An innovative approach to strategic risk management in banking: Russian banks case study

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Abstract: The paper presents new approaches to risk management in banking on the example of Russia. The relevance of the topic is related to the necessity of forming a unified risk based approach to the activities of all companies, including the financial sector.

At the present stage of development, Russian banking system has faced a wider range of risks, which includes increased risk of systemic banking crisis, lack of financing, the volatility of the external environment, fierce competition in the market of banking services and many others. The situation forces lenders to rethink principles of risk oriented management and the implementation of innovative risk management tools.

Despite the fact that wide range of tools of analysis and management of risk is used in banking, modern business environment requires changes in risk management methodology as well as a review of the principles of risk management. First of all, in the current situation the integrated approach to risk management is becoming increasingly important. On the one hand, such approach implies the assessment of risk on an integrated basis taking into account all types of risks, which affect the activities of a credit organization. On the other hand, in the present situation there is upgrading in the level of risk management. Along with operational level, issues of risk management are starting to be considered at the strategic level. These issues become the basis for strategic decision-making and business development. The situation is largely related to corporate governance, as well as the awareness of the risks not only as threats, but as also opportunities for business. In addition, when identifying and analyzing risks, it is important to take into account together both quantitative and qualitative indicators, allowing to assess the risk more accurately.

The paper proposes an advanced methodology of risk management based on a hybrid SWOT and BSC-analysis, which allows to consider all the above mentioned approaches. The application of the tool is illustrated using the example of three groups of commercial banks in Russia.

Key-Words:-analytic network process, Balanced Scorecard, SWOT-analysis, strategy, risk-management

2. Introduction

At the present stage of development, Russian banks have encountered with the necessity to elaborate a new risk management system, which is due to the increased risk of operations and changes in approaches to risk management in general. This is primarily connected with the importance to maintain profitability and competitiveness.

In this regards the main objective of the Russian banking system is ensuring the stable development under conditions of elevated risk and volatility of the external environment. Assessing risks is one of the most important questions for a bank, as it seeks to maintain financial stability. Implementing a modern system of risk-management allows a more rational allocation of resources. It makes it possible to forecast future developments based on existing risks, and to increase the effectiveness of the management of the bank. The IMF report of October 2014 states that risks are growing throughout the world for financial institutions and that consequently risk-management systems ought to change to face up to growing demands and challenges [1].

Figure 1 reflects the structure of the Russian banking sector assets at the beginning of 2013 and 2014. Traditionally, the largest share is made by loans to individuals and non-financial organizations.

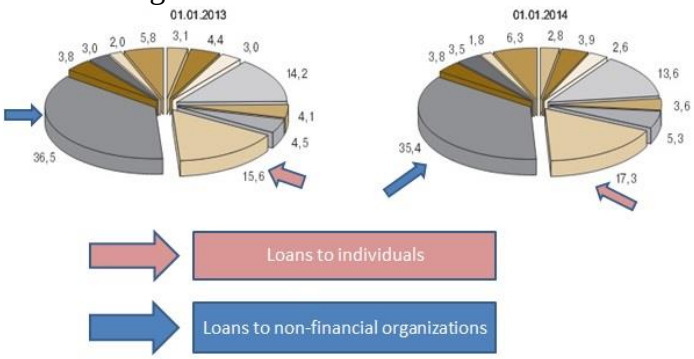

Figure 1. The structure of the banking sector assets[1]

January 01, 2013, loans to individuals amounted 15.5%, loans to non-financial organizations amounted to 36.5%, January 01, 2014, loans to individuals amounted 17.3% already, loans to non-financial organizations amounted to 35.4% of banking sector assets. Therefore, credit risk management in the system of risk management is particularly important.

The problem is compounded by the fact that there is a significant slowdown in growth in the retail portfolio, and at the same time a high rate of growth of overdue debt on loans to individuals. The share of overdue debt on ruble loans to individuals increased from 3.7% at 01.01.2013 to 4.2% as of 01.01.2014.

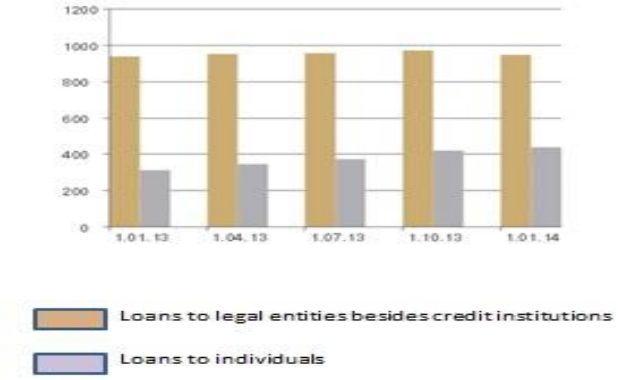

Fig.2. Overdue debts in the bank's loan portfolio, bln. rubles.[2]

In absolute terms, the outstanding debt on loans to individuals amounted to 440 billion Rubles at 01.01.2014, which is substantially less than the volume of overdue loans on corporate credit portfolio - 934 billion rubles (figure 2). Figure 3 reflects the significant increase in the number of credit institutions, whose license was revoked on January 1, 2015 as compared to January 1st, 2014.

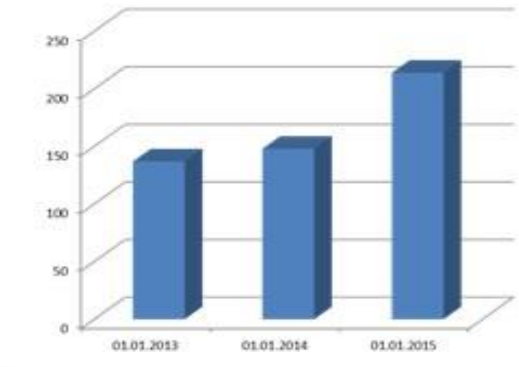

Fig. 3. Credit institutions whose license was annulled

[1] According to a report on the development of the banking sector and banking supervision in 2013. http://www.cbr.ru/publ/archive/root_get_blob.aspx?doc_id=9525

[2] ibid

Banks in developed countries have included risk-management systems in their structures for quite a long time and have developed a culture for dealing with risk. By contrast, in banks in countries with transition economies newly created risk management systems are now appearing on the management's agenda. Research by McKinsey carried out in 2014 highlights the main areas for improvement in the work of banks in countries with transition economies [2]. Among these areas particularly worth mentioning are the creation of innovative models for risk management which allow the consideration of both quantitative and qualitative indicators, and which support decision-making. The writers Korableva and Litun [3] also stress the necessity of seeking an innovative approach for institutions in countries with transition economies. For this reason, this research offers a completely new model for risk management systems, which allows both quantitative and qualitative indicators to be taken into account when making decisions regarding risks.

Banks working in the Russian Federation were chosen for this research as a clear example of a country with a transition economy, operating in conditions of raised risks and limited resources. At the present time the Russian banking system lacks liquidity and the government and Central Bank plan to allocate more than 500 billion roubles to it from the Reserve Fund [4]. For this reason, it is especially important to build effective risk-management systems and to seek new tools for decision making in Russian banks.

Bank risk analysis is widely used at all banks all around the world. There are many methods of risk management. But a number of challenges are to be decided:

1. The recent financial crisis has illustrated how different types of risks may interact with each other; in such extreme situations, risk reinforcement can even result in losses increasing further, i.e., the sum of the parts might actually be less than an estimate of risk that takes into account the interactions between different types of risks. In addition, economic theories show that different risks are intrinsically related to each other. So the financial crisis has also revealed significant new problems in risk assessment and management. For many reasons different types of risk have been measured separately as if they were unrelated sources of risk.
2. Bank managers have to consider not only financial risks but also qualitative characteristics of the object in question encompassing the greatest possible range of risks.
3. It is needed to manage risks and support decision-making at a strategic level
4. It is needed to take into account that opportunity is the flip side of every challenge.

In the research, an analysis was carried out of the existing tools for strategic management and analysis such as Porter 5F analysis, SWOT analysis, PEST analysis, etc. As a result, it was decided to base the approach on SWOT analysis as this allows the widest range of possible risks to be considered and because it is best suited to the aim of the research: the creation of a combined model of decision-making taking into account risks, which would correspond to the challenges of the current environment.

3. Methodology

The limits on this research

Methodological Limitations

Sample size – research was carried out on three types of banks. The sample was based on a conception of the main players of the banking market in Russia, which taken together make up the lion's share of the market: 1. Universal bank; 2. Bank with foreign capital; 3. Regional bank. As the example we chose ten banks, three of which- universal banks, three- banks with foreign capital, four- regional banks. The conclusions reached for each type of bank can be broadly applied to other banks within that group.

Adequacy of the sample - since the research relates to countries with transition economies ten Russian banks were chosen. However, the conclusions reached regarding the strategies for these banks cannot be simply transferred and applied to analogous banks in other countries with transition economies.

The factors chosen for analysis are not exhaustive and, depending on the aims of the research, these choices could be varied.

Limitations of the Researcher

Access – analysis using the "BSC+SWOT+ANP" tool is designed to be carried out by internal users, the senior management of the bank, who have full information about the situation

within the institution. For this reason, access to data is a significant limitation on the research.

The aim of the research was to construct a completely new tool for the assessment of a variety of risks when making decision. The tool should allow managers to consider not only financial risks but also qualitative characteristics of the object in question. The problem of assessing qualitative risks in a risk management system has been a key issue for many years, as purely financial indicators do not fully reflect the overall situation within an organization. After the development of the Balanced Scorecard (BSC) tool [5], it began to be implemented in organizations around the world, including in large international banks [6], as this system allows managers to include non-financial indicators in their assessments. Furthermore the research was led by the analysis of the BSC, allowed to identify its other advantages, providing increasing of effectiveness of the bank risk management:

• ability to translate vision and strategy into a set of interrelated balanced scorecard determining the degree of achievement of these installations under the four main areas of activity;
• takes into account the risks at the stage of policy development;
• takes into account both financial and non-financial factors that goes to the preventive risk management;
• ensures the transition from a functional model of the risk management to the model, built on the basis of business processes;
• improves the handling and performance of the bank, as well as minimize the risks;
• makes it possible to assess the effectiveness of the operation and control of commercial banks according to the four directions of the BSC;
• the possibility of improving customer loyalty and ensuring their retention;
• the ability to improve the skills of the staff of the bank;
• allows a clear fix responsibility for implementing the strategic goals and objectives for each employee;
• allows taking into account changes in both external and internal factors;
• combines the interests of owners, shareholders, customers, staff.

For these reasons, BSC was chosen as the basis for creating a new tool. Although a number of researchers [7-9] consider that banks rarely make use of subjective and abstract information in their analyses, lending institutions have begun to seek actively tools to deal with this type of data, and to implement BSC. However, BSC has some weaknesses, which can be overcome by combining this system with others. The first weak point is that BSC does not reflect the connections between different indicators. For this reason, there has recently been great interest in hybrid models based on BSC and multi-attribute decision making (MADM) methods [10], MADM methods allow the user to overcome the insufficiencies of BSC in this regard. [11]. For this research the analytic network process (ANP) method was chosen, developed by Saaty [12], the relatively new method, multi-criteria decision making (MCDM), which can deal systematically with all types of collaboration and has shown good results in combination with BSC in various business sectors: for manufacturing [13], for trading companies [14], in eco-design [15], in banking [16], hotel management [17] and other fields. ANP makes it possible to consider the combined influence of elements in the model in relation to a chosen aim, and does not entail any limitations on the types of interdependence of elements within the model.

It can also be regarded as a fundamental lack in BSC, that this approach does not include the environment in which the organization finds itself, or the interests of certain groups of stakeholders. These can be considered using other tools for strategic management and analysis (such as Porter 5F analysis, SWOT analysis, PEST analysis etc.). Therefore, it makes sense to use BSC together with an additional tool for strategic management. In this research, the BSC-SWOT approach was used, as suggested by Brown and Norberg [18]. This tool was chosen because SWOT-analysis allows managers to assess the market situation of a business unit while PEST-analysis relates to the whole market. Porter five forces analysis is a method, which allows the analysis of a whole business sector. This would not be applicable to the present research, which relates to the needs of a lending institution as a single business unit. Such a unit requires a systematic analysis of its position in order to develop the best strategy for its development. The BSC-SWOT method allows the factors, which act on the business to be identified, but it does not, in itself, provide the analytical means to establish priorities and to assess alternative courses of action. Thus at the stage of measurement and assessment, the key flaw in the BSC-SWOT method appears: it is not possible to quantify and take into consideration the connections between different factors. Therefore, it makes good sense to create a synthesis combining this with the analytic

network process in order to overcome this lack in BSC- SWOT.

This research proposes a new analytical tool, with the name «BSC+SWOT+ANP», which includes BSC, SWOT-analysis and analytic network process method. This tool overcomes the basic insufficiencies of BSC: the inability to consider connections between indicators, and limitation of the analysis to the internal environment of the organisation. The model proposes a hierarchy in which the analytical network process method in based on a matrix created using BSC-SWOT.

4. Results

This article has demonstrated the need for innovative new risk-management tools for banks in transition economies. It highlights the need for the development of modern methods of support for decision-making with regard to risks.

During the study was developed the concept of three lines of defense, and proposed the concept of the three lines of transparency. The concept includes the principle of providing a continuous contour of information, the principle of commensurable use of risk, the principle of integration of financial and non-financial indicators when constructing the risk management system. The proposed concept allows to fix the responsibility for making and risk management, on the basis of the logic of business processes, making it possible to build a more transparent system of risk management. The principle of continuous information contour assumes a continuous supply, processing, accumulation and storage of information, as well as providing the rapid and efficient recovery of data, its accuracy and relevance. In addition, this principle implies completeness of information available in the organization of risk, transparency in procedures for the assessment, risk management and control. The principle of the balance profitability-risk implies that the opportunity is the flip side of every challenge. At the same time for each risk is necessary to identify the appropriate "chance." The principle of integration of financial and non-financial indicators assumes joint account of the financial (quantitative) and non-financial (quality) indicators, which makes it possible to take into account a much broader range of risks.

For the implementation of the proposed concept of the study is proposed a single integrated system of risk management, represented on the Fig.4.

The basis of this system is the system of Enterprise risk management **(**ERM), which allows to provide a systematic approach to risk management of the bank. Translation risk management to a strategic level provides a balanced scorecard introduced in the system. A strategic approach to building model includes centralization, resource sharing, and the overall management of all types of risks, which could help to eliminate duplication and ensure transparency. Already at the stage of policy development and setting strategic goals going risk identification, then for each BSC perspective takes into account the risks involved.

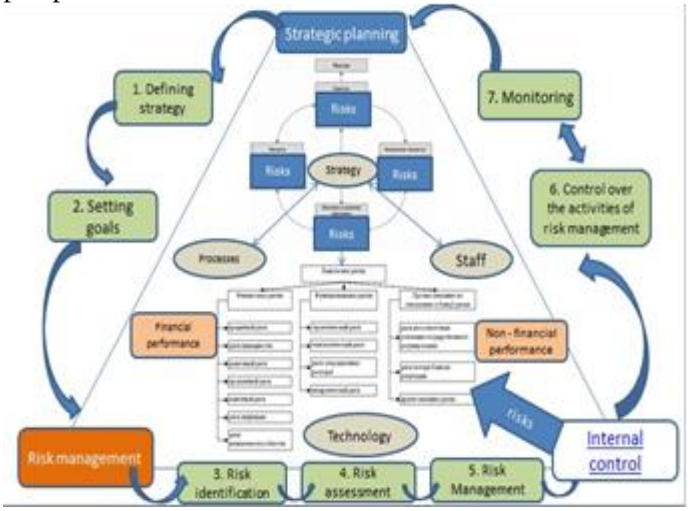

Fig.4. Integrated Risk Management System

At the same time for the evaluation of proposed banking risks apply not only financial, but also, especially, non-financial indicators, which makes it possible to take into account a much broader range of risks.

Risk management should be viewed as part of the strategic management.

One of the tools to transfer risk management in the field of tactical tasks provides strategic BSC (Fig. 5).

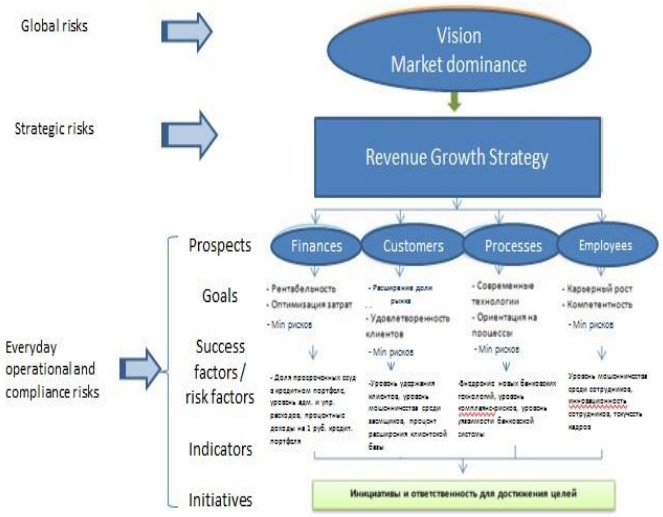

Fig. 5. Strategically oriented risk management

This system allows selecting three types of risk depending on the level of predictability, controllability and the impact on the bank:

- The first level covers the global risks;
- The second level is the strategic risks;
- The third level covers daily operational risks and compliance - risks.

The process of developing the strategic goals will look at the activities of each of the areas of the bank's side, as well as to evaluate the potential in each direction and to detect real-world risks and challenges, which to a certain point was not given much importance. Ordering of these problems allows to develop concrete steps to eliminate them. According to the four strategic directions BSC identifies key success factors as well as risk factors. The next step identifies the key performance indicators and key risk indicators. Managers and responsible structural units make the development of appropriate policy initiatives.

To carry out the present research, an analysis was made of the methods for supporting decision-making, including at a strategic level. The management of a bank are legally responsible for risks taken by their organization. The methodology proposed in this article based on analytic network process, balanced scorecard and SWOT-analysis, would allow them to assess a wider range of risks when making decisions, including non-financial risks. The tool «BSC+SWOT+ANP» is designed to be used by the senior management of the bank, and also by other users, who have full information about the situation within the institution. Bearing in mind that the application of the «BSC+SWOT+ANP» tool requires expert judgement, as part of the research, five different profiles were developed of potential users of this tool.

«BSC+SWOT+ANP» was built based on the balanced scorecard system, which allows the qualitative characteristics of a bank to be considered. Furthermore, the tool uses ANP and SWOT-analysis, which allows the main weak points of BSC to be overcome. Thus, the tool based on ANP, BSC and SWOT-analysis allows both quantitative and qualitative indicators to be considered and factors which may be either internal or external to the bank. It also extends to the connections between these factors and allows the user to produce a numerical figure for the level of priority in relation to the aims of the question under investigation.

This article has also shown the need for non-financial, qualitative indicators to be considered, which allows managers to take an integrated approach to the assessment and management of risk. The proposed tool «BSC+SWOT+ANP» allows qualitative indicators to be considered.

«BSC+SWOT+ANP» was trialed on the analysis of three types of bank, and used to define the optimal strategy of future development in those sectors.

5. Discussion

The present stage in the development of the Russian banking system has seen a fall in trust towards banks. Since early 2014, there has been a slow-down in lending together with an increase in the levels of household indebtedness. Following the sharp fall in the value of the national currency and the raising of the key interest rate to 17% [19] borrowing has become unaffordable. Regarding these events, Nick Spiro, a bond expert at Spiro Sovereign Strategy, said the central bank was unable to control events [20]. In the opinion of another western expert in the field of Russian and Eastern European economies, Adomanis [21]: «The Russian authorities have already done almost everything they can to combat the ruble's collapse. They pushed through a crushing 6.5% increase in interest rates, they've sold tens of billions of dollars of foreign exchange holdings, and they've allowed Russian banks to circumvent normal accounting rules so as to conserve hard currency». As a result, Russian banks continue to experience a severe lack of liquidity, and for this reason, the Central Bank postponed the implementation of the indicator of short-term liquidity (relating to the «Basel III» system) which had been planned for 1st January 2015. It is now planned for 1st July 2015 [22], and parliamentary deputies approved a law distributing 1

trillion roubles for increasing the capitalisation of banks [23].

In addition, in order to attract funds from the public, it was decided to double the guaranteed amount for bank deposits from 700 thousand roubles to 1400 thousand roubles. Due to this increase, the responsibilities of banks towards their account holders increased by 12%, to 1.6 trillion roubles stated the Deputy Governor of the Central Bank Mikhail Sukhov. He regards this 12 percent increase as sustainable for the Deposit Insurance Agency [24]. The Agency itself reports a heavy load on its funds for insuring deposits. The relative size of the fund is currently considerably less than the recommended amount of 5%, and this may lead to a lack of compensation for account holders, resulting in a default by the Insurance Agency. The Deposit Insurance Agency's remaining funds of 74.9 billion roubles would only suffice to save a few mid-sized banks. The Ministry of Finance and the Central Bank do not yet intend to re-capitalise the fund, however, in cases where this is required they promise to support it with loans from the Central Bank [25]. Thus, we require a risk-management model which can also take into account systemic risks [26]. It can be concluded that in the present crisis, the problem of finding new tools for risk management has acquired greater relevance than ever.

In 2014, the consulting firm McKinsey carried out research into practices in enterprise risk management with the support of the Risk Management Association. This identified four main issues for banks in transition economies as they seek to address big picture challenges: 1. Create a risk culture, 2. Improve the collections process, 3. Develop innovative risk models, 4. Rethink capital allocation [2]. When dealing with the third point, particular emphasis was placed on the need to consider qualitative indicators as well as quantitative ones when assessing risks, and the need for systems to support decision-making. Professors Ittner and Larcker [27] highlight a number of particular advantages of non-financial indicators compared with financial ones. The first of these is that they can be linked to long-term strategic goals. The second is that "intangible assets" such as human capital and customer loyalty can be captured in this way, and, in many sectors, these are fundamental factors in success. The third benefit of considering non-financial indicators is that they can be the best indicators of the future financial situation. Finally, the choice of indicators should be based on the provision of information on management actions and on the level of "noise" in the indicators (i.e. changes in the indicators, which are not within the control of a manager or the organisation). Thus, the need to consider qualitative indicators is evident.

To build an effective risk management system it is necessary to enlist the support of the bank's senior management. Indeed, these managers ought to bear personal responsibility for the risks taken. Ettore Pastore, Johan Kestens, and John Winkler state, in their article on this subject that if an organisation is serious about creating a risk management system this fact implies that the managers themselves take this problem seriously [28]. Choi I. (2013), an analyst with the World Bank maintains that responsibility for risk management ought to lie in the first instance with the board of directors. Under the Basel agreements, shareholders are not permitted to distribute profits or withdraw funds if a credit organisation is found weak in terms of its risk management [29]. However, this principle is still to be reflected in the practice of organisations in countries with transition economies, and in particular in Russia [30].

The following steps are defined in constructing the model:

1. A BSC-SWOT matrix is constructed.
2. Based on the BSC-SWOT matrix, a model can be presented graphically: it can be visualised as a two-level hierarchical network, where the first level of criteria is provided by the SWOT-analysis, and the second is drawn from the Balanced Scorecard perspectives.
3. A paired comparison of the criteria in the first level is carried out according to the 9-point Saaty scale (2000).
4. The same procedure is then applied to the second level, also using the Saaty scale.
5. After determining the priorities for each element in the hierarchy using the method of paired comparison, we then produce a global synthesis of priorities among the alternatives by means of a linear convolution of the priorities within the hierarchy.
6. We then check the decisions for consistency.
7. We take decisions based on the results obtained.

Using the BSC SWOT matrix in the bank risk management provides construction of a more structured BSC, than the identification of key performance indicators by brainstorming or internal sensations of manager. Matrix provides a field for the identification and classification of risks, as well

as search for weaknesses, strengths, opportunities and threats associated with the classical components of BSC. Matrix also provides the basis for more effective functioning of the risk - management at the strategic level in ERM system, furthermore the system allows to control such types of risk as the macroeconomic, tactical, strategic, and normative risks.

Since when using the «BSC+SWOT+ANP» tool we compare criteria in pairs on the same level in the hierarchy, it is very important that the experts who are carrying out this comparison are sufficiently well qualified.

For this reason, five profiles of types of expert were developed as part of the research:

1. Ratings agency experts
2. Consultants (Employees of PricewaterhouseCoopers, Deloitte, Ernst & Young, KPMG etc.)
3. Bank employees.
4. Associations (banking or business associations)
5. Academic experts carrying out research into banking risks.

Where experts have a higher level of qualification, it will be possible to achieve more objective and higher quality results. Also the accuracy of the proposed tool will increase when used in conjunction with the business failure prediction models [31]. Advanced risk management is the base of innovation performance [32].

A comparative analysis of ten banks was carried out using the «BSC+SWOT+ANP» model and the optimal strategy of future development for each of them was determined. In the first stage, a quick analysis of the banks' financial indicators was carried out. Then in the second stage, the «BSC+SWOT+ANP» tool was applied. We then analysed the results obtained.

Demonstrating an example of the «BSC+SWOT+ANP» tool being applied.

For research purposes we took ten banks, including three large universal banks - Sberbank of Russia, VTB24, and Gazprombank; three banks with foreign capital Citibank, Nordea Bank and J & T Bank, and four regional banks - Bank Saint Petersburg, Sovcombank, Bank Enisey and Tatfondbank. It should be noted that the «BSC+SWOT+ANP» model is intended for internal users who have full information about the situation within the bank at any given time. For this reason, we carried out a quick initial analysis of the banks based on their published accounts, as given on the website of the Central Bank of Russia.

Below we are considering the possible development strategies, which may be chosen by banks at the period of crisis. Research was carried out on three types of banks. The sample was based on a conception of the main players of the banking market in Russia, which taken together make up the lion's share of the market: 1. Universal bank; 2. Bank with foreign capital; 3. Regional bank. As the example we chose ten banks, three of which-universal banks from the top 10 by assets, three-banks with foreign capital, four- regional banks. During testing the methodology were developed three possible strategies of development banks. At the same time were taken into account both internal problem of the bank and the specifics of the business. Among the internal problems taken into account was the need to increase the capital base, which is inextricably linked to the solution of problems in the interaction with customers. Also for domestic banks it is difficult to compete with foreign by the amount of the capital base. It was also taken into account federal particularity of the domestic banking system, the need for regional development, with the support of regional banks. When taking into account the specifics of the business was considered the fact that big business mainly focuses on large banks, but, nevertheless, the overall thrust is development of small and medium-sized businesses. Thus, we developed three alternative strategies: focus on the retail block, the corporate unit, private banking.

Each bank needs to make a decision as to the preferred strategy from three alternatives presented in table 1.

Table 1. Alternative strategies for development of the business

	Emphasising retail	**Emphasising corporate banking**	**Emphasising Private Banking**
Main products driving growth	loans for car purchase, mortgages, credit cards, savings accounts, consumer credit	Business accounts, corporate finance	individual banking services, investment, portfolio management, consulting
Promotion channels	Individual sales, specialists at points of sale, telemarketing, corporate clients.	Individual sales, corporate clients, telemarketing.	The existing network of points of sale, corporate clients.

Necessary infrastructure	Development of methodological materials, choice of points of sale and the quantity of these, recruiting personnel, development of training materials, development of programmes for evaluation and stimulating sales.	Development of methodological materials, development of programmes for evaluation and stimulating sales, development of programmes for collaboration with partners.	Construction / refitting of VIP-offices, development of methodological materials, choice of points of sale and the quantity of these, recruiting personnel, development of training materials, development of programmes for evaluation and stimulating sales.
Characteristics	Requires high levels of advertising and effective sales techniques.	Places particular emphasis on promotion channels	Requires a medium level of advertising and a high level of personal sales.
Requirements	the organisation needs to be client-oriented, and to formulate a uniform standard for service to clients.	the organisation should broaden its base of corporate customers, the retail section and corporate section collaborate to produce effective sales.	spending on infrastructure, creation of new departments, reorganisation of workflows, staff training

These strategies are assessed using the «BSC +SWOT +ANP» tool. To create the models and carry out the calculations the program Super Decisions[3] was used. Then 21 factors were chosen which were used to assess the strategy. The resulting BSC-SWOT matrix is presented below (Table 2).

[3] *www.**superdecisions**.com*

Table 2. BSC-SWOT Matrix

	STRENGTHS	WEAKNESSES	OPPORTUNITIES	THREATS
Financial	1. Growth of profits	**6. Risk of infringing Central Bank regulations**	10. Growth of market capitalization of the bank	**14. Growth in overdue loan repayments** **15. Risk of access to capital**
Clients	2. Growth in overall market size	**7. Risk of a fall in the level of retention of clients**	11. Client satisfaction	**16. Risk of fraud by borrowers** **17. Risk of borrowers becoming insolvent**
Internal business processes	3. Use of modern technology	**8. Compliance risks**	12. Introduction of new products	**18. Risk of a fall in effectiveness of sales.** **19. Technological risks**
Training and development	4. Employee satisfaction 5. Ongoing in-service training of staff	**9. Staff turnover**	13. Ability of employees to innovate	**20. Risk of fraud by employees** **21. Risk of the lack of highly qualified staff.**

So the integrated model allows the following risks to be considered: risk of infringing Central Bank regulations, risk of a fall in the level of retention of clients, compliance risks, staff turnover, growth in overdue loan repayments, risk of access to capital, risk of fraud by borrowers, risk of borrowers becoming insolvent, risk of a fall in effectiveness of sales, technological risks, risk of fraud by employees, risk of the lack of highly-qualified staff.

We used this matrix to create a model in the program Super Decisions. The model is a hierarchy with the SWOT-analysis on the top level and on the lowest, the BSC perspective and the alternatives relating to these (Figure 6).

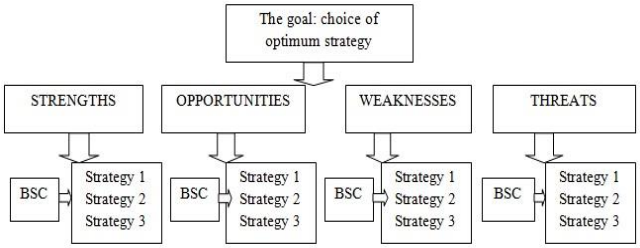

Fig. 6. The «BSC +SWOT +ANP» model.

Using the ANP method does not require a direct assessment by criteria. Descriptive information in words giving the relative preference for each alternative is sufficient. The next step is to

complete the matrix with paired comparisons for clusters and their elements.

We analyse the alternatives for each of the banks under investigation. To do this an expert was presented with a questionnaire, which asked for a paired comparison of alternatives using the 9-point Saaty scale.

Because of these comparisons, values were obtained for the priorities in each of the four SWOT areas and priority strategies were chosen. Presenting results in Fig. 7, the priority strategies are shown in the "Strengths" area for the ten banks.

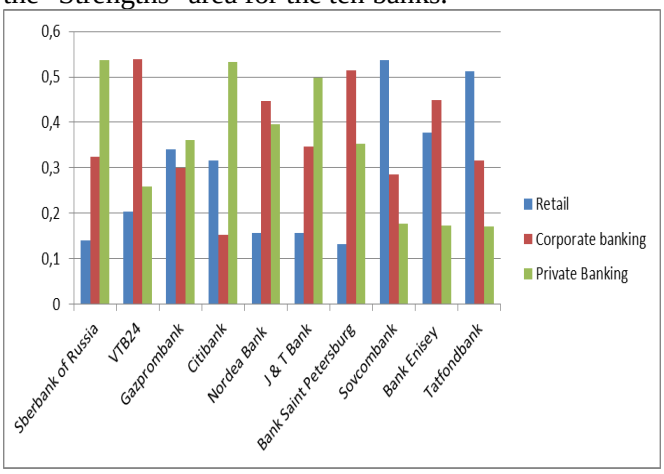

Fig. 7. Priorities in the STRENGTHS area

As a result of the paired comparisons in the "strengths" area, some priorities were identified, which allow us to reach some conclusions. The strongest side for Sberbank Rossii lies in the private banking field, for VTB24 it is corporate business. Here particularly we refer to small and medium sized businesses, as VTB24 does not work with large business. For Gazprombank there is a slight preference for private banking over retail. Citibank is well placed to offer private banking, Nordea Bank - corporate and for J & T Bank again private banking. For Bank Saint Petersburg corporate banking is favoured, for Sovcombank - retail, while corporate business is the leading priority for Bank Enisey and retail for Tatfondbank.

Considering WEAKNESSES.

In Fig. 8 we present priorities in the "Weaknesses" area.

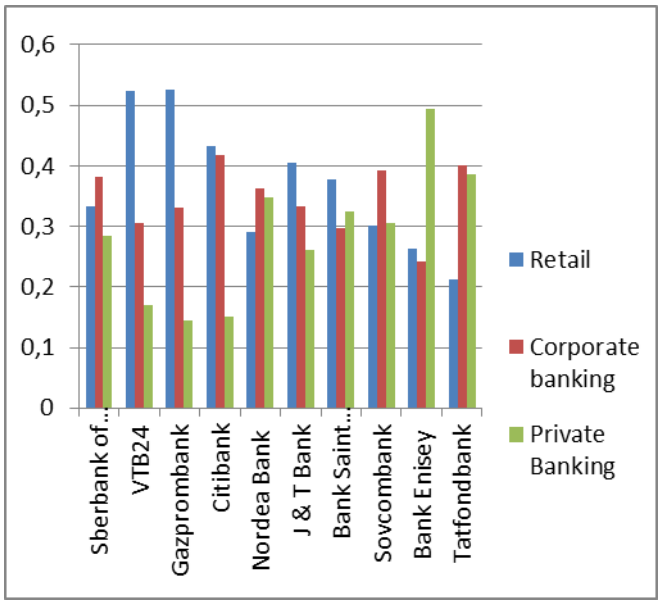

Fig. 8. Priorities in the Weaknesses area

Corporate business can be regarded as the most vulnerable aspect of Sberbank Rossii. The weakness for VTB24 is its retail activity. Gazprombank like VTB24 has most weaknesses in retail. In Citibank retail also appears as the weak area, for Nordea Bank it is corporate and for J & T Bank retail. For Bank Saint Petersburg also retail is vulnerable. Sovcombank has weakness in corporate banking, while private banking is highlighted for Bank Enisey and corporate for Tatfondbank.

Then we consider the priorities in the "Opportunities" quadrant (Fig.9).

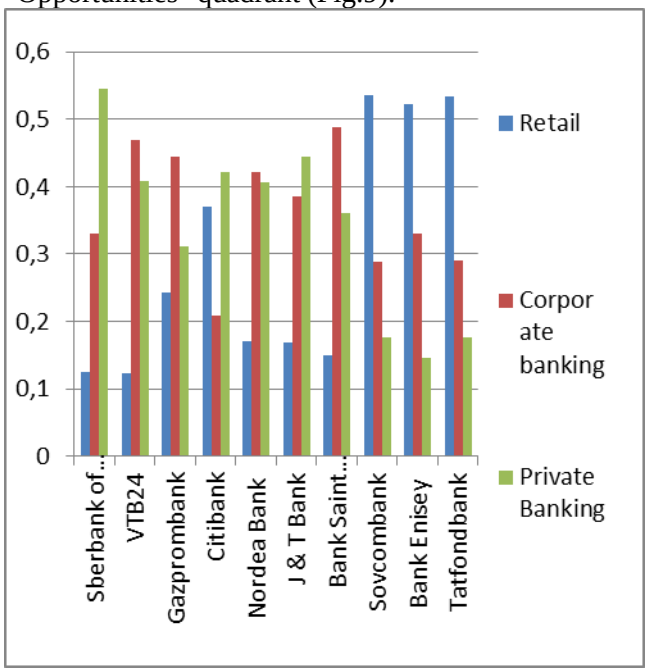

Fig. 9. Priorities in the OPPORTUNITIES area.

The best prospects for Sberbank Rossii are to be found in a strategy aimed at private banking. For VTB24 opportunities lie mostly in corporate, and the same goes for Gazprombank. Citibank shows the highest preference for private banking, Nordea for corporate but closely followed by private banking and for J & T Bank private banking is also the leading priority. For Bank Saint Petersburg corporate banking is the suggested strategy with most opportunities while for Sovcombank retail is highlighted. Both Bank Enisey and Tatfondbank also see the best opportunities in retail.

Finally, we consider the priorities in the "Threats" quadrant (Fig.10). For seven of the ten banks a retail strategy is the one that holds the greatest threats. However, for Gazprombank, Sovcombank and Tatfondbank aiming for corporate business could be the more threatening strategy.

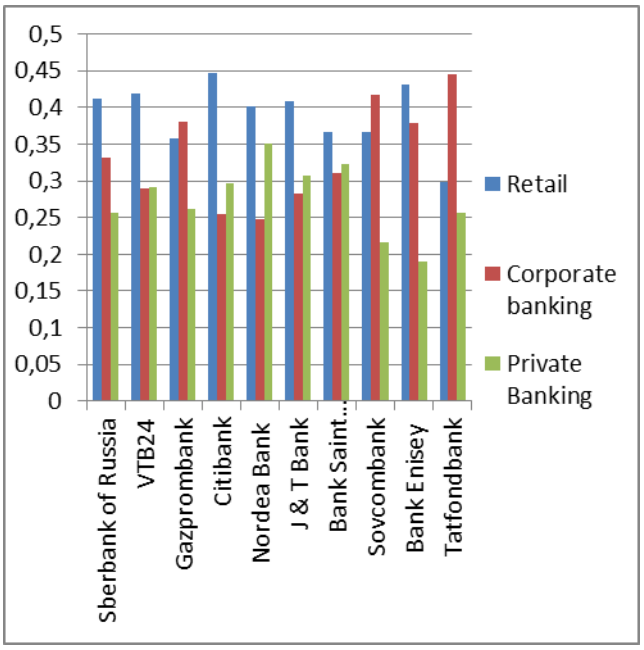

Fig. 10. Priorities in the THREATS area

Analysing the results obtained using the whole model.

Three strategic alternatives were compared in pairs for each of the 21 criteria, and then the matrix of comparisons was used to calculate the local ratings for each alternative. These local ratings were included into a supermatrix for the final calculation. The resulting composite assessments of alternatives were included in the final summary rating of alternatives. Thus, the analysis provides a choice of the highest priority strategy for the development of each of the banks studied. (Fig. 11).

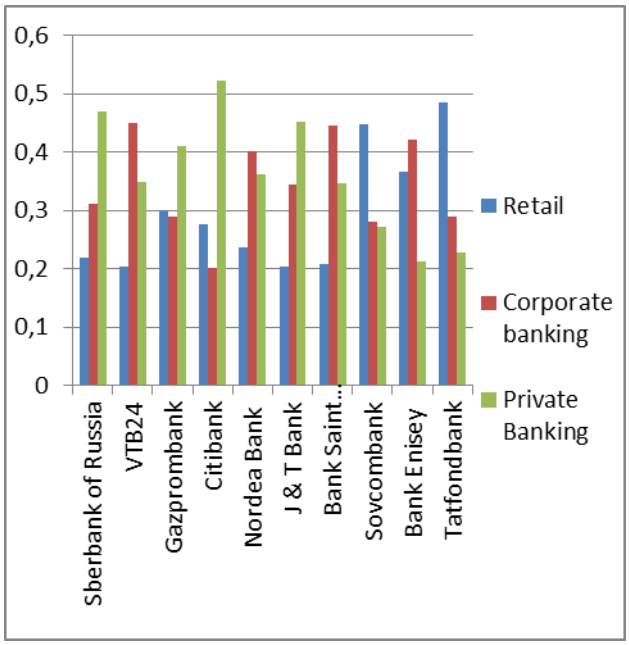

Fig. 11. Overall figures for the level of priority in choosing an optimal strategy

According to the results of the research, the highest priority for Sberbank Rossii is a strategy oriented at provision of private banking, for VTB24 corporate business and for Gazprombank again private banking. Thus in the group of universal banks we can conclude that overall strategies focussed on private banking and corporate business should be prioritised. The three banks with foreign capital showed the following results: in Citibank private banking takes priority by a significant margin. In Nordea Bank corporate and private banking have practically the same priority, but there is a slight lead for corporate as an orientation. For J & T Bank the priority is for private banking. For banks with foreign capital the strategies of private banking and corporate services are preferable in times of crisis, as developing the retail market in fierce competition with the domestic Russian universal banks would be associated with a great number of risks.

Presenting results for the four regional banks. For Bank Saint Petersburg the highest priority strategy is one oriented towards corporate services, for Sovcombank - retail and for Enisey again corporate services have the best overall rating. Finally, Tatfondbank shows a preference for the retail sector. Thus, a strategy based on retail is recommended for two of the four regional banks. This conclusion is supported by the fact that services to corporations are less developed and generally limited to SME finance in many regions of Russia. This means that the retail direction has to be emphasised. Household incomes in the regions are

considerably lower than those in the capital or in large cities, and this explains why a strategy oriented around private banking services would not make sense. Thus, overall, the most rational strategies of development for regional banks are to concentrate on corporate financial services (including SME) and on retail banking.

Having completed the analysis, we can conclude firstly, that the model of support for decision-making based on the analytical networks method, BSC and SWOT-analysis in an integrated risk management system allows managers to choose a strategy for the development of a lending institution. Secondly, that this model can be implemented without imposing any great costs. The «BSC+SWOT+ANP» tool is able to assess a huge range of risks, both financial and non-financial, because it formulates expert judgements using analytical networks. The «BSC+SWOT+ANP» model allows flexible changes in the choice of indicators and alternatives, which makes it very adaptable to dynamically changing business conditions.

6. Conclusion

The aim of this research was to create a tool for the support of decision-making that would encompass the greatest possible range of risks. It should be used as part of a risk-management system that would take into consideration the non-financial indicators of the bank's activity. The result was the proposal of a completely new tool for risk-management systems in banks. «BSC+SWOT+ANP» allows a huge range of risks to be attended to when taking a decision. Its ability to include non-financial risks and give them a numerical weighting on an equal footing with financial risks is particularly important. This is achieved by formalizing the opinions of experts using the analytical networks method. For this reason, the quality of the expert judgements adopted in the system is crucial. Five profiles of types of expert were developed as part of the research, and their judgements ensure the correct functioning of the model.

It is also vital that the senior management of a bank take personal responsibility for risks in order to implement this model based on ANP, BSC and SWOT-analysis and for the risk management system as a whole to function effectively. This principle corresponds to the recommendations of the Basel committee on Banking Supervision, but is not sufficiently reflected in the national legislation of Russia; nor in the working practices of lending institutions in transition economies.

The question of assessment of qualitative indicators is still extraordinarily relevant, thus the development of methodologies and the discussion of their relative merits will continue. It will be useful to test the «BSC +SWOT +ANP» model in further research. Consequently, to seek ways in which it can be improved and modified. It may be possible to achieve a model with wider applications by replacing the analytical networks method with a neural network method.

Scope of application of «BSC + SWOT + ANP» tool is not limited to the banking sector. It is a versatile tool to support decision-making process, which can be applied in any industry. Further studies may be aimed at studying the characteristics of application of «BSC + SWOT + ANP» tool in different industries.

References

[1] IMF. (2014). Global Financial Stability Report.A Report by the Monetary and Capital Markets Department on Market Developments and Issues. IMF. https://www.imf.org/external/pubs/ft/gfsr/

[2] Costa O., Khan J., Natale A.. (September 2014). Rethinking bank risk in emerging markets. http://www.mckinsey.com/insights/risk_management/rethinking_bank_risk_in_emerging_markets

[3] Korableva O., Litun V.. (2014) The potential of transitive economies' growth based on innovative strategy. WSEAS Transactions on Business and Economics, 11 (68), 725-736.

[4] Vedomosti.ru. (31.10.2014). VTB is asking the state 200 billion rubles for additional capitalization. http://www.banki.ru/news/lenta/?id=7286646

[5] Kaplan, R. S., & Norton, D. P. (1992). The balanced scorecard: measures that drive performance.Harvard Business Review, 70 (1), 71–79.

[6] Zhang Y., Li L. (2009). Study on Balanced Scorecard of Commercial Bank in Performance Management System. Proceedings of the 2009 International Symposium on Web Information Systems and Applications (WISA'09). Nanchang, P.R. China, May 22-24, 206-209.

[7] Liberti, J. M., Mian R., (2009). Estimating the Effect of Hierarchies on Information Use. Review of Financial Studies, 22(10), 4057-4090.

[8[Sumit A, Hauswald R., (2010). Distance and Private Information in Lending. Review of Financial Studies, 23(7), 2757-2788.

[9] Iyer R., Ijaz A., Erzo K., Luttmer P., Shue K.. (2014). Screening Peers Softly: Inferring the Quality of Small Borrowers. http://www.hks.harvard.edu/fs/akhwaja/papers/screeningpeers.pdf

[10] Lee A.H.I., Chen W.-C., Chang C.-J.(2008). A fuzzy AHP and BSC approach for evaluating performance of IT department in the manufacturing industry in Taiwan. Expert Systems with Applications, 34, 96–107.

[11] Nguyen H., Dawal S. Z. Md, Nukman Y., Aoyama H.(2014) A hybrid approach for fuzzy multi-attribute decision making in machine tool selection with consideration of the interactions of attributes. Expert Systems With Applications, 41(6), 3078-3090.

[12] Saaty T.L. (2000). Decision making with Dependence and Feedback. The Analytic Network Process. Pittsburgh.. PWS Publications, 370.

[13] Yüksel I.,Dağdeviren M. (2010). Using the fuzzy analytic network process (ANP) for balanced scorecard (BSC): A case study for a manufacturing firm. Expert Systems with Applications, 37(2), 1270–1278.

[14] Leung, L. C., Lam, K. C., D. Cao. (2006). Implementing the Balanced Scorecard Using the Analytic Hierarchy Process & the Analytic Network Process. *Journal of the Operational Research Society*, 57, 682-691.

[15] Wang X., Chan H. K., White L.. (2014). A comprehensive decision support model for the evaluation of eco-designs. Journal of the Operational Research Society. 65, 917–934.

[16] Amiri M. P., Amiri A.P. , Amiri M. P. (2012). An Analytical Network Process Approach for Evaluating Banking Performance Based on Balanced Scorecard. *Trends in Applied Sciences Research, 7, 456-466.*

[17] Erbasi A., Parlakkaya R.. (2012). The use of analytic hierarchy process in the balanced scorecard: An Approach in a Hotel Firm. Business and Management Review, 2(2), 23 - 37.

[18] Brown, T.S., Norberg, L.J., (2001). Building Executive Alignment, Buy-In, and Focus with the Balanced Scorecard SWOT. Balanced Scorecard Report, 2001.

[19] Emelyanov M.. (December 16, 2014). The State Duma called madness increasing the key rate of the Central Bank. http://lenta.ru/news/2014/12/16/cbrinsane/

[20] Inman P. (December 2014). Rise in Russian interest rate fails to halt plunge in rouble as oil price slips again. The Guardian, http://www.theguardian.com/world/2014/dec/11/rise-russian-interest-rates-fails-halt-plunge-rouble-oil-price-slips-further

[21] Adomanis M. (06.01.2015). Russia's Currency Crisis Continues: The Ruble Is Crashing Again. http://www.forbes.com/sites/markadomanis/2015/01/06/russias-currency-crisis-continues-the-ruble-is-crashing-again/

[22] Gazeta.ru. (24.10.2014). "Basel" waiting to happen. http://www.gazeta.ru/business/2014/10/24/6275389.shtml

[23] Suvorova A. (20 December 2014). Insurance payments on deposits of citizens will be doubled. http://www.vesti.ru/doc.html?id=2213539

[24] Itar-tass. (December 19, 2014). The State Duma passed a law increasing the insurance reimbursement of deposits to 1.4 million rubles. http://itar-tass.com/ekonomika/1659797

[25] Gazeta.ru. (28.11.2014). Deposit insurance at the redline http://www.gazeta.ru/business/2014/11/28/6319417.shtml

[26] Korableva O., Kalimullina O.. (2014). The Formation of a single legal space as a prerequisite for overcoming systemic risk. Asian Social Science, 10, 21, 256-260.

[27] Itnner, C.D., Larcker, D.F. (2000). Non-financial Performance Measures: What Works and

What Doesn't. Financial Times' Mastering Management series, Wharton School, Pennsylvania.

[28] Pastore E., Kestens J., Winkler J.. (2010). Seven Tenets of Risk Management in the Banking Industry. http://www.atkearney.com/paper/-/asset_publisher/dVxv4Hz2h8bS/content/seven-tenets-of-risk-management-in-the-banking-industry/10192#sthash.lyv4apO4.dpuf

[29] Leaders of the Basel Committee on Banking Supervision for supervisors for working with weak banks. (2002). The report of the Panel on dealing with weak banks. Basel, Switzerland. http://www.orioncom.ru/demo_bkb/npsndoc2/03-baz.htm

[30] Korableva, Olga; Guseva, Margarita; Activation of Innovation Processes in Banks as a Result of the Implementation of Basic Basel Accord Provisions// Economic Studies №3, 2015, p.108-128 http://www.ceeol.com/aspx/issuedetails.aspx?issueid=f1feba6b-0b5c-40b8-8658-a72b8884aab9&articleId=aa1a7a87-dc00-4c5f-912e-877edeef5855

[31] KUBĚNKA, M. The Factors Affecting the Accuracy of Business Failure Prediction Models. In: European Financial Systems 2014. Proceedings of the 11th International Scientific Conference, Brno: Masaryk University, 2014, pp. 364-371. ISBN 978-80-210-7153-7

[32] Korableva O., Iakovleva T. Organisational climate, employability and innovative work behaviour as drivers of firm innovation performance// Culture, Innovation and Entrepreneurship: connecting the knowledge dots. Proceedings of The 10th International Conference of IFKAD (International Forum on Knowledge Asset Dynamics). 2015. pp. 155-163. // Bari, Italy, 10-12 June 2015