SMALL BUSINESSES CREDITWORTHINESS ASSESSMENT

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Summary:
The article is devoted to the problem of a choice of businesses’ creditworthiness estimation method, criteria of creditworthiness, defining the ways of its estimation based on a system of financial ratios (financial stability, cash flow analysis, business risk etc.) The main attention is paid to small businesses (SB) creditworthiness assessment and a choice of financial ratios, considering credit policy of a bank and operating conditions of SB. For an assessment of SB creditworthiness the authors single out five groups of ratios including liquidity rates, efficiency, financial leverage, profitability and debt servicing. Research of commercial banks experience allowed choosing business risk as an assessment of a client’s credit worthiness. The authors focus attention on business risk factors; offer their grouping on stages of funds circulation and SB creditworthiness analysis procedure as follows: carrying out the general analysis of a business and its rating assessment - definition of a credit worthiness class.

Keywords:
credit worthiness, solvency, financial stability, credit worthiness criteria, business risk factors, scoring credit worthiness assessment, rating assessment

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1. Introduction

The development of small businesses in Russia is one of the important ways of solving economic and social problems. As a special sector of market economy SB is at a formation stage and its potential is not completely used. SB makes a significant contribution to formation of the competitive environment, quickly adapting to external conditions and possessing additional ability to modify end products, following the demand.

SB crediting is traditionally referred to the category of the increased risk. The arrears share in this segment in Russia in 2011 showed in significant decrease. The rate of delayed credits decreased from 9,48% to 8,96% and arrears throughout Russia’s regions are differentiated. St. Petersburg is most comfortable for banks, concerning problem assets, as of 01.07.12 the arrears level here is only about 5 % that is significantly better than average values on the market. (Brovkina, 2011)

The Northwest and Southern federal districts of the Russian Federation still remain the least attractive to SB crediting. For example, in Adygea, every third credit given in this sector of economy is delayed. This statistics proves the need for search of new effective tools of a preliminary estimation of SB credit worthiness.

2. Analysis

The main problems arising when crediting an SB are non-transparency of this segment and lack of reliable pledges. Experts believe that the estimation of real condition of the borrower on the minimum set of documents is extremely difficult. The full accounting reporting doesn't fully contain all necessary data and doesn't reflect the current business processes. That is why the Russian banks, basing on world experience and their own data, work out various techniques of an assessment of SB creditworthiness, constantly balancing between quality and unprofitability of risk management methods.

Interest of banks to SB crediting is constantly growing. When crediting SB the great importance is given to the correct creditworthiness assessment.

A bank client's credit worthiness criteria define the contents of means of its assessment. These means include: business risk assessment; management assessment; a client's financial stability assessment on the basis of a system of financial ratios; cash flow analysis; collection of information about a client; supervision over work of a client on the spot.

The SB creditworthiness assessment is based on balance data, profit and loss report, loan application, information on the client and its management's history. As a means of an SB creditworthiness assessment the system of financial ratios, the analysis of cash flow, business risk and management are used. The choice of financial ratios is defined by a bank's specific credit policy. It is possible to single out five groups of coefficients (ratios):

- Liquidity ratio: (ratios of current liquidity; ratios of fast (operative) liquidity)
- Effectiveness or turnover ratios: (turnover of stocks; receivables turnover; turnover of fixed capital (fixed assets); turnover of assets);
- Financial leverage ratios: (ratio of all debts (short-term and long-term) and assets; ratio of all debts and own capital; ratio of all debts and share capital; ratio of all debts and the material share capital (share capital – intangible assets); ratio of long-term debt and financial (main) assets; ratio of own capital and assets; ratio of working own capital and current assets);
- Profitability ratios: (ratios of the return rate; ratios of profitability; ratios of profit rate per share);
- Ratios of debt service (market ratios): (interest coverage ratio; cover of fixed payments ratio).

Cash flow analysis - the second method of a commercial bank client's creditworthiness assessment based on the use of actual indicators characterizing account turnover of the client in the accounting period. In this way it essentially differs from the method of client's creditworthiness assessment based on the system of financial ratios.

Cash flow analysis is a comparison of outflow and inflow of the borrower's money over a period.
corresponding to loan term. Considering the expediency and the amount of the loan, look-ahead information on cash flow for the planned period is taken into account. The forecast of the size of separate elements of inflow and outflow of funds is based on their average values during last periods and planned rates of sales proceeds growth.

When using an SB balance sheet for creating a borrower’s cash flow, it is possible to single out both positive and negative moments. The positive issues are the speed and simplicity of this method of calculation. Negative issue is the low accuracy of calculations connected with its being based not on gross but on pure cash flows (the difference in arithmetic results) that is less informative. Besides, in spite of the fact that the total size of cash flow coincides with the size of money change, values of cash flows in different types of activity can be distorted, owing to retained income (loss) in the balance sheet, for example, it is the sum of profits (losses) from operational, investment and financial types of activity. Possible distortion also occurs because of outflows and inflows of money on absolute values comparable to balance currency.

When using profit and loss report as a basis for calculation of cash flow there are many problems. First, the profit and loss report of an SB is constructed on the basis of an accrual concept: both incomes and expenses here are reflected not at the moment of payment, but at the moment of charge. For example, prime cost of the sold goods represents added cost of expenses which practically doesn’t coincide with the sum of the paid money relating to this expense item. Secondly, the profit and loss report reflects not only monetary funds, but also non-monetary incomes and expenses. Classical example is the amortization which size is added to realization profit upon transition from one report to another. Thus, at the first stage there is a transition from the added sums to really received (paid) sums of money. At the second stage there is a regrouping of expense items. In spite of the fact that the given total size of sales income reflects the value of cash flow from the operating activities, the remained incomes and expenses are rather difficult to classify between investment and financial activities. Therefore a profit and loss report can be used by a credit organization as a basis of cash flow calculation, but in this case one of principles of drawing up a cash flow report, i.e. division of cash flows into operational, investment and current will be broken.

The direct method of cash flow calculation allows neutralizing minuses of the indirect method.

The main advantage of the direct method is that it shows gross receipts and payments of money. The knowledge of sources of receipts and the directions of use of money can appear useful in the estimation of cash flow in the future. In other words it is possible to define future size of cash flow only on the basis of the direct method. It is obvious that the relative sizes of main types of receipts and expenses in their interrelation with other points of financial reports are more informative than their arithmetic results.

The sums of gross receipts and payments are especially important while estimating a borrower's creditworthiness as they show turnover of inflows and outflows of monetary funds. Absolute values of cash flows of two SB can coincide while inflows and outflows amounts can differ by several digits.

From a forecast of cash flow it is important to take information on buyers which form the main share of receipts into a company accounts, stability of these receipts, the schedule of payments and discipline of their execution by the customers, expenses of SB and their continuity or discontinuity.

Thus, the analysis of a borrower’s cash flow represents an effective tool of its creditworthiness assessment, and planning of a cash flow allows predicting behavior of a borrower in the future and estimating the sources of credit repayment. Commercial banks also use in the practice the analysis of business risk as the third way of a client’s creditworthiness assessment. The business risk – the risk caused by the fact that circulation of a borrower’s funds may not end up in time and with expected effect. The business risk leading to discontinuity and delay in circulation of funds of a borrower, is a way of estimating the risk of a borrower or level of a client’s creditworthiness. At the same time factors of business risk depend on the stage of funds circulation a crediting object belongs to. In this aspect the business risk can be considered as a
The assessment of an individual creditworthiness is based on a ratio of the loan and his personal income, the general assessment of financial position of a borrower and cost of his property, family structure, personal characteristics, studying of his credit history. There are three main methods of an individual creditworthiness assessment: scoring assessment; studying of credit history; an assessment of financial rates of solvency. (Lapusta & Mazurina, 2011)

Scoring assessment determines the system of criteria and related indicators of a borrower's ability to repay to bank a principal debt and interest; indicators are estimated in points within the maximum established by a bank, and the general mark assessment of creditworthiness is therefore deduced. Different models of scoring assessment of an individual creditworthiness are known.

In the model constructed on the point assessment of a system of separate indicators, the importance of indicators of creditworthiness of an individual is defined by differentiation of level of maximal mark assessment. The model groups information on indicators of creditworthiness of an individual. For example, «Paris Credit» singles out three sections in a scoring assessment of consumer credit expediency: (information on the credit; data on the client; financial position of the client).

It is possible to define a class of an individual creditworthiness on the basis of the model containing a scale of points which is constructed depending on an indicator of creditworthiness. Depending on a class the bank defines a scale of deadlines and the credit sum (% of yearly revenue of the client). At the first stage a preliminary estimation of a loan possibility, based on the data of a client's questionnaire is given. By the results of filling of the test questionnaire the number of points gained by the borrower is defined and the protocol of an assessment of a loan obtaining possibility is signed. If the score is less than 30, the refusal in giving a loan is fixed in the protocol. If the score is more than 30, at the second stage the risk is estimated more carefully taking into account the additional facts.
For an assessment of an individual creditworthiness, the analysis on the basis of studying of his credit history is carried out. To receive information on credit history of an individual in Russia a specialized bureau was created on the initiative of commercial banks.

The assessment of an individual creditworthiness also assumes the analysis on the basis of financial performance of his solvency. The indicators of solvency are based on the data on the income of an individual and degree of this income loss risk. When giving a single loan commercial banks calculate solvency of an individual borrower on the basis of his monthly average income in previous six months which is determined by a salary certificate or tax declaration. The income is decreased by obligatory payments and corrected according to a ratio which is differentiated depending on the income size (from 0,3 to 0,6). The more his income is the more is the adjustment.

Thus, as it was already noted earlier, creditworthiness of a borrower depends on many factors. This already makes difficulties, for each factor, and for bank these are risk factors, should be estimated and calculated.

The analysis of cash flow essentially supplements the conclusion about a client’s creditworthiness. It is necessary to give special attention to average ratio of cash flow change during three last reporting periods:

\[ R = \frac{C_1 + C_2 + C_3}{Q} \]

where:
- \( R \) - average ratio of cash flow change;
- \( C_1, C_2, \ldots, C_n \) - cash flow during different reporting periods;
- \( Q \) - quantity of the reporting periods.

As well as to an indicator of a predicted flow (Zabolockaja & Aristarhov, 2009):

\[ PFI = C_3 \cdot R \]

where:
- \( PFI \) – predicted flow indicator
- \( C_3 \) – change (inflow, outflow) of monetary funds.

The size of a given short-term credit shouldn’t exceed the size of a predicted cash flow.

Irrespective of the way of an SB accounting procedure (usual or simplified) the total rating assessment of creditworthiness is the most important and decisive indicator. Value of a credit rating is formed on the basis of the analysis of a set of quantitative and qualitative indicators. The appropriated credit rating is used by banks for various purposes, including:

- determination of placed resources cost (a low class of creditworthiness increases an extra charge for risk, making the attraction of funds less attractive);
- formation of reserves in case of possible loans losses;
- definition of credit limits;
- analysis of a credit portfolio respecting classes of credit rating, with the purpose of estimating credit risk;
- bonuses to the employees placing loan able funds.

In theoretical approach it is necessary to differentiate concepts of a borrower's rating and a loan rating. Both these concepts are closely connected with the credit, however if a borrower's rating is entirely based on his creditworthiness, the loan rating considers additional features of a specific business deal, such as sufficiency and liquidity of pledge, credit term, existence of guarantees and surety ships etc. The credit rating of the borrower is a more general basic indicator in comparison with a loan rating. A world-wide circulation received a concept of obligations rating, similar to concept of a loan rating in Russia. So, leading rating agencies of Russia regularly publish not only credit ratings of SB organizations, but also their obligations ratings taking into account individual conditions of these obligations.

Ratings in Russia differ from ones developed by foreign rating agencies by the fact that in Russia there are not so many classes of rating, and also increasing importance is lent to the factors of a borrower’s business stability.

The «+» symbol means that the main characteristics of a bank’s conditions are slightly higher than the average level of characteristics of this rating measurement. The «-» symbol means that the main characteristics of a bank’s
conditions are a little lower than the average characteristics of this rating measurement.

The assessment of a borrower’s creditworthiness represents a process of selection and analysis of the indicators influencing the size of credit risk, their analysis and ordering in the form of a credit rating assignment. The credit rating of the borrower should not only reflect the current financial state of the borrower, but also give a forecast for the future.

The increase of the credit term, as a rule, raises the level of credit risk, suggesting increased requirements to more careful assessment of a borrower's creditworthiness. It is possible to single out some stages of such assessment:

1. the analysis of macroeconomic situation in a country (Macroeconomic analysis);
2. industry analysis (Industry analysis);
3. a borrower's market position (Market position);
4. analysis of the financial position (Quantitative analysis);
5. management assessment (Qualitative analysis);
6. credit rating assignment (Rating).

The main indicator of a borrower's creditworthiness is his credit rating. When assigning a credit rating banks range borrowers on various classes. According to The Basel committee, banks on the average use 10 various classes of creditworthiness assessment. In many respects this is because there is a tendency among banks to coordinate the internal system of rating with the systems used by the leading rating agencies. The increase of rating classes is characteristic of the banks counting profitability and level of credit risk in dependence on a credit rating.

There are also rating classes which characterize a default (pre-default) condition of the borrower. The number of rating classes has increased...
recently, and large banks use more classes in comparison with smaller banks. This is explained by the fact that, on the one hand, the large credit organizations work with big, difficult loan portfolios, and are therefore subject to higher credit risk, and, on the other hand, expanded possibilities of use of material and human resources while introducing an assessment system. Nevertheless, the excessive increase in the number of classes may lead to complication of a bank’s work.

Three main ways of modeling of a borrower’s creditworthiness level may be distinguished:
- models based on statistical methods of assessment;
- models of a limited expert assessment;
- models of direct expert assessment.

Such distinctions are caused by priority of use quantitative (calculation of financial ratios) and qualitative (opinion of bank experts) ways of analysis. But in practice differences are corrected in various ways. So, for example, information used in statistical assessment methods, is initially processed by the bank workers that gives some subjectivity features. There are also differences in estimations whether some factors are qualitative or quantitative. For example, in some cases such qualitative factors as credit history, quality of management of a borrower, industry practices or geographic location, received a quantitative assessment in points and were further used in quantitative calculations.

Statistical models of creditworthiness assessment represent process of assignment of a credit rating only on the basis of a quantitative, statistical analysis and consequently only some banks fully rely on statistical models. Similar models are based on calculation of a credit rating by a certain formula including both quantitative factors – financial ratios, and some qualitative factors, standardized and brought to quantitative value aspects of a borrower’s activity, for example, industry practices, credit history.

The process of functioning of a statistical model passes three stages.

At the first stage variables (financial ratios), influencing the value of a credit rating are defined. At the second stage, on the basis of statistical data of last periods, influence of each factor on creditworthiness level is defined. This consequently affects the ratio value. At the third stage the current variables are measured according to their extent of influence and a certain value of a rating, expressed in points, is defined. Various points correspond to various classes of a borrower’s creditworthiness. Economic calculations in this case are carried out by application of software thus reducing human factor to minimal value. Such systems of an assessment are generally used for the analysis of creditworthiness of small and medium-sized businesses.

Models of a limited expert assessment are based on application of statistical methods with the subsequent adjustment on the basis of certain qualitative parameters. For example, the numerical score of a rating can be corrected by some points depending on a credit expert opinion. Also a bank can establish the maximum number of points for an assessment of qualitative parameters, thus limiting the influence of subjective factors on the final rating value.

Models of direct expert assessment are used by banks when determining creditworthiness of average borrowers. Such assessment makes it almost impossible to define the influence of this or that factor on the size of a credit rating. Economists count financial ratios, but values are interpreted individually for each borrower. Nevertheless, in certain cases at the initial stage of an assessment, exactly statistical models are used, setting the direction and limits of further analysis.

Influence of a human factor is of great importance for determination of reliability and credibility of a credit rating. Studying of possible motives and interest in distortion of an assessment results allows taking into account deviations from reality.

Besides the analysis of the current position of a borrower and the retrospective analysis, the great role in the further analysis of a credit rating is played by the time horizon during which the rating is valid. Originally the rating is appropriated at an initial stage of relationship between a bank and an SB borrower, i.e. before granting a credit. The Basel committee notes that many banks establish
a rating with the subsequent annual revision. There are two types of time horizons of a rating assessment: «a rating through a business cycle» and «a rating over a certain period of time». The main distinction between these concepts is that the credit rating over a certain period of time is subject to considerable fluctuations depending on a phase of a business cycle, while the rating through a business cycle considers the worst value of a credit rating corresponding to a depression phase. Such rating doesn't test serious fluctuations throughout time.

The analysis of the largest banks activity shows that credit ratings are appropriated not to all borrowers of a credit organization. Quite considerable part of medium-sized and small enterprises in Russia doesn't possess a rating.

The majority of banks in Russia do not limit themselves to definition of a credit rating of a borrower and probability of his default. Thereafter the level of a possible loss in case of a default of a specific type of asset is determined and the securities provided by the borrower together with other possibilities of credit risk reduction are studied. In this case the rating reflects not only the level of credit risk, but also the risk value in separate active banking operations.

The Basel committee recommends using one of two approaches to credit risks calculation: the standardized approach (standardized) and an approach on the basis of internal rating system use (internal rating based system - IRB).

The standardized approach to the credit risk assessment is simpler in comparison with the use of internal rating system. It assumes the use of the differentiated system of risk scale, without demanding bulky calculations. The credit risk scale determination is based on the credit rating appropriated to this borrower/obligation by a third-party organization, specializing in assignment of credit ratings. Bodies of bank supervision form a list of credit agencies, whose ratings can be used in calculations. (Tihomirova, 2010)

The Basel committee suggests to weigh considered type of assets according to risk degrees (table2).

### Table 2 The assets weighed by degrees of risk

<table>
<thead>
<tr>
<th>Credit rating appropriated by an agency</th>
<th>AAA – AA</th>
<th>A+ – A-</th>
<th>BBB+ – BB-</th>
<th>Below BB-</th>
<th>No rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk, %</td>
<td>20</td>
<td>50</td>
<td>100</td>
<td>150</td>
<td>100</td>
</tr>
</tbody>
</table>

Compliance of this or that rating to risk rate is defined by a bank supervision bodies, taking into account objective factors, including historically developed levels (probabilities) of a default.

The approach on the basis of internal rating system (IRB) is based on a system of credit ratings creation, used by a bank independently. Such approach is more sensitive to credit risk and stimulates further improvement of intra-bank systems of rating assessment. The analysis of such systems given by the Basel committee, testifies that banks successfully count indicators of creditworthiness and credit risks on the basis of internal assessment systems:

- systems based on the analysis of specific instruments of active operations;
- systems combining the analysis of a borrower’s creditworthiness and the analysis of instruments of active operations.

Various bank operations are subject to various degrees of risk. Moreover, there exist not only absolute values of risk, but also the reasons, the factors being in a basis and inherent in each group of active operations. When crediting an organization there occur the following risk components:

- Probability of default (PD) is the main indicator characterizing the level of creditworthiness of a borrower. It reflects possible probability of a default according to
all obligations of a business as the calculation of PD is based on the financial condition of a borrower.

- Loss Given Default (LGD). It concerns the features of active operations. Level of a possible loss is determined by extent of provided obligations on a business deal, existence of received guarantees, use of credit derivatives etc.;
- Exposure at default (EAD). This sum characterizes absolute value of requirements of a bank to the borrower on a specific active operation;
- Maturity (M). It is obvious that the period of credit agreement validity influences the value of a credit risk. The long-term credits are traditionally considered as more risky in comparison with the short-term ones.

At the following stage there is a calculation of scales of separate active operations and weighing of assets according to risk degree. The final stage – comparison of own funds of a bank and the assets weighed according to the risk degree.

3. Conclusion

So, summing up all said above, it is possible to draw a conclusion that financial factors and methodology of their calculation have basic value in an SB borrower creditworthiness estimation. The reason is that financial factors, besides that they can serve as an independent method of a borrower's creditworthiness assessment, are a key factor for transition to a credit rating of a borrower. Despite existing distinctions in modern bank practice, it is possible to single out four groups of such factors: factors of liquidity, turnover, leverage and profitability. The credit rating is calculated on the basis of a set of quantitative and qualitative indicators. Difficulty of their interpretation concerning SB makes a creditworthiness assessment a subjective and insufficiently reliable instrument of credit risk management. The analysis of cash flow of the borrower represents more effective tool for an SB creditworthiness assessment. Planning of cash flow allows to predict behavior of a borrower in the future and to estimate sources for credit repayment.

Works Cited


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