

The Economic Risks Arising from the Analysis of the Balance Sheet of an Economic Entity

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Abstract

Any economic entity operates under probability and risk. In a general acceptance, risk means the validity of the result obtained under pressure of the economic environment; in other words, the risk is the potential damage posed to heritage, interests and affect the entity.

In this paper we want to capture, the calculation in terms of the balance sheet analysis of the three risks, which can be measured on the basis of the balance sheet data and indicators, namely: the operational risk, financial risk, and the risk of bankruptcy.

Key words: balance sheet, operating risk, financial risk, the risk of bankruptcy

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1. Introduction

Risk is an inherent component that is involved in the conduct of economic activity, at all levels and which is based on a complex of factors. Because of the significant potential impact of these risk factors on the results of the entity and the impossibility of controlling their full by the entity risk analysis represents an important dimension of strategic management of the entity which presumes the following sequence of steps: risk identification, risk assessment, analysis and risk assessment, determining the priority interventions to limit the risk and the risk treatment (Mironiuc, 2006).

The notion of risk is a difficult task, given the diversity of meanings of risk and the risk large typology at the entity level. In connection with the concept of risk, it states that, in common language, there is no distinction between risk and uncertainty, although any risky situation is uncertain, but there may be uncertainty and risk free. However, most authors agree that the financial management of the entity level, the risk particularly represents the variability indicators of the entity's results, profit and profitability. The variability of results relates to the mismatch between expected results and actual results, discrepancies which can occur either positively or negatively, which makes the risk to be understood in a double sense, and the amplitude variation results compared to their estimated values gives us the size of the risk. Considering the definition of risk, especially through the concept of variability, risk measurement involves the use of statistical indicators of dispersion and standard deviation of results (profit, profitability) in relation to their average, and through elasticity coefficients of results (profit) in relation to the level of activity of the entity's turnover (Stancu, 2007, Mironiuc, 2006, Vintilă, 2006, Dragotă *et al.*, 2003).

2. Economic risks arising from the analysis of the balance sheet

Risk-taking is directly linked to the economic profitability; profitability offsets the economic risk.

The economic risk is greater, the greater the possibility of obtaining large loss is.

There are several forms of risk, the most important being the operating risk, financial risk, the risk of bankruptcy, commercial risk, country risk, currency risk and technical risk.

In terms of balance sheet analysis there are three risks that can be measured on the basis of balance sheet data and indicators, namely:

- the operating risk;
- financial risk;
- the risk of bankruptcy.

a) The operating risk (R_e)

The operating risk expresses the entity's inability to adapt in time and to adjust the lowest cost, to changes in the economic environment, reflecting volatile economic environment to the operating conditions.

The operating risk depends on two sets of factors:

- ✓ **general factors:** rising prices of raw materials and consumables, increased wages, reduced sales under the pressure of competition, etc;
- ✓ **cost structure** and their behavior in relation to the workload.

The operating risk is evaluated using **the breakeven**, which measures the flexibility of the entity in relation to the operating conditions.

The breakeven is defined as the turnover covering all the operating expenses.

Noting that turnover, specific to the breakeven with C_{apr} , the operating risk can be estimated based on the following indicators:

The operating risk rate (R_e):

$$R_e = \frac{C_{apr}}{C_a}; \quad R_e \% = \frac{C_{apr}}{C_a} 100$$

The safety margin (M_{se}):

$$M_{se} = \frac{C_a - C_{apr}}{C_a}; \quad M_{se} \% = \frac{C_a - C_{apr}}{C_a} 100$$

Information required:

- ✓ actual turnover (C_a);
- ✓ operating expenses (C_{apr}).

Table no. 1 The operating risk analysis

Nr · cr t.	Indicator	Symbol	Positio n in the balance sheet	Financial exercise		Amendments	
				2014	2015	Absolute (Δ)	Relative (I)
1.	Operating expenses	C_{apr}	F20, 01	446.267	2.317.148	1.870.881	5,192
2.	Turnover	C_a	F30, 262	384.075	2.024.349	1.640.274	5,271
3.	The operating risk rate	R_e	-	1,1619	1,1446	-0,0173	0,985

Source (done by the authors)

Whereas the rate of the operating risk is above par, it means that the real turnover of the entity is not sufficient to cover the breakeven in any of the studied exercises of the financial years.

In other words, the turnover only covers 83.13% of turnover threshold in the exercise of 2014 and only 87.41% in the exercise of 2015.

It should be quickly taken measures in order to reduce the operating costs or increase in turnover through:

- ✓ strict tracking of costs on profit centers;
- ✓ increase the real turnover, by increasing the trade margin.

The analysis is confirmed by calculating the safety margin, as follows:

✓ for the year 2014:

$$M_{se} = \frac{384.075 - 446.267}{384.075} = -0,161 \quad (-16,1\%)$$

- for the year 2015:

$$M_{se} = \frac{2.024.349 - 2.317.148}{2.024.349} = -0,144 \quad (-14,4\%)$$

The safety margin is negative, but it is increasing from one year to the other, so the situation is about to improve.

A deepening of the analysis involves the calculation of **the leverage** (operating leverage) that will show us how many percent the gross/net profit will modify if you change the turnover with a percentage. Noting the leverage with P_e , the calculation formula will be:

$$P_e = \frac{\frac{P_1 - P_0}{P_0}}{\frac{C_{a1} - C_{a0}}{C_{a0}}} = \frac{\frac{\Delta P}{P_0}}{\frac{\Delta C_a}{C_{a0}}};$$

where:

P_1 : profit in 2015;

P_0 : profit in 2014;

C_{a1} : turnover in 2015;

C_{a0} : turnover in 2014.

Information required:

✓ net profit (P_n);

✓ turnover (C_a).

Data and results are summarized in the following table:

Table no. 2 The leverage calculation

N r. cr t.	Indicator	Symbol	Positio n in the balanc e sheet	Financial exercise		The absolute difference (Δ)	Pace (R)
				2014	2015		
0	A	B	C	1	2	3=2-1	4=3/1
1.	The net profit	P_n	F30, 288	-62.268	165.908	228.176	3,664
2.	The net turnover	C_a	F30, 262	384.075	2.024.349	1.640.274	4,271
3.	The leverage (rd1/rd2)	R_e	-	-	-	-	0,858

Source (done by the authors)

b) The financial risk (R_f)

The financial risk is of two types:

- ✓ the risk of indebtedness;
- ✓ the credit risk.

The risk of indebtedness shall be determined on the basis of economic profitability ratio (total capital profitability rate) and the interest rate, calculating the financial profitability rate (R_{rf}), according to the formula:

$$R_{rf} = \frac{K_i(R_e - d)}{K_p} + R_e ;$$

Where:

K_i : the borrowed capital;

R_e : the economic rate of return, $R_e = P_n / K_t$

K_p : the equity;

d : the interest rate.

The economic entity under review does not have borrowed capital (short-term, medium-term and long-term loans), and hence the financial profitability rate will be equal to the rate of economic profitability. Financial risks do not come from banks but from the operating cycle and they are economic (related to the expenditure control).

c) The risk of bankruptcy

To determine the risk of bankruptcy, the method Canon-Holder will be used, because it is applicable to small and medium-sized entities with a number of employees between 10 and 500 and it is based on the balance between liquidity and chargeability. Basically it will compute a z value, resulting from the relation:

$$z = 0,24R_1 + 0,22R_2 + 0,16R_3 + 0,78R_4 - 0,10R_5$$

where:

$$R_1 = \frac{EBE}{D_t} ; \quad R_2 = \frac{K_{per}}{A_t} ; \quad R_3 = \frac{A_c}{A_t} ; \quad R_4 = \frac{C_{hf}}{C_a} ; \quad R_5 = \frac{C_{hp}}{Q_a} .$$

Information required:

- ✓ gross operating surplus (EBG);
- ✓ the total debt (D_t);
- ✓ personal capital (K_p);
- ✓ total assets (A_t);
- ✓ current assets (excluding inventory) (A_c);
- ✓ financial expenses (C_{hf});
- ✓ turnover (C_a);
- ✓ value added (Q_a).

The gross operating surplus (EBE) is calculated with the relation:

$$EBE = Q_a + S_e - I_t - C_{hp}$$

where:

S_e : operating subsidies;

I_t : tax and taxes;

C_{hp} : personnel expenditure.

Data, calculations and results will be resolved in the following table (value added being already calculated):

Table no. 3 The risk of bankruptcy through the metod Canon - Holder

Nr. crt.	Indicator	Symbol	Position in the balance sheet	Financial exercise	
				2014	2015
1.	Value added	Q_a	calculated value	66.505	681.378
2.	Operating subsidies	S_e	F30, 226	-	-
3.	Tax and taxes	I_t	F20, 07	-	37.721
4.	Personnel expenditure	C_{hp}	F20, 04	121.331	449.134
5.	The gross operating surplus (1+2-3-4)	EBE	-	-54.826	194.523
6.	Total debts	D_t	calculated value	195.504	395.058
7.	Personal capital	K_{per}	F10, 46	-62.068	103.841
8.	Total assets	A_t	F40, 18	19.288	155.114
9.	Current assets (excluding inventory)	A_c	F40, 15	-60.871	57.879
10.	Financial expenses	C_{hf}	F30, 279	1.239	5.226
11.	Turnover	C_a	F20, 01	384.075	2.024.349
12.	R_1 (range 5/ range 6)			-0,2804	0,4924
13.	R_2 range 7/ range 8)			-3,2180	0,6694
14.	R_3 (range 9/ range 8)			-3,1559	0,3731
15.	R_4 (range 10/ range 11)			0,0032	0,0026
16.	R_5 (range 4/ range 1)			1,8244	0,6592
17.	$z = 0,24R_1 + 0,22R_2 + 0,16R_3 + 0,78R_4 - 0,16R_5$			0,261	

Source (done by the authors)

3. Conclusions

As a result of the calculations, we can draw the following conclusions:

- ✓ **the operating risk:** maintaining a constant level of operating expenses, in order not to risk, in the financial year 2016, the entity must reach a turnover of 2,317,148 million lei; if the only way would be an increase in the trade margin, then it must grow on average by 15% (14.4%);
- ✓ **the leverage** (the operating leverage): resulting an operating leverage of 0.858 or 85.8%. In other words, under the current risk conditions, very high, one lion increase in turnover leads up to 86 money increase in the net profit. The situation is not favorable to the entity, because "the higher the operating lever is, the greater the operating risk is. Small failures of production lead to great financial difficulties. The smaller the operating lever is, the faster the entity moves away from the critical point, having a lower risk of exploitation The higher the fixed costs are, the higher the operating lever is and hence higher operating risk is. As the capitalization of the entity is increased, the risk of exploitation also increases";
- ✓ **the financial risk:** the economic entity under review does not have loan capital (short-term, medium and long term loans), and hence the financial profitability rate will be equal to the rate of economic profitability. Financial risks do not come from banks but from cycle of exploitation and they are economic (related to the expenditure control);

- ✓ **the risk of bankruptcy:** bankruptcy risk is assessed based on the Z score, as follows: if $z > 0,16$, the entity's situation is very good, the risk of bankruptcy is below 10%; if $0,1 < z \leq 0,16$ the situation is good, the risk of bankruptcy is between 10% and 30%; if $0,04 < z \leq 0,1$, the entity is in alert, default risk is between 30% and 65%; if $-0,05 < z \leq 0,04$, the entity is in danger, the risk of bankruptcy is between 65% and 90%; if $z < -0,05$, the failure of the entity has a greater probability than 90%. The economic entity under review can be referred to as an atypical situation, even miraculous, the entity passing from an almost certain failure phase ($z = -1,460 < -0,05$).

4. References

1. Dragotă, V., Ciobanu, A., Obreja, L., Dragotă, M., 2003, *Financial management*, Ed.Economică, București.
2. Mironiuc, M., 2005/2006, *The methodology of risk analysis for multi-product enterprise*, The Scientific Annals of the "Alexandru Ioan Cuza" University Iași, Tome LII/LIII.
3. Stancu, I., 2007, *Financies*, Ed.Economică, București.
4. Vintilă, G., 2006, *The financial management of the enterprise*, Ed.Didactică și Pedagogică, București.
5. Vintilă, G., Armeanu, S. D., Filipescu, M. O., Moscalu, M., Lazăr, P., 2011, *Theoretical and applied economics*, XVIII Volume (2011), No. 5(558), p. 119-131 available at http://store.ectap.ro/articole/595_ro.pdf