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VALIDITY OF INVESTMENT LOAN APPROVAL MODEL FOR SMEs IN SERBIA*

Validnost modela odobrenja investicionog kredita malim i srednjim preduzećima u Srbiji

Abstract

Small and medium enterprises (SMEs) are the main drivers of economic development. The SMEs invest funds in new products, new technologies, as well as in new markets. Finally, their aim is to increase the overall value of the company, i.e. to obtain profit for the shareholder. The subject of this research paper is an objective analysis of the validity of the investment loan approval model for the SMEs (ILASME) used by the commercial banks when considering whether to support financially an investment need of an SME client. The aim of this paper is to indicate the possibilities of improving the validity of the ILASME from the standpoint of validity for decision-making in this domain. The basic hypothesis of the research is that there is an objective doubt regarding the validity of the ILASME applied by the commercial banks in Serbia. By applying the Pearson correlation coefficient, the effect of the applied ILASME on the commercial banks' performance shall be quantified, i.e. the impact of non-performing loans (NPLs) on the financial result and the equity of the bank shall be determined. Furthermore, it can be concluded that final success of the implemented ILASME depends on the adopted and accepted risk management procedures, which are the subject of permanent monitoring and improvement, as well as on the qualitative factors on the borrower and lender side. Moreover, permanent monitoring of market trends and improvement of credit risk management procedures are relevant.

Keywords: *SMEs, investment, customer analysis, transaction analysis, cash flow, risk management*

Sažetak

Mala i srednja preduzeća (MSP) su glavni nosioci ekonomskog razvoja. MSP investiraju sredstva u nove proizvode, nove tehnologije i osvajanje novih tržišta. Njihov krajnji cilj je da povećaju vrednost kompanije, odnosno, da obezbede profit za vlasnika. Predmet ovog istraživanja jeste objektivna analiza validnosti modela za odobrenje investicionog kredita malim i srednjim preduzećima (ILASME) koji najčešće koriste poslovne banke kada razmatraju da li će finansijski da podrže investicionu potrebu MSP klijenta. Cilj ovog rada je da ukaže na mogućnosti za unapređenje ILASME u domenu objektivnog donošenja odluke. Osnovna hipoteza istraživanja je da postoji sumnja u validnost/pouzdanost ILASME koji koriste poslovne banke u Srbiji. Primenom Pirsonovog koeficijenta korelacije će biti kvantifikovan stepen međusobne povezanosti ILASME i poslovnih performansi banke, odnosno indikatora kvaliteta aktive, poslovnog rezultata i kapitala. To će dalje uputiti na zaključak da uspešnost primene ILASME zavisi od usvojenih i primenjenih risk menadžment procedura, koje su predmet stalnog praćenja i unapređenja, uvažavajući kvalitativne karakteristike kreditora i korisnika kredita. I na kraju, proaktivno praćenje tržišnih trendova i fleksibilno unapređenje kreditnih procedura za upravljanje rizikom od presudnog je značaja.

Ključne reči: *MSP, investicije, analiza klijenata, analiza transakcija, novčani tokovi, risk menadžment*

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Introduction

Small and medium enterprises (SMEs) are the main drivers of economic development. Furthermore, they play a key role in the expected future growth of an economy (according to the European Commission data, they represent 99% of all businesses in the European Union [19]). Moreover, they contribute to the reduction of unemployment rate, i.e. they make up 66.7% of share of employment in the non-financial sector [27]. Finally, their activities are supported by the public sector through favorable or subsidized lines of credit.

There are different definitions of the SMEs in modern literature and practice all over the world. The European Commission defines them as the entities having less than 250 persons employed, annual turnover of up to EUR 50 million, or a balance sheet total which does not exceed EUR 43 million [20]. In accordance with the Serbian Law on Accounting and Auditing [26], the SMEs are classified in the following categories: small (10 ≤ annual average number of employees ≤ 50; RSD 84,671,000 ≤ annual sales ≤ RSD 1,064,433,000; RSD 42,335,000 ≤ annual average asset value ≤ RSD 532,217,000) and medium (50 ≤ annual average number of employees ≤ 250; RSD 1,064,433,000 ≤ annual sales ≤ RSD 4, 233,541,000; RSD 532,217, 000 ≤ annual average asset value ≤ RSD 2,116,770,000).

In order to be aligned with market competition and the customers' needs, the SMEs invest funds in new products, new technologies, as well as in new markets. Finally, their aim is to increase the overall value of the company, i.e. to obtain profit for shareholders. "Investments, in the broadest sense, are a necessary condition to achieve progress and the realization of man's continuous efforts to master the forces of nature and efficiently use them for his own needs. Without investments, there is no technological progress, i.e. progress on the continent." [22, p. 52]. Basic elements of investments [3] are: an entity that invests (investor), the object in which it is invested, the price of renouncing the expenditure (interest rate) and the discount rate. Accordingly, an investment is interpreted as current investment in assets which will obtain profit in the long run for the company. This definition is in line with Brealey et al. [12] and Bodie et al. [11], who claimed that today's investments bring benefits in the future. Moreover, Palepu et al. [29] pointed out that expected earnings, in spite of accepted risks and the ROE, are crucial for investments. Finally, the said interpretation relates to Đuričin and Lončar [15], who claim that future (forecasted) earnings capability is important for investment decisions.

The SMEs need appropriate financing for their investment decisions, both from its own, as well as from borrowed (external) sources. The banks are the main creditors in Serbia (i.e. external source of financing), due to the fact that the financial market in Serbia is bank-centric. Final SMEs decision with regard to the source of financing shall largely depend on the level of the return on investment (ROI). The focus is on the income earned from the basic business operations of the company, which represents the primary source of loan/owners' investment repayment [4].

The subject of this research paper is an objective analysis of the validity of the investment loan approval model for the SMEs (ILASME) applied by the local banks when considering whether to financially support the investment needs of the SME clients. In other words, the aim of this paper is to reveal the possibilities of improving the validity of the ILASME from the standpoint of validity for decision-making in this domain. The basic hypothesis (H0) is: There is an objective doubt about the validity of the ILASME used by the commercial banks in Serbia.

The bases for proving the hypothesis are: a) official annual reports of Erste Bank a.d. Novi Sad, (whose main customers, according to the Bank's mission, are predominantly the SMEs, and because one of the authors of this paper worked at Erste Bank for 5 years in the SMEs sector): indicators such as loans in use, asset quality expressed through the level of non-performing loans (NPL), amount (level) of equity, capital adequacy ratio (CAR), return on equity (ROE) and return on assets (ROA); b) primary survey results, which included 30 Chief Financial Officers (CFOs) of the SMEs which conducted business in Serbia in the second half of 2015 and the first half of 2016, in order to examine current practices in investment decision-making process. The Pearson correlation coefficient shall be subsequently applied in order to quantify and determine the effect of the applied

ILASME on the commercial banks' performances, i.e. the impact of the NPLs on the financial result and the equity of the bank. Those results shall then be compared with the Serbian banking sector data presented in the research conducted by Barjaktarović et al. [4]. The analysis period was from 2007 to 2015. The obtained results were compared with the respective answers and evaluations provided by the bankers and auditors who participated in the survey.

Accordingly, the paper is organized in four parts. In the introductory part, the subject, aim and hypothesis shall be defined. Literature review shall be presented in the second chapter. The third chapter shall render the methodology used. The research results shall be introduced in the fourth part. In the last chapter, concluding remarks shall be presented.

Literature review

According to the data provided by the Ministry of Economy, 324,272 SMEs conducted their business in the Republic of Serbia in 2014, which represents 99.8% of the total number of legal entities in Serbia (324,766) [27]. The SMEs and micro clients generated 64.8% of the total employment in the non-financial sector (i.e. 761,539 employees), 65.4% of total turnover and 32% of total GDP. However, the SMEs independent credit ranking is still not an officially available information.

In the following paragraphs, the authors shall present the research results: 1) quantitative factors in the client analysis (theoretical and empirical results); 2) qualitative factors in the client analysis (empirical results); and 3) loan transaction analysis (empirical results).

Hopwood et al. [21] and, in our region, Belak [10] are the authors who have worked extensively on the credibility of the financial statements as a basis for determining the creditworthiness of the clients, i.e. on forensic accounting and auditing, in theoretical terms. Their specialty involves investigative actions regarding the conducted frauds. Having in mind the globalization and the need for additional profit of different stakeholders, money and its instruments are subject of various fraudulent acts which are the subject of prevention and detection in their early phase. It is a current and interesting issue for the wider scientific and professional public, as well as for future research. There are many studies and articles on this subject and officially published data by various relevant state institutions, which shall be presented below.

Surveys conducted by professors in the field of business economy and law and experts from Central and Eastern Europe (conducted in the period from 2009 to 2016, with a special focus on the market of the Republic of Serbia), indicate that there are certain doubts about the validity of the proposed ILASME, i.e. regarding the basic determinants of creditworthiness of the SMEs, such as the objectivity of the financial statements and the financial analysis instruments. The third category of fraud, according to the ACFE [1], is false financial reporting (9% of the total number, but causes the greatest financial effects, on average a loss of 1 million dollars). According to the data provided by this association, scheme frauds in financial statements may relate to: (1) overvalue of assets and income (premature revenue recognition, notional incomes, hidden liabilities and costs, inadequate property valuation – overvalue, inadequate disclosure); or (2) underestimation of assets and income (disposal of revenue recognition, underestimated income, overvalue of liabilities and costs, inadequate valuation of property – underestimation).

Furthermore, many studies conducted in the same period in Serbia indicated that there are reasons for doubt in the quality of the submitted financial statements. The motives for such acts are mainly related to tax reasons (tax evasion) or to disbursement of bonuses to managers [28]. Furthermore, research conducted among accountants (2014) revealed that there is no clear boundary between the creative use of accounting techniques and their misuse ("creative accounting"). In addition to this, by applying the Benford's law on a sample of 847 large companies which operated in the Republic of Serbia in 2012, Barjaktarović et al. [5] indicate that there are grounds for doubt regarding the stated financial results due to the regularity of the appearance of numbers 1 and 9. In the following experiment conducted on a sample of 4,029 large and medium-sized enterprises operating in the Republic of Serbia in the period from 2009 to 2013, by applying the Benford test, Čerović et al. [14] indicate that there are reasonable grounds to

question the reported amounts of net cash flow from operating activities, due to the incidence of numbers 1 and 3, and lower occurrence of number 4. The authors suggest that the reasons might be manipulative, but do not exclude the ignorance of persons who composed the cash flow statement. Moreover, Bugarčić [13] points out to the mistrust in the case of tax evasion and money laundering in the Republic of Serbia on the basis of cash payment transactions (loan granted by owners) and withdrawals from the account on the basis of forgery of business/financial documentation. Furthermore, Jovin [23] revealed that actual and officially reported results are quite different, i.e. that many companies perform business in the gray area, paying in cash without disbursing appropriate taxes to the state (the sample covered 129 SMEs and 80 credit risk managers in 15 banks in Serbia in 2015). Based on the survey conducted among accountants in major cities of Serbia (2015), it has been found that a small number of enterprises: (1) correctly calculate depreciation of fixed assets (which represent 60.36% of total assets of all legal entities that have submitted data for statistical purposes for 2014) [31], (2) use the prescribed regulations for the assessment of trade receivables depreciation while relying on no real analysis of the performed calculation to improve their performance in the upcoming reporting periods [35].

According to the analysis provided by Knežević et al. [24], many limitations of the financial analysis application are identified, and the most significant are the following: identification of categories of industrial companies and intercompany relationships (group of associated companies), seasonal influences on the obtained values of indicators, published averages for industries have an approximate character and in many cases represent the target of companies, the financial statements have been prepared using the historical cost basis without considering the impact of inflation, the relevant data on the balance sheet, etc. Moreover, Jovin [23] confirmed that projections of future business of the SMEs are not reliable and that many business plans are prepared according to the "copy-paste" principle applied by external consultants in order to produce the paper requested by the bank (not in order to prescribe a proper business model for future development). Finally, Vasilski [34] and Sikimić [31] confirmed by examining two different SMEs credit portfolios that the most relevant factors for successful performance of a company are management and appropriate organizational structure and qualification of the employees.

On the other hand, contemporary regulations in the field of risk management in the banking sector (i.e. the Basel Accords), are in line with expert opinions (risk managers of the banks, especially) in the final assessment of the creditworthiness of the client, which means that the appropriate mix of qualitative and quantitative components (primarily, the quality of financial statements) of the company and of the risk managers' ability are key issues to be considered while making investment decisions. In addition to this, data which are published on the website of the National Bank of Serbia [4] indicate that in times of crisis, the number of loan beneficiaries who have problems with repaying the debt (NPL) has been on the increase.

Having in mind that the research indicates that there are doubts about the elements which are used in the process of determination of the creditworthiness of the SMEs, the authors of this paper reflected on the performance of Erste Bank a.d. Novi Sad (EBNS) in accordance with the accepted credit risk policies. Moreover, no research was published to date that suggests suspicion regarding the publicly disclosed information on the NBS's website.

Methodology

The authors relied on the following data: 1) primary researches: a) conducted from 2007 to 2016; b) conducted in 2015/2016 through interviews with 30 CFOs of the SMEs, 7 credit risk managers (employed at respective banks) and 4 auditors (employed at "the Big 4"); c) one of the authors worked at the EBNS for almost 5 years; 2) secondary data published by Erste Bank a.d. Novi Sad (in the period from 2007 to 2015), the NBS (in the period from 2009 to 2014) and Barjaktarović et al. [4]. In addition to the descriptive statistical method, they also used the method of correlation analysis and approach model to investigate the problem of the validity of the ILASME applied by the EBNS.

At the beginning, the authors shall focus on the ILASME, which is subject of critical analysis and a survey

which was conducted in 2015/2016, in order to examine the current practices in the SMEs investment decision-making process. This shall be followed by a proposal of a quantitative model to determine the connections and relations between the ILASME and asset quality and profitability of the EBNS.

The investment loan approval model for the SMEs (ILASME)

The research is based on existing procedures in the Serbian banking sector. It includes official steps between departments and their responsibilities. Loan approval process consists of the following steps: (1) loan request (prepared by the company); (2) loan application process (within the bank); (3) loan decision (yes or no); (4) entering into a loan agreement (yes); (5) usage; and (6) monitoring the loan (yes). The first step is relevant for further research analysis.

The banks' model for determining the creditworthiness of the customer includes [7]:

(1) Client analysis which covers: soft (qualitative) and hard (quantity) elements, i.e. character and ability of the client, which means determining the net present value and cash flow from investment (primary source of repayment);
(2) Transaction analysis which covers: purpose and amount of the loan, impact of the transaction on the balance sheet and income statement of the company, repayment possibilities, structure of the loan and security structure (collateral is the secondary source of repayment).

This model should provide the bank with a healthy credit portfolio, i.e. customers which will be capable to repay the loan in time. Outside the scope of the research is the loan collection model applied by the bank. Accordingly, the SMEs' point of view should be aligned with the respective model, i.e. achieve good return on investment. Moreover, it should be based on the following: total value of investment including working capital, source of investment financing, repayment capacity, effects of investments and collateral. Finally, the client's objectives (in accordance with the bank's perspective) which are essential to secure the financing are: to understand its own needs and translate them into financial terms, to understand the product and translate it into non-financial terms, to evaluate opportunities and risks of the existing portfolio, to evaluate risks and benefits of strategic lending market, to understand risks and their main components, to be efficient and to establish a long-term partnership with the bank.

The client`s creditworthiness is the possibility to repay its debts in the future, and it includes: (1) the willingness (character) of customer; (2) solvency or the ability of the client's receivables (cash, capital, market capacity or collateral) to be converted into money (cash) at the right time. Areas covered by qualitative analysis in the company are: ownership structure, management of the company, the business strategy, analysis of the industry in which the company conducts its business activity, analysis of the market position of the company, the business cycle the company is currently in and the SWOT analysis. Areas covered by quantitative analysis in the company include: analysis of the financial operations of the client in the broadest sense and all changes in its size and power. Sources of information for quantitative analysis of the client are: annual reports of the company (balance sheet, income statement, cash flow statement, annex), quarterly reports of the company, cost accounting, projections of the company's business, consolidated statements of the entity, audit reports of the legal entity, unqualified or qualified opinion of third parties and the reputation of auditors.

The cash flow statement provides information about the sources (increase) and usage of cash (decrease). It is used to determine the funds available in the company that can be used in the process of repayment of overdue liabilities. Thereby, the lender always composes cash flow projections more conservatively than the borrower (which includes the financial projections), in order to assess the worst-case scenario of the client`s business and, furthermore, the ability of repaying the debt on the basis of the approved loan in given circumstances. Furthermore, the following essential element of quantitative analysis is the ratio number that summarizes the key relationships and results from the basic financial statements and indicates the financial performance of the enterprise.

Any rational SMEs investor entering into an investment expects specific benefits and increase of present value of its investment. In order to make the investment decision, investor and lender both take into consideration benefits and the assumed risks [8], i.e. they make projections of income statement and cash flows [25]. In the conventional models of long-term financing, it is necessary in the first place to determine what are the additional (incremental) cash flows arising from the investment itself, i.e. the investment cannot persist without it, and it shall be calculated as follows:

Cash flows from investment – Cash flows without investment.

If the SME already operates and wants to calculate net cash flows from the investment alone, it can be done by creating a separate account for the calculation of the primary sources of repayment, separate from the effects of the existing business. Projections of cash flows (forecasts) should reveal: what level of cash will be necessary for the duration of the investment, when will this need occur and how long there must be a certain level of cash. The result of the projection of cash flows is net cash flow after debt servicing. Net cash flow after repayment of the debt represents the total inflow and total outflow of funds from the business, investment and financial activity. Projections of cash flows (inflows and outflows) are derived from the previously projected income statement and balance sheet for each year of the projection.

The key categories of the cash flow projections in the case of investment project financing are [17]: (1) income: operating and other income; (2) expenses: operating expenses and cost of capital; (3) taxes; (4) debt service: payments of principal and interest; (5) reserves; (6) cash changes. Also, it is important to emphasize that the bank will finance an investment whose cash flow is positive after covering all the outflows, including all expenses of an investment loan (principal + interest). Positive cash flows occur when the inflows exceed the expenses. It is understood that free cash flows arising from the operations can be used as follows: operational commitments have been made, the rest is EBITDA; the needs of the investment are resolved, the rest is actually free cash flow before interest and the debt repayment of the project (interest and principal) closes. The remaining liquid assets constitute a surplus of free cash. It can be generally said that an investor, during the loan repayment period, conducts combined monitoring of the following indicators: net operating revenues, minimum gross profit (EBITDA), minimum capital requirements (in absolute value), minimum debt of coverage ratio, minimum interest of coverage ratio, level of indebtedness with other banks and the percentage of directing payment transactions in a bank approved by the investment loan.

Evaluation methodology – Analysis of the ILASME

For the purposes of critical evaluation of the ILASME in Serbia, the official indicators of the performance of the EBNS for the 2007-2015 period, which are available on their official website, shall be used. The subjects of the analysis are the following indicators: loans in use, asset quality expressed through the level of the NPL, amount (level) of equity, the CAR, financial result, the ROA and the ROE.

Limitations of the analysis are as follows: (1) the same NPL represents the corporate and retail sector in total; considering the individual values of the disbursed loan, the percentage of participation of disbursed loan in the SME sector is higher than in the total credit portfolio; (2) differentiation of long-term and short-term loans approved to the SMEs is not possible; furthermore, 13 months tenure of loan is counted as long-term loan; (3) all data which are available on the website of the EBNS are presented in dinars, regardless of the fact that the structure of placement of the NPL is dominated by those denominated in a foreign currency – there is a question about the rate applied (usually on the last day of the month/quarter analysis, without taking into account the fluctuations that were present in the course of the year/period); (4) the EBNS uses internal rating methodology for expressing exposure to the credit risk and reserves in the level of capital; (5) customer segmentation is based on criteria defined by the Law on Accounting and Auditing [26].

In continuation, the Pearson correlation coefficient is applied in order to determine the impact of the NPLs

on the loans, financial result and capital of the EBNS [18]. The results obtained are then compared to the Serbian banking sector in order to portray the bigger picture (2009-2014 period, published in the research conducted by Barjaktarović et al. [4]).

CFOs of SMEs questionnaire about current practices in investment decision-making process

By using data obtained from the survey conducted by Graham and Harvey in 2001 [16] in the United States of America (USA) and Canada, the authors have created a questionnaire (45 questions in total) comprising four sections: capital budgeting techniques and cost of capital, capital structure and pecking order theory, dividend policy and enterprise risk management concept. This paper focuses on the results of the first two parts (10 questions). The respondents were the CFOs of SMEs during the second half of 2015 and the first half of 2016.

The respondents used a 5-point ranking scale for the answers (with 1 meaning "never" and 5 meaning "always"). The CFOs were asked about how often they used various capital budgeting techniques when evaluating whether they should accept or reject a project. The offered capital budgeting techniques were: the NPV (net present value), the IRR (internal rate of return), the PI (profitability index), the PP (payback criterion), the ARR (accounting rate of return), the DPP (discounted payback criterion) and the SA (sensitivity analysis). Additionally, the respondents were asked whether they implemented an investment and development policy. They were also asked to answer if they made business plans and if they prepared projections of cash flows before making an investment decision. Furthermore, the ways of calculating the project's cost of capital were also relevant for the study. The respondents were instructed to rate the frequency of implementing each method (the CAPM, discounted dividend model etc.). Finally, the last part of the first section measured the frequency of risk adjustments of the discount rate and cash flows.

The questionnaire was sent to 187 SMEs in Serbia, but we received only 30 responses. Furthermore, a similar questionnaire was sent to seven credit risk managers employed at banks, and to 4 auditors (employed at "the Big 4") in order to cross-check the results obtained from the CFOs. Characteristics of the sample are: 1) the ownership structure: 20% are foreign and 80% are domestic-owned; 2) industry diversification: 30% manufacturing and 70% non-manufacturing companies (i.e. retail and wholesale (25%), tourism and hotels (20%), agriculture (10%), telecommunication (5%), IT sector (5%) and consulting companies (5%)).

Research results

The results of the applied ILASME could be observed through the achieved results of the EBNS, such as the amount of loans in use, the amount of the NPLs, the amount (level) of capital, the CAR, the achieved financial result, the ROA and ROE (Table 1). Erste Bank Austria acquired Novosadska banka in 2005, and the transformation process was completed at the beginning of 2007. Having in mind that Erste Group expands business through acquisitions, risk management policy was the first change which was introduced in the acquired subsidiary bank. Clear focus of the new shareholder was to increase market share and improve profitability, in accordance with Erste Group standards [8]. According to the official web presentation of the bank, their main customers are the SMEs and private individuals (more than 60% of credit portfolio is comprised of the SMEs).

The authors expected that the results would be in line with the market trends, including the consequences of government intervention in order to secure market stability and the implemented international standards such as the Basel Accords, International Financial Reporting Standards and valuation of assets/property. Accordingly, the period from 2004 to 2008 was characterized by expansive loan activity of the commercial banks (and consequently, an increase in the NPL). The last quarter of 2008 was the period when the first effects of the global financial crisis reached Serbia, and whose consequences were experienced by all the participants in the financial market, which resulted in an increased aversion to risk. In the period from 2009 to 2012, the growth of loan activity largely continued and in 2012, loan activities of banks recorded a slowdown.

Table 1: Basic indicators of the performance of the EBNS in the period from 2007 to 2015 (in RSD mil/%)

Year /Indicator	2007	2008	2009	2010	2011	2012	2013	2014	2015
Loan	20,836	30,049	30,220	43,808	45,953	55,648	58,212	59,943	75,182
NPL	2,991	4,728	4,425	5,034	6,417	8,045	10,287	9,516	8,801
NPL (%)	14.53	11.43	13.65	11.49	13.97	14.46	17.67	15.88	11.71
Capital	10,215	10,537	10,931	10,164	10,786	11,420	11,895	14,658	15,999
CAR (%)	40.39	26.58	26.06	17.63	24.37	21.34	20.95	20	18
Financial result	174	334	391	318	789	1,250	1,059	273	1,189
ROE (%)	1.7	3.17	3.58	3.13	7.76	12.3	10.42	1.87	7.7
ROA (%)	0.46	0.68	0.75	0.51	1.09	1.55	1.08	0.28	1.1

Source: [8]

It is obvious that the EBNS recorded business performance in accordance with the market situation, its own targets and regulations (local and group level). Loans exhibited an increasing trend during the entire analysis period (this tendency was different from the banking sector, which had recorded a drop since 2013). It could be explained by the aggressive approach to the customers in order to increase customer portfolio and by cross-selling between the bank and associated companies. Also, it is important to emphasize that the bank had taken care about the quality of the NPL, level of equity and profitability in order to provide long-term existence in the market. Having in mind the main topic of this research, loans are relevant indicator of the validity of the ILASME.

In absolute terms, the level of the NPLs mainly displayed an increasing trend (which was in accordance with the banking sector trends), but in relative terms it recorded fluctuations in the range from 11.43% to 17.67%, which was below the market average (but not moving in the same direction as the entire Serbian banking sector). Reasons for the NPLs were: 1) deterioration of creditworthiness of the borrower due to the general insolvency and particular problems in collection of receivables; 2) loans mainly approved in foreign currency (FX) and with interest rates that fluctuated, where both elements of loan agreement were variable, as a result of the bank protecting itself from the market trends or of state actions on a global and local level; 3) in the motivation of managers to obtain their own bonuses on the basis of high volumes of approved loans, where the expected bank's ROE was not considered in relation to the assumed risk. Accordingly, the EBNS implemented the early warning system – EWS in order to recognize early any potential NPL, as combination of quantitative and qualitative factors, on the basis of existing customers in the credit portfolio, in the first half of 2010 (therefore, this could be a reason why the level of the NPLs, expressed in percentage, was the lowest in the analysis period). Thus, the difference (the EBNS and total banking sector data) is the result of the established credit risk management policy within the EBNS. For the purpose of our further research, the NPL shall be taken as an important indicator of the validity of the ILASME.

The amount (level) of equity mainly displayed an increasing trend, except in 2010. The overall positive trend could be explained by: 1) regulation requirements (in terms of assumed risks, and covering losses); 2) shareholder strategy in order to increase market share. Drop of the level of equity in 2010 should be compared with the NPL and CAR, in order to get a clear vision about trends, and it can be considered as a result of write-off of some non-performing loans which were the result of the past business of Novosadska banka (at the moment of acquisition, those non-performing loans were presented as a "healthy" portfolio, i.e. they represented 60% of the total loan portfolio), and of the success of the implemented EWS (the results of new implemented projects are usually visible at the beginning, i.e. in the early stage of implementation). The CAR recorded was significantly above the legal minimum of 12% and in line with the banking sector average. It means that the EBNS is overcapitalized and that there is a lack of good projects for financing. Having in mind the described relevance of equity, it shall be taken as relevant indicator of the validity of the ILASME.

The EBNS achieved profit (in absolute and relative terms) in the analysis period, but the volume fluctuated (not in the same direction as the total banking sector). It was the result of permanent sales efficiency improvement

and cost optimization (such as the level of provisions, salaries – amount and number of employees, rental of office space – number of premises and pricing, selling the property which was not in the function of the business, etc.). Further analysis of profitability ratios indicates that the ROE displayed higher values then the ROA, but it does not mean that the shareholders did not support the local bank through different lines of credit save for capital increase. In comparison with the banking sector, since 2011 the EBNS has obtained higher values of the ROE, i.e. higher values of the ROA since 2010, which means that the bank recorded higher profitability than the average in the banking sector. It could be explained by the implemented proper risk management procedures, i.e. theoretically speaking, proper risk management in a bank should provide profit on the basis of healthy business. Moreover, relative success of those numbers comparing to the NBS repo rate (as risk-free investment for banks) was different from year to year, which means that assets of the bank were diversified in different financial instruments except loans, i.e. the treasury of the bank probably invested in financial derivatives permitted by the law, cash funds, etc. However, the EVA ("Erste Value Added") is relevant for management at the EBNS (and Erste Group). It represents the acquired profitability and increased market share on the basis of equity increased (benchmark is the reference interest rate of the National Bank of Serbia), but this is not an officially announced piece of information. Bearing in mind the described trend of the financial results, which also consist of interest income and expense, it shall be subject to further analysis of the validity of the ILASME.

To continue, the growth of the NPL shall be determined as a relevant indicator for the quality of portfolio and validity of the ILASME, i.e. the authors shall examine how it affected loans (increasing trend during the analysis period), financial result (the highest fluctuations observed in the period under analysis), and equity (mainly increasing trend in the analysis period). For this purpose, we shall use the Pearson correlation coefficient, where the NPL is marked with an *x*, while *y* represents the level of loans, financial result and equity at the EBNS (results are presented in Table 2). The analysis periods are: a) 2007-2015, the entire analysis period (basic), where the 2007 basis was the precondition for clear business after cleaning up the balances of the bank; b) 2007-2012, as the period of general loan expansion; c) 2009-2014, the period for which the result of the Serbian banking sector are available [4]. Furthermore, the obtained results were compared with the Serbian banking sector presented in the research conducted by Barjaktarović et al. [4].

The resulting value of the Pearson correlation coefficient which was above 0.8 for all analysis periods, i.e. in the range from 0.899 to 0.949, indicates a very strong connection between the NPL and the approved loans. It is logical, because the NPL exists in a situation when the loan customer is not in a position to repay the loan, i.e. to repay its debt. However, the existing credit risk management procedure determines which loan applications will be accepted or rejected. Furthermore, the established relation is sensible, because a loan should not be approved if it is not in accordance with the accepted and implemented risk management procedures, i.e. rules.

The resulting values of the Pearson correlation coefficient which refer to the connection between the NPL and the achieved financial result are different throughout all the analysis periods within the basic one, i.e. ranging from medium to a very strong connection. Accordingly, the resulting value of the Pearson correlation coefficient which equals 0.66 indicates a strong connection between the NPL and the obtained financial result in the entire

Table 2: Pearson correlation coefficient for the NPL and loans, NPL and financial result and NPL and equity at the EBNS in the different periods

	Correlations		
Periods	**NPL (x) and loans (y)**	**NPL (x) and financial result (y)**	**NPL (x) and equity (y)**
2007-2015	0.899883651	0.660197348	0.70503236
2007-2012	0.949959494	0.958660742	0.77759149
2009-2014	0.927339917	0.445550843	0.706597103
	NBS	-0.881	-0.968

Source: Authors' calculations, SPSS software

analysis period. Such result is expected, because it covered the period prior to and during the crisis, where the focus was placed on crucial banking products and sales strategy was different. During the respective period, loans were the main banking product which was especially useful for acquiring affiliate businesses. Furthermore, in the period from 2007 to 2012, the resulting values of the Pearson correlation coefficient of 0.958 indicate a very strong connection between the NPL and the achieved financial result (according to the current regulation, the amount of the NPL, observed through the level of provisions for the NPL, directly affects the financial results achieved in the context of such higher level of provisions and implies a lower financial result, and vice versa). Finally, in the period from 2009 to 2014, the resulting value of the Pearson correlation coefficient of 0.445 indicates a weak connection between the NPL and the achieved profit. It could be explained through the measures taken for sales efficiency improvement and cost optimization, where the EBNS applied different strategies to generate additional profit. The loan aversion was present and clear industry crediting strategy was adopted and implemented, according to the risk management profile, i.e. attitude. However, the respective values of the coefficient are not in accordance with the Serbian banking sector (which indicates a strong connection [4]).

If the results are considered in accordance with applicable regulations in the field of risk management and international accounting standards, as well as with contemporary trends in the financial sector regarding the financing products and level of interest rates (reference level is low during the crisis), we can say that the established connection is sensible. This further means that there is reasonable doubt that the ILASME is not set appropriately, in the sense that the creditworthiness of the borrower, the amount and purpose of the loan placement, and the price of risk assumed are not adequately established.

The resulting values of the Pearson correlation coefficient for the relationship between the NPL and equity during the analysis period are in the range of a strong connection. Accordingly, the resulting value of the Pearson correlation coefficient of 0.705 indicates a strong connection between the NPL and equity in the entire analysis period: it covered the period before and during the crisis, where the focus on crucial banking products and sales strategy was different, but loans were the main banking product useful for acquiring affiliate businesses. Furthermore, in the period from 2007 to 2012, the resulting value of the Pearson correlation coefficient of 0.777 suggests a strong connection between the NPL and capital. However, in the period from 2009 to 2014, the resulting value of the Pearson correlation coefficient of 0.706 indicates a strong connection between the NPL and capital. It could be explained through the measures taken to clean up the balance ("inherited" assets), increase the market share and meet the regulatory requirements. However, those values of the coefficient are not in accordance with the Serbian banking sector (which indicates a strong connection).

The obtained result is meaningful, because the height of the assumed credit risk, in the form of extended loans (and consequently, during the validity period of the loan relationship it is possible that the borrower will have difficulties with loan repayment), is determined by the amount of capital that a bank possesses. If the results which we obtained are interpreted in accordance with applicable regulations in the field of risk management and international accounting standards, we can say that the established connection is sensible, i.e. the amount of the NPL, observed through the level of provisions for non-performing loans, directly affects the amount of capital in the sense of such higher level provisions for NPL includes capital spending and vice versa. This further means that there is reasonable doubt that the ILASME is not appropriately set in the sense that these do not perceive the assumed credit risks in accordance with the amount of capital that the bank possesses, i.e. the creditworthiness of the borrower and the amount and purpose of the placement have not been adequately established, especially in terms of a group of connected companies, of the existing exposure at the time of placement of funds to a group of related parties.

Furthermore, there is also a potential agency problem, in the sense that a manager's bonus is tied to the amount of disbursed loan, but not to the collection of receivables (the Erste Group has defined a motivation system which promotes higher bonuses and lower salaries [9]). This means that by placing a large amount to a client, a manager

can easily achieve the set target and increase the level of credit risk. Since long-term loans are usually extended to legal entities, denominated in a foreign currency and with variable interest rates, these increase the exposure of the bank to this type of risk, endanger the creditworthiness of the borrower, but also increase the level of provisions of commercial banks. In practice, problems with repayment of investment loans start during the third year of repayment, while in the case of housing loans these start during the seventh year of repayment [9].

Doubts regarding the validity of the ILASME in the sense of determining the creditworthiness of the legal entity are already supported by the information contained in the research (conducted in the period from 2009 to 2016) regarding the authenticity of the elements of quantitative analysis of the borrower [1], [28], [5], [14], [13], [23], [24], [28], [35], in terms of: (1) presentation of items in the financial reports (assets, calculation of depreciation, devaluation of receivables, revenues, operating cash flow, the achieved financial result and applied financial analysis), i.e. practice of purchasing an external auditor's opinion; (2) the motives for the previously described actions (such as handling, tax, bonus payments, ignorance).

An SMEs survey revealed that SMEs were most inclined to:

- Use the PP as the capital budgeting technique. Furthermore, 58% of the SMEs most frequently used the PI and 42% of the SMEs used the NPV as the investment criterion in project evaluation (the average values were taken into consideration). The CFOs stressed that less frequent implementation of discounted cash flow techniques was mostly influenced by the inability to determine the discount rate, due to the inefficient capital market in Serbia and the lack of knowledge to apply more sophisticated project evaluation techniques.
- Determine the cost of capital following historical returns on investment. It is noticeable that the most frequent criterion implemented by the companies is the historical return on investments, with an average value for all three types of companies amounting to 32%. The SMEs were the most inclined to apply this method (60% of the respondents stated that they always and often used this method) when evaluating the cost of capital for their investments. The cost of capital determined by regulatory decisions was the second most used method for determining the cost of capital (average for all the companies from the sample amounting to 15%). The results showed that implementation of the CAPM by the sampled companies was rather scarce (with average value of 8%). The reasons mentioned to justify it were: the inefficient capital market and the general lack of knowledge regarding contemporary financial concept. It appears to be an issue once again, as well as the lack of implementation of financial system regulations in Serbia (well-defined theoretically, but not implemented in practice).

Finally, if a company does not perceive the risk regarding the investment in its full size, it may lead to unrealistic projection regarding the project's cash flow that may mislead the investor to accept an unprofitable project. This should be particularly observed in small and medium-sized enterprises. Even though most of the companies stated that they had put in place well-defined investment policies and business plans and regularly conducted cash flow projections regarding new investments (average rate of responses was 89%, 82% and 94%), its actual implementation in everyday business operations was pointless without determining the accurate numbers regarding the cost of capital. Furthermore, research conducted on global level showed that there is a need for greater financial literacy of entrepreneurs, i.e. the financial performance of their business [2]. It is in line with Vesković's results [35] that the tendency among entrepreneurs to make decisions that might be risky are very common, depending on many variables, such as risk perception, attitudes towards risk-taking and willingness to take risks.

Conclusion

Research which was conducted in the period from 2007 to 2016 in the banking sector in the Republic of Serbia, on the basis of the financial analysis of the bank which stated that its main customers are the SMEs, and a survey conducted in 2015/2016 through interviews with 30 CFOs

of SMEs, have shown that there is objective doubt about the validity of the ILASME applied by the commercial banks in the Republic of Serbia.

The limitations that presented themselves during the analysis do not diminish the significance of the results. By using the Pearson correlation coefficient, it was established that the NPL, as a result of the set ILASME, had a very strong connection with loans, i.e. a very strong connection with the financial result and capital. It served as a basis to further establish a causal link between the observed indicators, while adhering to the applicable legislation in the field of risk management and international standards of accounting reporting, based on the nature of business which the bank conducts (loan placement). This further means that there is a concern that the ILASME is not set appropriately, in the sense that there is doubt in the adequate establishment of the creditworthiness of the borrower, the amount and purpose of the loan and the price of assumed risk. Moreover, the analyses revealed that, while considering an investment opportunity, lenders and investors need: 1) to understand their own needs and to be able to translate these into financial terms; 2) to understand the product and to be able to translate it into simple non-financial terms; 3) to evaluate opportunities and risks of the existing portfolio; 4) to evaluate the risks and benefits of the strategic lending market; 5) to understand the risk and its main components; 6) to be efficient; and 7) to establish a mutual long-term partnership. First and foremost, there is a need for further education and training on the topic of financial literacy and business ethics of the employees of the bank, but also in the company of the borrower. In fact, every stakeholder should observe the process as a lifelong learning one. Furthermore, proactive approach regarding improvement of credit risk management procedures is a precondition. The conducted survey showed that the SMEs use traditional capital budgeting techniques, primarily due to the inefficient capital market in Serbia and lack of knowledge to apply more sophisticated project evaluation techniques.

In addition to this, there is room for improvement of the ILASME applied in the commercial banks in Serbia. Secondly, building partnerships between a bank and an SME client (borrower) should be improved, i.e. only a healthy business cooperation between the customer and the bank leads to making profit from their mutual business. Finally, an appropriate motivation system for the employees (at the bank and at the business entity) should be put in place, which shall rely on evaluation and rewarding (as bonus would not be the only form of award). Future research shall include reviewing the applied model and the results achieved by ProCredit bank Serbia in order to obtain reliability of the implemented ILASME and the business model of the bank in the long-run.

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