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Financial Analysis Models Regarding Profitability when Applying for a Banking Loan

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Abstract: *Within the bank lending system credibility is the moral and the material support, the essential element without which a loan may not be granted. Earning the trust requires knowledge of the client, which is achieved through an analysis and documentation activity in order to get a real assessment on the patrimonial and financial situation, the recognition of the quality of the manufactured products and services, the relationships with partners, of the professionalism of the entity's leaders.*
In granting loans, the bank assumes some risk of the credit, decreased by a careful assessment of borrowers, establishing exposure limits and implementing a prudent provisioning policy when there is danger of loss.
Investigation of customer activity in order to know them is continued and supplemented with the analysis of the creditworthiness, which allows on the one hand reducing credit risk and on the other picture the setting on the client and of the degree of uncertainties borne by the bank.
Keywords: *profitability, risk, liquidity, solvency, scoring grid.*

Introduction

In practice businesses may face difficulties that may be temporary, casual and permanent regarding payment obligations to third parties, a fact that is reflecting their fragility and it is looming insolvency.

Analysis of firms in difficulty is crucial for business partners, for shareholders, investors and particularly for banks, concerned with the quality of credit portfolios they hold.

Analysis of the causes of enterprises bankruptcy reveals two categories of generating factors of this phenomenon: *general economic factors* and *internal factors* that are due to general management and the difficulties faced by the company.

Financial analysis could make a decisive contribution to early detection of various types of risks that foreshadows a state of pre – bankruptcy, both through the classical methodology of economic risk assessment and financial risk, and by using methods and specific risk assessment insolvency used internationally or specific Romanian economy.

The size of the financial risk is dependent on the size of the company's financial performance that is required to be determined if the enterprise requires a bank support. Getting a loan from a bank is far from being a formality. A typical application for credit is a series of documents in general banking companies ask:

- demand for credit;
- legal documents of the company;
- financial documents;
- business plan.

Based on information obtained by the bank from the borrower a SWOT analysis is performed (is a method to audit the organization and its environment, being considered the first phase of strategic planning). The method helps professionals to focus on relevant issues. It may be used with other methods of audit and analysis and it identifies the strengths and the weaknesses of the entity and the opportunities and threats with which the organization faces through which evaluates the ability company to repay the credit requested. Thus, the bank [1, 340-341] examines both financial indicators, and that non-financial performance of the company. Each bank makes a selection of these types of indicators to reflect as accurately as possible the creditworthiness of the loan applicant.

Quantitative factors will relate primarily to the following indicators, where these can be determined:

- liquidity;
- solvency;
- risk;
- profitability.

Qualitative factors will refer to issues such as:

- how to manage the economic entity analysis;
- quality of the shareholders;
- collateral received;
- market conditions in which the entity operates.

Analyzed indicators are given weights depending on the importance of measuring each company's creditworthiness. Creditworthiness is the financial performance of the company certifying that it inspires confidence for the bank when applying for a loan, to repay at maturity, loans and their bearing interests. Each enterprise level is given a mark.

Credit rating is the sum of the marks obtained by the enterprise for each criterion (indicator) analyzed, weighted with specific gravity assigned to the respective criteria:

$$CR = \sum_{i=1}^{14} gs_i \times N_{Cri}$$, where:

CR – credit rating;
i – analyzed criteria;
gs – specific importance given to each criteria (financial or non - financial);
N_{Cri} – the mark obtained by the enterprise for fulfilled criteria (indicator).

In order to **exemplify** comparative analysis of the creditworthiness of customers, we considered limited liability company Alpha, a private equity, whose main activity is: trade with motor vehicles and automobiles service.

The society needs a loan to finance current activities in the amount of 125,000 lei (8% interest rate per year during 60 months).
To assess whether the entity will earn credit, we considered three prestigious banking companies Romania: The Romanian Commercial Bank, The Romanian Development Bank - Groupe Societe Generale and Transilvania Bank.

1. The Romanian Commercial Bank Model

The Romanian Commercial Bank model, taking into account the Romanian economy, uses a set of rates and performance indicators for determining the creditworthiness of the company based on a scale score with 6 criteria:

a) Current ratio: $Lp = \dfrac{Short-term\ assets}{Short-term\ liabilities}$

b) Solvency: $S = \dfrac{Shareholders'\ equity}{Liability}$

c) Financial profitability: $Rf = \dfrac{Gross\ profit}{Shareholders'\ equity}$

d) Rotation of working assets: $Nac = \dfrac{Turnover}{Working\ assets}$

e) Dependence on supply markets (A) and outlets (D) - internal, external;

f) Guarantees (deposits and foreign currency pledged pledges, mortgages; loans purchased goods, accepting claims).

Criteria for assessing the credit worthiness - RCB model – are marked with grades that together serve to enterprises classification in 5 categories (A to E), which are based on the assessed credibility.

Table no. 1 Creditworthiness assessment grill based on RCB

No.	Assessing criteria	Value limits	Grades
1.	*Current ratio* (Lp = Short-term assets/short-term liabilities)	< 80 %	- 2
		80 ÷ 100 %	- 1
		100 ÷ 120 %	+ 1
		120 ÷ 140 %	+ 2
		140 ÷ 160 %	+ 3
		> 160 %	+ 4
2.	*Solvency* (S = Shareholders' equity /Liability)	< 30 %	0
		30 ÷ 40 %	1
		40 ÷ 50 %	2
		50 ÷ 60 %	3
		60 ÷ 70 %	4
		70 ÷ 80 %	5
		> 80 %	6
3.	*Financial profitability* (Rf = Gross profit/Shareholders' equity)	< 0	0
		0 ÷ 10 %	3
		10 ÷ 30 %	4
4.	*Rotation of working assets* (Nac = Turnover/working assets)	< 5	1
		5 ÷ 10	2
		> 10	4
5.	*Markets dependence (supply-logistics)* Supply: from the country (At); imports (Ai) Logistics: in the country (Dt); exports (De)	At > 50%; De >50 %	4
		Ai > 50%; De >50 %	3
		At > 50%; Dt >50 %	2
		Ai > 50%; Dt >50 %	1
6.	*Guarantees*	Pawned Deposits	4
		Pawns, mortgages	3
		Credit acquisitions	2
		Assignment of receivables	1

Depending on the score achieved economic and financial situation is assessed and the degree of risk of insolvency of the enterprise can be classified into one of five categories the creditworthiness which allows or does not receive credit:

Table no. 2 The categories the creditworthiness

Category	Total grades	Financial – economic situation – risk degree
A	> 20	Very good- it is permitted the allocation of credits
B	16 ÷ 20	Good- it is permitted the allocation of credits
C	11 ÷ 15	Oscillating – presents high risk
D	6 ÷ 10	Special risk – it does not present securities for credit allocation
E	0 ÷ 5	Particularly poor – without securities for credit allocation

Based on the grid there are deemed that businesses in categories A and B have a good financial and economic situation, an appropriate creditworthiness to qualify for bank loans.

Businesses in category C show a high degree of risk, creditworthiness to qualify for loans requiring a relatively high risk premium. They must be monitored in terms of solvency to recover credits at the first sign of distrust.

Businesses in categories D and E have creditworthiness that do not present securities and can not get loans to repay them on time.

For example, the scoring grid of the Alpha entity, according to CRB model is shown in Table no.3:

Table no. 3 Scoring Grid of the Creditworthiness – RCB model

Performance criteria	2013		2014		2015	
	Level	Scores	Level	Scores	Level	Scores
Short term assets	7237969		9652733		9617188	
Short term liabilities	3405109		3111640		3820300	
1. Heritage liquidity (Lp = Short term assets/Short term liabilities)	212.56	4	310.21	4	251.74	4
Shareholders' equity	9843798		13943302		17533242	
Liability	18215623		24839878		34451555	
2.Solvancy (S= Shareholders' equity/Liability)	54.04	3	56.13	3	50.89	3
Gross profit	3993182		5482452		2606123	
Shareholders' equity	9843798		13943302		17533242	
3.Rentabilitate Gross financial profitability (Rfb= Gross profit/ Shareholders' equity)	40.57	4	39.32	4	14.86	4
Turnover	35805353		58243912		59997015	
Current assets	7237969		9652733		9617188	
4.Rotation of current assets (Nac= Turnover/Current assets)	4,95	1	6,03	2	6,24	2
5. Market dependence (Supply from the country) (Logistics in the country)	At > 50; Dt > 50	2	At> 50; Dt > 50	2	At> 50; Dt > 50	2
6. Securities	Securities, mortgages	3	Securities, mortgages	3	Securities, mortgages	3
Total scores	**-**	***17***	**-**	***18***	**-**	***18***

The points accumulated (16 ÷ 20) has placed the company in category B, with a good financial and economic situation, which has a good credit rating, allowing it to benefit from credits.

2. The Methodology Regarding the Determining of the Creditworthiness of the Economic Agents - Legal Entities BRD Model

The creditworthiness is determined by calculating the financial indicators based on data from accounting forms, depending on the period they are determined as follows: annual - balance sheet and income statement; semester - the financial and assets situation; monthly - the trial balance.

Financial Indicators and Calculating Formulas

General liquidity = Current assets/ Current liabilities

Patrimonial solvency = Own capital/ Total liability * 100

Gross profit rate = Gross profit / Turnover *100

Financial profitability rate = Net profit / Own capital * 100

Level of indebtedness = Current liabilities/ Total liabilities

Table no. 4 Indicators Score

No.	Indicators	20 scores	15 scores	10 scores	5 scores
1.	General liquidity	>2,1	1,6 – 2,1	1,3-1,6	1-1,3
2.	Patrimonial solvency	>30%	20%-30%	10%-20%	0,1%-10%
3.	Gross profit rate	>5%	3%-5%	1,5%-3%	0,1%-1,5%
4.	Financial profitability rate	>10%	6%-10%	3%-6%	0,1%-3%
5.	Level of indebtedness	0-0,25	0,25-0,50	0,50-0,75	0,75-1

Depending on the score obtained, each undertaking with legal personality will be classified in the categories of reliability, as follows:

Table no. 5. Creditworthiness Categories

Category A	85-100 scores
Category B	70-84 scores
Category C	50-69 scores
Category D	25-49 scores
Category E	< 25 scores

Table no. 6 Interpretation according to the categories of creditworthiness

Category A	The financial results are very good and allow payment at maturity and interest rate. Also looming ahead and maintain financial performance at a high level.
Category B	The financial results are very good and allow payment at maturity and interest rate. Also looming ahead and maintain financial performance at a high level.
Category C	The performances are satisfactory, but have a worsening trend.
Category D	The financial results are low with an obvious cyclicity at short intervals.
Category E	The financial results show high probability losses that can not be paid any outstanding instalments or interest.

The Alpha entity's financial situation analysis based on the model BRD is shown in Table no. 7.

Table no. 7 Determination of Creditworthiness Indicators According to the BRD Model

No.	Specification	Symbol	UM	Analysed period		
				2013	2014	2015
1.	Current assets	Ac	lei	7237969	9652733	9617188
2.	Current liabilities	Dcrt	lei	3405109	3111640	3820300
3.	Shareholders' equity	Cpr	lei	9843798	13943302	17533242
4.	Total assets	At	lei	18215623	24839878	34451555
5.	Gross profit	Pb	lei	3993182	5482452	2606123
6.	Turnover	Ca	lei	35805353	58243912	59997015
7.	Net profit	Pn	lei	3372605	4639962	2174761
8.	Total liabilities	Pt	lei	18215623	24839878	34451555
9.	**General liquidity**	**Ac/Dcrt**	**-**	**2.13**	**3.10**	**2.52**
10.	General liquidity	Lg	scores	20	20	20
11.	**Patrimonial solvency**	**Cpr/At**	**%**	**54.04**	**56.13**	**50.89**
12.	Patrimonial solvency	Sp	scores	20	20	20
13.	**Gross profit rate**	**Pb/Ca**	**%**	**11.15**	**9.41**	**4.34**
14.	Gross profit rate	Rpb	scores	20	20	15
15.	**Financial profitability rate**	**Pn/Cpr**	**%**	**34.26**	**33.28**	**12.40**
16.	Financial profitability rate	Rrf	scores	20	20	20
17.	**Level of indebtedness**	**Dcrt/Pt**	**-**	**0.19**	**0.13**	**0.11**
18.	Level of indebtedness	Gî	scores	20	20	20
19.	***TOTAL SCORES***	***SCORES***		***100***	***100***	***95***

In the period under review score determined the model BRD recorded values in the range of 95-100 scores.

Alpha entity therefore falls into ***category A*** of creditworthiness. This entails the conclusion that the company recorded very good financial performance, allowing payment at maturity and interest rate. Also looming ahead and maintain financial performance at a high level.

3. Transilvania Bank Model [2]

Performance category will be determined based on a financial analysis model which includes several relevant indicators, such as the company's ability to generate profit on short-term liquidity, solvency in relation to various categories of creditors. The assessment of the financial performance of the client considers two categories of indicators:

- ***objective or quantitative*** (profitability, liquidity, solvency) are analyzed, both in value and as a trend;
- ***subjective or qualitative*** (age, business, sales market) that are considered relevant when considering a loan default risk.

The loan portfolio for SMEs of Transilvania Bank is structured in two parts: fast loans and standard loans, customer creditworthiness analysis being carried out differently in the two types of loans requested. We present the analysis model for standard loans. These loans are offered only in branches of Transilvania Bank and are more complex than the fast ones (e.g. standard credit: credit lines). They have a longer repayment, a lower interest and fees and loan amount offered is higher. Analysis of the creditworthiness of customers applying for these loans is based on a set of indicators, according to the table below:

Table no. 8 Assessment of the Financial Criteria BT – Standard Credits

No.	INDICATORS	MARGIN	A	B	C	D	E
1.	Current rate	x>1	x>1,2	1,1<x<1,2	1<x<1,1	0,9<x<1	0,9<x<0,8
2.	Receivables rotation (days)	x<45 days	x<30 days	30<x<45	45<x<60	60<x<90	x>90 days
3.	Stocks rotation (days)	x<45 days	x<30 days	30<x<45	45<x<60	60<x<90	x>90 days
4.	Level of indebtedness (previous to the credit)	X < 60%	X < 50%	50 < X < 55	55 < X < 60	60 < X < 75	75 < X<100
5.	The secure of the credit (instalment)	X > 1,43	X > 1,5	1,35 < X <1,5	1,17 < X <35	1 < X < 1,17	X < 1
6.	The duration of the credit recuperation (the amount of credit / Monthly sales)	X < 30 days	X < 30 days	30 < X < 45	45 < X < 60	60 < X < 90	X > 90 days
7.	Monthly rate / Monthly payments	X < 2 days	X < 1,5	1,5 < X < 2	2 < X < 3	3 < X < 5	X > 5
8.	Net margin		X > 10%	8 < X < 10	4 < X < 8	2 < X < 4	X < 2%
9.	Exploitation margin		X > 12%	9 < X < 12	5 < X < 9	3 < X < 5	X < 3%
		Scores	**5**	**4**	**3**	**2**	**1**

The calculation model for performance and risk indicators is as follows:

1. Current rate = current assets / current liabilities <1 year
2. Rotation = customer receivables / turnover * 30 * No. months period
3. Rotation stocks = stocks / operating expenses * 30 * No. months period
4. Indebtedness = total debt / total assets * 100

5. Coverage available credit = cash at bank and on hand/ monthly rate
6. Duration of the credit recovery * 30 = loan amount / average monthly sales
7. Monthly rate (monthly receipts) * 30 = monthly / average monthly sales
8. Net Margin = Net profit / Turnover * 100
9. Operating margin = Operating profit / Turnover * 100

Framing company performance in ***economic and financial performance*** groups is made taking into account only quantitative indicators, as follows:

Table no. 9 Final assessment score BT- standard credits

Category	TOTAL SCORES
A	41-50
B	31-40
C	21-30
D	11-20
E	0-10

The Alpha entity's financial situation analysis based on BT model is shown in Table no. 10.

Table no. 10 Financial Assessment Criteria BT-
Standard credits, within the creditworthiness analysis at Alpha Ltd company

No.	INDICATORS/SCORE	2013	2014	2015
1.	*Current rate*	**2,12**	**3,1**	**2,51**
	Score	**5**	**5**	**5**
	Current assets	7237969	9652733	9617188
	Current liabilities	3405109	3111640	3820300
2.	*Receivables rotation (days)*	**22,52**	**22,33**	**19,29**
	Score	**5**	**5**	**5**
	Clients	2239700	3613272	3215467
	Turnover	35805353	58243912	59997015
3.	*Stocks rotation (days)*	**35,12**	**24,36**	**28,4**
	Score	**4**	**5**	**5**
	Stocks	3162873	3543277	4419933
	Operating expenses	32419400	52370273	56020381
4.	*Level of indebtedness (previous to the credit)*	**39**	**35**	**46**
	Score	**5**	**5**	**5**
	Total liabilities	7146721	8719390	15925945
	Total assets	18215623	24839878	34451555
5.	*The coverage of the credit (for monthly rate)*	**625,8**	**80,71**	**566,67**
	Score	**5**	**5**	**5**
	Cash at bank and on hand	1824853	235360	1652405
	Monthly rate	2916	2916	2916
6.	*Duration of the recuperation of the credit (The amount of the credit / Monthly sales)*	**1,26**	**0,77**	**0,75**
	Score	**5**	**5**	**5**
	The amount of credit	125000	125000	125000
	Monthly average sales	2983779	4853659	4999751
7.	*Monthly rate / Monthly payments*	**0,03**	**0,018**	**0,018**
	Score	**5**	**5**	**5**
	Monthly rate	2916	2916	2916
	Monthly average sales	2983779	4853659	4999751
8.	*Net margin*	**9,42**	**7,97**	**3,62**
	Score	**4**	**3**	**2**
	Net profit	3372605	4639962	2174761

No.	INDICATORS/SCORE	2013	2014	2015
	Turnover	35805353	58243912	59997015
9.	*Operating margin*	**11,35**	**10,21**	**6,9**
	Score	**4**	**4**	**3**
	Operating profit	4064853	5946664	4142342
	Turnover	35805353	58243912	59997015
	TOTAL SCORE	**42**	**37**	**35**
	CREDITWORTHINESS CATEGORY	**A**	**B**	**B**

It may be noted that the company analyzed achieves good financial performance and very good throughout the period under review, from the part of Transilvania Bank, enabling it to obtain the rating category B (2014-2015), A (2013), in the situation of appealing to a standard credit. So it will be necessary to monitor ongoing the activity because there is a risk of being unable to maintain this performance over time.

Conclusions

Following the calculations made, Alpha Company can get the loan of 125,000 lei from any bank considered: RCB, BRD-Groupe Societe Generale and Transilvania Bank. Overall concluding, Alpha Company meets all conditions required to receive a credit, so it can call on any of the four banks asking for a loan of 125,000 lei, ranking in the category of creditworthiness A or B rating as standard, respectively in observation where appropriate, with differences from one bank to another.

Non-financial aspects of the client's needs should be framed within the overall context of the creditworthiness analysis, along with the financial ones, the two elements are inseparable. Financial aspects usually have an impact in the increase of credit risk when there is mismanagement and that becomes a safety factor when management is favourable and the company generates value increases over time.

Given that competition is increasing, it is recommended that analysis methodologies of the creditworthiness of the customer place greater emphasis on the qualitative aspects of the business; such an approach is of course in the context of new requirements to improve risk management in credit institutions.

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