2.   Agreement on Government Procurement [Electronic resource] / World Trade Organization. – 2016. – Mode of access: https://www.wto.org/english/tratop_e/gproc_e/gp_gpa_e.htm. – Date of access: 07.01.2016.
3.   WTO and government procurement [Electronic resource] / World Trade Organization. – 2016. – Mode of access: https://www.wto.org/english/tratop_e/gproc_e/gproc_e.htm. – Date of access: 07.01.2016.

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DETERMINATION METHODS OF CREDIT RISK IN CREDITING
OF INVESTMENT PROJECTS BY BANKS

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When choosing an investment project a bank is not only to calculate the indicators of project efficiency, but also to determine the credit risk. This article presents the procedure of determining the credit risk and its application in practice by the example of the investment project implemented in "Belsolod" (a branch of "Polotsk beer").

The main purpose of long-term development of any enterprise is the gradual formation of modern production based on the usage of existing technology and equipment. In order to improve the quality of products in the branch "Polotsk beer" "Belsolod" needs additional manufacturing equipment, which allows to eliminate the "bottlenecks" of the process. The solution to the problems and the achievement of the intended objective are possible by making optimal construction and planning decisions, creating an optimal control system, including the system of remuneration to attract highly qualified specialists and workers, as well as the choice of an effective investment plan. To implement the investment project the branch of "Polotsk beer" "Belsolod" needs not only their own funds, but also borrowed ones. In this case, bank loans are resorted to. Commercial Bank, when choosing an investment project pays their attention primarily to the credit risk to which the entity is exposed. For this purpose there exist and are being developed various methods for determining credit risk. Currently, there is no specific and systemized method applied in all banks in Belarus, so we proposed the following.

The concept of "credit risk group" is interpreted as an indication of the credit classification of the product that determines the probability of the borrowers' discharge of obligations to the bank. Basing on the risk group the bank determines the magnitude of the reserves that banks must establish at the presented loan product.

Client's liabilities are accessed at the following groups of factors:
1. Collateral quality.
2. The client's turnover on the current account and the cash flow.
3. The financial condition of the client.
4. The share of client's own funds in the funded project.
5. Operating profitability of the client.
6. Delay in payment of interest and principal.

The final group of risk is defined as the worst score for each indicator. The approach to assessing of the risk is conditioned on the presence of the smallest possible values for each of the indicators; only by getting them classification into risk groups is possible. The bank's credit risk associated with the project lending is determined from the investment project. Below we consider each point of the group above and thus make a conclusion on the creditworthiness of the branch of "Polotsk beer" "Belsolod".

1. Collateral quality is estimated as the ratio of collateral to the amount of the debt.

In the presence of highly liquid collateral the part of the loan covered by this collateral, belongs to the risk group 1 (low risk), regardless of the values of other indicators.

The amount of collateral is calculated as the sum of hypothecation values of each pledged object, the assessment is made in consultation with an expert and a specialist of a pledge transaction division of the bank (or other supporting services). Taking the equipment purchased on credit in the collateral is also possible, as well as accounting of the pledge in calculating of the risk when granting of the credit.

In accordance with the requirements of the bank, the borrower is required personal guarantee for the loan. Personal guarantee is provided in the form of a guarantee. In calculating the index of «collateral quality», personal guarantee is taken into account in the amount of not more than 10% of the loan only if this guarantee is provided with of the personal assets of the founder of the guarantee.

The costs of preparation and implementation of projects in the branch of "Polotsk Beer" "Belsolod", according to the business plan are estimated at RUB 98 159 mln. At the same time, the necessary borrowed

funds are valued at RUB 68 211mln. The credit is taken for 7 years. Collateral is provided in the form of pledge of property for RUB 40 927 mln., i.e. 60% of the outstanding amount, then the risk is acceptable.

2. The client's turnover on the current account and the cash flow are calculated as the ratio of average monthly client's turnover on the accounts and the sum owed to the bank.

That is, the operating and the current (ruble and currency) accounts of the analyzed client (based on re-calculating in a single currency at the average monthly exchange rate) in the last 3 full calendar months preceding the date of the analysis, excluding bank loans credited to those accounts; funds returned from the bank's deposits, or got from the sale of the bank's securities (promissory notes, certificates of deposit, etc.); conversion from the operating and the current (ruble and currency) bank accounts and other banks with the crediting of funds to the same bank account (conversion of funds from the transit account with their subsequent crediting in operating accounts is calculated in the total turnover); money transfers between client's accounts in different banks, earnings from operations related to the optimization of balances on settlement (current) accounts of the client.

The values of the ratio of the average monthly turnover on the accounts and the current debt:
– 0,7 and over – low risk,group I;
– from 0.2 to 0.7 – an acceptable risk, the group II-III;
– below 0.2 – the highest risk, group IV-V.

Turnover on accounts in other banks is accepted only in the presence of a complete set of bank statements or official inquiries.

The branch "Polotsk beer" "Belsolod" has the ratio of the average monthly turnover on accounts to the amount of debt bank as 1207670/6000000 = 0.201 or 20.1%. This value refers to an acceptable risk.

3. The financial condition of the client. Risk group is assigned after expert examination based on data obtained as a result of financial analysis. Table 1 shows information on the assignment of risk group based on the received data.

Table 1 – The distribution of credits by risk groups

Indicator	I group Low	II-III group Acceptable	IV-V group High
Current liquidity ratio	More than 2	From 1 and 2	Less than 1
Quick ratio	More than 0,6	From 0.2 to 0.6	Less than 0.2
Equity-assets ratio	More than 50%	From 20% to 50%	Less than 20%
Debt coverage service ratio	More than 2	From 1 and 2	Less than 1

Source: own analysis based on [1].

According to the factors which have clear numerical values we distributed risk groups as showed in Table 2.

Table 2 – Determining of the level of risk of the project of the branch "Polotsk beer" "Belsolod" based on the financial condition of the company on 01.01.2016

Indicator	Value	Limits	Risk level
Current liquidity ratio	3,05	More than 2	Low
Quick ratio	0,8	More than 0.6	Low
Equity-assets ratio	83%	More than 50%	Low
Debt coverage service ratio	3,43	More than 2	Low

Source: own analysis based on [1].

The calculation of indicators in Table 2 is made by the following formulas:
Current liquidity ratio (*CLR*) is equal to the ratio of value of all operating (mobile) assets of the company to the value of short-term liabilities:

$$CLR = (RUB\ 29292\ mln.) / (RUB\ 9601\ mln.) = 3.05.$$

Quick ratio (*QR*) is equal to the ratio of the most liquid assets to the sum of the most urgent obligations and short-term liabilities:

$$QR = (RUB\ 7510\ mln.) / (RUB\ 9601\ mln.) = 0.8.$$

Equity-assets ratio (EAR) is equal to the share of sources of own funds in the final financial statement:

$$EAR = (RUB\ 36475\ mln.) / (RUB\ 439\ 780\ mln.) = 0.83.$$

Debt coverage service ratio (DCSR):

$$DCSR = (RUB\ 7902\ mln.) / (RUB\ 2305\ mln.) = 3.43.$$

In assessing the financial condition the credit risk is determined as low.

4. The share of own funds in a client's funded project is the ratio of the amount of funds allocated to the financing of the project by the client to the actual cost of the project. The financing of the project is referred to as the totality of the expenses incurred according to the business plan related to the project.

For example, when a trading company purchases additional commercial equipment total expenses directly related to the project are understood as actual payment of the cost of equipment and the costs of placing this equipment in operation, salary of service personnel, payment of the cost of the additional volume of goods sold on this equipment, etc.

The indicator values of :
– over 35% – a low risk, group I;
– from 10% to 35% – an acceptable risk, group II, III;
– below 10% – the highest risk, group IV, V.

Own funds of the client-funded projects are: 98 159-68 211 = RUB 29 948 mln.

The share of own funds in the financed projects is as follows: 29 948/98 159 = 30.51%.

Calculated indicator refers to acceptable risk, since it belongs to the interval from 10% to 35%.

5. Operating profitability of the client is the ratio of net profit to the client's revenue. The aggregate data on profits and revenue for all activities of the enterprise are used when calculating.

The profitability of the client for all types of activity is: 15965000000 / 72245000000 · 100% = 22%.

Profitability of more than 10%, then it relates to low risk.

6. Delay in payment of interest and principal. The monitoring revealed the absence of loan delinquency on previously issued loans, hence, the credit belongs to low risk. The final group of risk is defined as the worst value for each of the indicators, which are shown in the table 3.

Table 3 – The final group of risk for an investment project of the branch "Polotsk beer" "Belsolod" on 01.01.2016

Indicator	Value	Limits	Risk level
1. Collateral quality.	60%	From 50% to 100%	Acceptable risk
2. The client's turnover on the current account and the cash flow.	20,1%	20–70%	Acceptable risk
3. The financial condition of the client.	-	-	Low risk
4. The share of client's own funds in the funded project.	34,4%	10–35%	Acceptable risk
5. Operating profitability of the client.	22%	More than 10%	Low risk
6. Delay in payment of interest and principal.	0 days	Less than 5 days	Low risk

Source: own analysis based on [1].

Therefore, the final group of risk on the investment project implemented in the branch "Polotsk beer" "Belsolod» is group II with an acceptable risk level. Thus, for the loan with such an indicator of risk the bank fixes the size of the estimated reserve for potential loan losses in the amount of 1% of the principal amount, i.e. 68 211 · 1/100 = RUB 682.1 mln. In assessing the credit risk on the investment project, the bank may decide to grant a loan.

Thus, this method of assessing the credit risk of an investment project allows the bank to assess the risk of the project basing on the analysis of the balance sheet, income statement and business plan quickly and efficiently. According to the results got in the applied method the bank decides to grant or refuse to grant a loan. In addition, size of the probable reserve for loan losses, which is a form of insurance for the bank's credit risk is also determined after the application of the method of assessing the credit risk of the investment project.

This technique differs from the traditional method of determining credit risk. So, if traditional methods of credit risk assessment are based on the analysis of the borrower's creditworthiness and ability to pay, the decisions on financing of investment projects in the proposed method are based on the analysis of specific evaluation categories: 1) assessment of future income from the project and 2) the possibility of the practical realization of the investment project. Thus, the use of this technique allows the bank to assess the risk of crediting of investment project appropriately and to improve the management of credit risk.

REFERENCES

1.   Инвестиционный анализ : учеб. пособие для вузов. – М. : ЮНИТИ-ДАНА, 2001. – 286 с.