial management as it provides complete picture on financial position of the organization. Provides better view on expenses that are not limited on one year. Application of accounting basis of accountancy presents condition for improvement of financial management in public sector organizations.

Cash basis of accounting. Incomes are recognized when money is received, and expenses when the payment is made. Accounting measures cash amount received and paid during the accounting period, therefore, activity result during the period cannot be measured. It is simple and easy to be understood. It does not provide full picture on financial position of the organization, therefore it provides limited possibilities for financial management. Cash basis of accounting is applied nowadays in many countries, but, on international level, it is noticed tendency of gradual transition to accounting basis. To this fact, necessity to improve financial management in public sector organizations contributes, therefore, results of the program made by these organizations are viewed over the longer period then one year.

Public sector in Serbia is used cash basis of accounting, but as well so called **modified accounting** basis. Modified accounting basis can be seen as partial application of accounting basis.

6. RESPONSIBILITIES (ACCOUNT SETTING) OF FINANCIAL MANAGEMENT OF PUBLIC SECTOR

Special concept of responsibilities in public sector has a broad sense, and implies obligation of an individual or the organization to justify its activity, to accept responsibility for those activities and to reveal results of those activities in a transparent way. Also, it implies responsibility for cash or other given property. Application of such concept consists of three elements: taking into account that population believes that the job for which someone is responsible will be done, providing detailed information on activities done and on

achieved results and accepting responsibility of results. Main characteristics of such concept are: delegation of authorizations and resources to individual or organization, account setting for results and results for which achievement someone is responsible, request to report on results, compliance with legislations and procedures and on efficiency of activity performance, as well as the evaluation on application of this concept which is given by the supreme auditor.

Financial management presents important instrument in application of account setting concept. Effective financial management is one of the most important conditions for establishment and application of account setting concept.

Effective application of responsibility concept provide transparency of public sector organization activity and imposes their credibility. The broadest population is convinced that public funds are spent in a legal way and that the public interest in this domain is respected in a appropriate way. Establishment of responsibility mechanism is useful and represents also one of the crucial factors of success of public sector organizations. Unfortunately, public sector organizations are disposed to different risks from the environment, therefore constant improvement of responsibilities and control is the best way to decrease adverse effects. Expenses of introduction and maintenance of control mechanisms should be appropriate to mentioned risks.

Role of audit in application of account setting concept

Audit contributes to effective application of this concept, as it provides confirmation: that the information given by the management are applicable by the standards and that they provide real situation in the organization, that it is truthful what is given in the reports, that the results organization achieved are in compliance with approved plans and programs and that the results are achieved in a legal and efficient way. Audit of financial reports refers only to financial information. Audit provides confirmation that the reports are made according to the international accounting standards for public sector. This type of audit in public sector is called supreme audit, and its function is to, in the public interest: verity legal aspects in performing tasks in public sector organizations, including expenditures and control of cash assets and other resources, provides opinion on financial reports given by the organization and checks effectiveness in program application which are under the responsibility of the organization. Independent from the government and other state institutions and directly reports government body (parliament). Quality of supreme audit is not oly reflected in its technical capacities to perform its functions, but also in the capabilities to perform audit which results might not be favourable for the organization that is under the subject of audit, and also to make available these results to the publicity.

Its performance and results of the work will definitely improve development and improvement of the financial management and the responsibility it has.

7. CONCLUDING REMARKS

By performing analysis of financial management function in public sector and having perception on possibilities of development of capacity level, with all their specificities, we came to the following conclusion:

- Restructuring of the public sector and public finances, indicated on numerous weaknesses in present functioning of the system, as well as the necessity for changes. Changes have been introduced into the budget system, and a significant step represented establishment of independent body that has a purpose to control process of public assets (Law on budget system, Law on Supreme audit institution).

- Completely different approach to management of public finances is introduced with the accent on establishment priorities and rationalization of expenditures, in order to boost business activities and effectiveness and economical providing of public services (transfer to Programming budget from year 2015).

- Financial management is very specific in public sector as it consists of determination of needs for money from public sources, its' appropriate expenditure, keeping of accounting evidences and reporting on results and spent money. Also, it has a huge impact on legal functioning of state institutions and corporate governance of government institutions. It provides supervision over the entire public sector and represents important factor of credibility of public institutions and companies.

- Complexity of public sector imposes to financial function of public sector numerous requirements. One of crucial, basic is that all of the managers have to take roles in financial management, as budgeting, allocation, money management, results achievement in a legal way, account setting, and represent important skills of all managers in public sector.

- Condition for effective financial management and maintenance of public trust in the legislative way of its performance is decision making in the organizations of public sector based on qualitative and available financial information.

- Changes of budget principals require changes of improvement, development of financial management, as well as increased engagement and necessity of crucial changes, in order to, as soon as possible, expect positive important results.

- Realistic limitations that could be expected in the development of financial management capacity of public sector are:

    - Limitations of capacity and training of employees in public sector
    - Inappropriate technical and professional support
    - Lack of adequate strategic plans of beneficiaries of public assets which would be the basis of adequate and appropriate choice of programme, but as well the indicators of success measurements.

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