RISK ANALYSIS USING THE EXPLOATATION LEVERAGE COEFFICIENT AT PASSANGER ROAD TRANSPORTATION COMPANIES

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Abstract:
Business activity is usually influenced by the emergence of operational risk, but we should not overlook the impact that the structure of funding sources can have on the outcome of the enterprise.
The purpose of this paper is to show the level of operational risk present at a number of five listed companies in the passenger road transportation industry. The analysis was based on interpretation of risk level using the results obtained by calculating the coefficient of economic leverage for a period of five years; the purpose was to demonstrate that using this tool managers can make decisions in a short time so that decision making process will not be long standing.

Keywords: breakeven point, degree operating leverage, economic risk, elasticity, risk

JEL Classification: G32, M40

INTRODUCTION

The Basel Committee (2004) defines operational risk (economic risk) as the risk of loss resulting from inadequate or failed internal processes, people and systems, or from external events.

The operational risk, depends mainly on fix expenses level, same level of fix expenses being better absorbed by a greater turn over.

When starts the analysis of economic risk the basis is the relation between profitability and risk, in the sense that profitability is a performance indicator, no matter its nature.

Profitability is approached and determined differently function of the participants of the enterprise activity: managers, shareholders, bankers and employees.

Financial analysis approaches both profitability in general by studying the performance of exploitation related to the result account, and the impact used financing resources with respect to used means.

Expenses structure, mainly the proportion between fix expenses and variable expenses with respect to turnover has a significant influence over profitability. Pieces of information regarding expenses and incomes can be brought together in a model that allows the determination of production level at which the profit is zero and starting from which the companies activity becomes profitable. This point is called breakeven point or critical point.

Irrespectively of the chosen computation means, the production expenses are split in variable expenses (depending on the volume of activity) and fix expenses, elements that make the analysis be more difficult, because the financial statements do not include such a statement.

Variable expenses are directly proportional with the production level and usually refer to raw materials an materials, salary of the directly production personnel, and so on.

Fix expenses are independent of the activity volume, being in general those resources used with the purpose of the enterprise normal operation, and being paid even if the profit is absent.(water, electricity, administrative personnel, amortization expenses, and so on)

The above classification must be seen from the time perspective because on the long run all expenses can be considered variable and only on the short time some are variable and other are fix.

Operating profitability together with operating risk, condition the level of other related profitability and risks: financial, total, bankruptcy

The term risk is significant only when the future is presented and is tried to estimate profitability fluctuation for the elaboration of forecasts.

METHODOLOGY

For estimating the operating and the financial risk, business practice uses an analysis tool known under the name breakeven point, an instrument of forecast analysis that allows for the determination of condition necessary to realize the microeconomic equilibrium, with or without profit (breakeven point).

Using the breakeven point as a risk assessment tool implies a good knowledge of the computation methodology and its cognitive value. The determination of breakeven point can be made monetary units or physical units, in number of days, for the whole activity or just for one product. (Muntenau, Askar 2008)

The operating (economic) risk relates to the fluctuation of operational result, function of the breakeven point and operational cost structure (fixed and variable). (U U, 2006)

a) A first way to assess the operational risk has as a basis the safety margin and the safety interval that reflects the turnover position with respect to breakeven point.

The safety interval known also as position indicator (flexibility) express the enterprise's capacity to modify the production and to adapt to market requirements. The greater its value is, as higher, the enterprise flexibility is, and thus the economic risk is lower.

This indicator can be determined both in absolute values (α), and in relative values (α`)(M. Niculescu,2005)

$$\alpha = CA_{real} - CA_{P} \quad (1)$$

$$\alpha' = \frac{CA - CA_{PR}}{CA_{PR}} \quad (2)$$

Where CA_{reala} – current turnover

CA_{PR} – turnover at breakeven point

The position indicator in absolute value is also known as absolute flexibility indicator, it reflects the company's capacity to modify and to adapt the production at marker requirements. Company flexibility level is given by its technical potential, by the human potential, by the state and quality of technical potential and by the company's organizational structure.

The company situation with respect to the position indicator's value expressed in relative measure is the following>

- a safety interval of less than 10% shows an instable situation
- a level of 20% is characterizing a relatively stable situation
- over 20% show a stable situation with respect to the breakeven point.

b) Economic risk assessment can be made on the basis of operating leverage coefficient (CLE) or the degree of balancing the company's operation – degree-operating leverage (DOL).

Operating leverage coefficient expresses the operating result (Rexpl) at sales variation which measures the percentage increase of this result, as an answer to one percentage increase in sales (turnover) (qCA) (Silvia Petrescu,2004):

$$CLE = \frac{\Delta \operatorname{Re} xpl / \operatorname{Re} xpl}{\Delta qCA / qCA} \quad (3)$$

Where qCA– turnover based on production

This indicator can be calculated using two ways
1. Relative value:

$$CLE = \frac{\Delta \operatorname{Re} xpl / \operatorname{Re} xpl}{\Delta qCA / CA} = \frac{I_{\operatorname{Re} xpl} - 100}{I_{q_{CA}} - 100} \ (4)$$

2. Absolute value:

$$CLE = \frac{\Delta \operatorname{Re} xpl / \operatorname{Re} xpl}{\Delta qCA / qCA} = \frac{\Delta R_{\exp l}}{\Delta qCA} \cdot \frac{R_{e\,xpl}}{qCA} \ (5)$$

By determining the operating leverage coefficient is expressed through value the level of economic risk, giving it a numeric dimension that brings us closer to a correct quantification of this type of risk.

Economic leverage ratio can be determined using also the turnover:

$$CLE = \frac{\Delta \operatorname{Re} xpl / \operatorname{Re} xpl}{\Delta CA / CA} = \frac{\Delta \operatorname{Re} xpl}{\Delta CA} \times \frac{CA}{\operatorname{Re} xpl} \ (6)$$

From the factorial point of view, the operating risk is directly proportional with total expenses, (Ct) thus the risk increases with the expenses growth by profit decrease:

$$CLE = \frac{\Delta (CA - Ct)}{\Delta CA} \times \frac{CA}{\operatorname{Re} xpl} = \frac{CA}{CA - Ct} \ (7)$$

ECONOMIC RISK LEVEL ASSESSMENT AT PASSENGER ROAD TRANSPORTATION COMPANIES

Next, we will exemplify on the basis of risk computation methods presented above the evolution recorded by the levels of risk at a number of five companies in the passenger road transportation industry.

It must be stipulated that that this industry is present in the Stock Exchange quotations, but the investors' interest is very low with respect to the decision to invest in these companies; moreover, in the moment of sampling from the total of 24 traded companies at the Stock Exchange only these five had all their financial statements, making thus possible the analysis of the level indicators for risk quantification.

Thus, one of the reasons for the lack of interest on this industry may be the lack of transparency of these companies.

We used this sample to quantify risk using the economic leverage coefficient from the desire to justify the shareholders' lack of interest determined by high levels of risk that make this industry totally unattractive.

The companies under analysis are presented below:

Table 1. Analyzed companies

Company name	Trade symbol	Development region
SC EXPRESS TRANSPORT SA Tg. JIU	EXPR	South – West region
SC MONDOTRANS SA Targoviste	MOTU	South region
SC TRANSALBA SA Alba Iulia	TRVA	Central region
SC TRANSBUZ SA Slatina	TRSO	South – West region
SC VALEA PRAHOVEI SA Câmpina	VAHO	South region

The selection of companies was made according to their appurtenance to the development regions where the public road infrastructure is the most developed and the percentage of modernized roads in total roads is very high. The data was summarized in the chart from below:
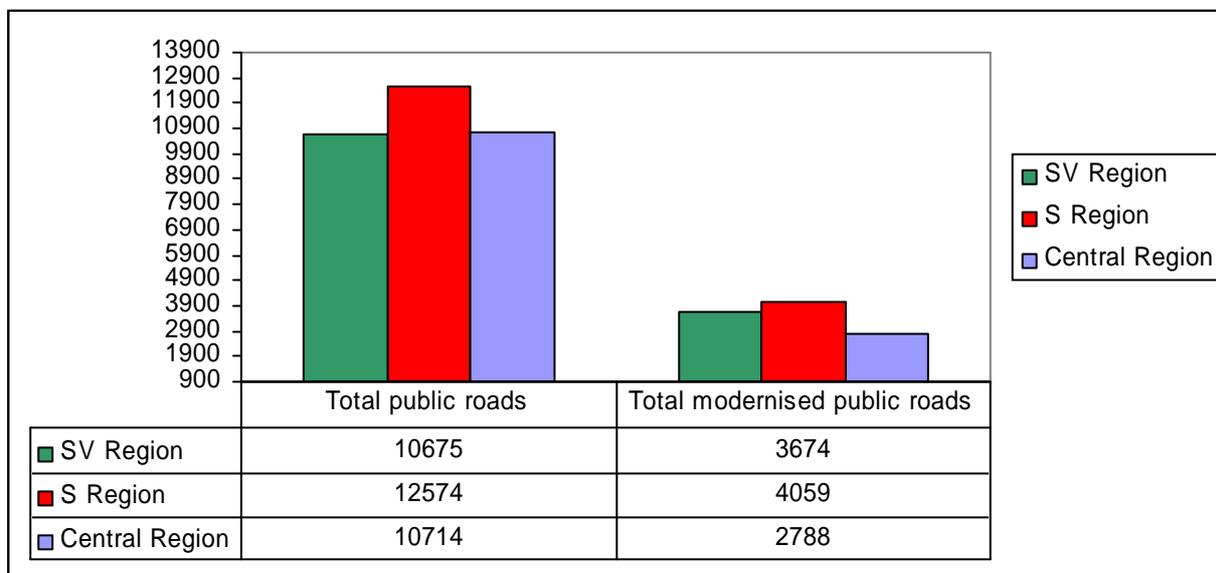
Figure 1. Modernized roads in total public roads
Source: National Institute of Statistics of Romania

From the pieces of information presented above, we can conclude that the percentage of modernized roads from total public roads in the three development regions is around 31%, which puts it very close to the country average.

We started the operating risk evaluation by comparing the evolution recorded by the operating result during the whole analyzed period at the sample companies. In the assessed period, the evolutions of the operating result were different at the five companies analyzed. The operating result has recorded a three times increase with respect to the 2005 year at EXPR, TRSO and VAHO companies, whilst MOTU and TRVA have presented negative values at the end of the analyzed period, as a result of the more pronounced increase of the operating expenses volume against the incomes. The summarized data are presented in Figure no. 2.
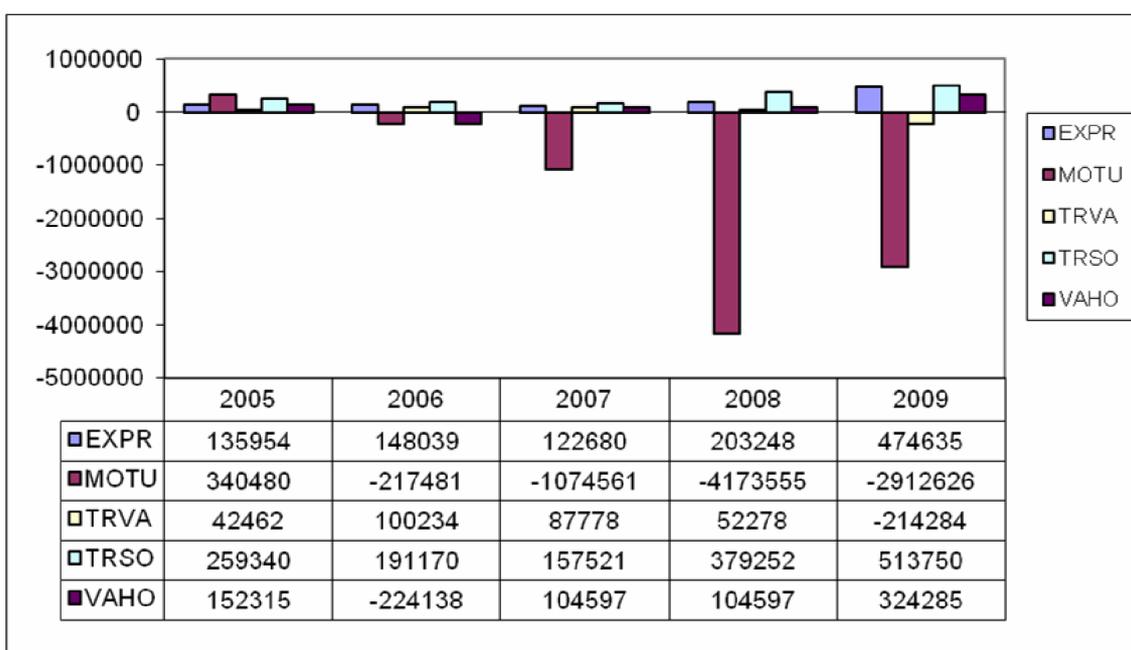
Figure 2. Evolution of operating result over 2005-2009
Source: Personal computation on the basis of financial data presented by the companies at BSE

With respect to the quantification of the risk level of analyzed companies, we can observe that by computing the economic leverage coefficient all companies have registered very high levels, which express a very high level of operating risk. The only company that registered small values of the economic leverage coefficient and thus a low degree of risk is TRSO.

The evolution of the economic leverage coefficient is briefly presented below:

	EXPR	MOTU	TRVA	TRSO	VAHO
■2005	-2,36	10,24	9,92	0,31	-7,76
■2006	0,46	-19,54	4,82	-0,36	7,48
■2007	3,13	-7,13	-1,29	-0,21	2,37
■2008	3,35	4,54	-29,25	0,58	2,37
□2009	11,85	-1,25	0,00	0,26	6,25
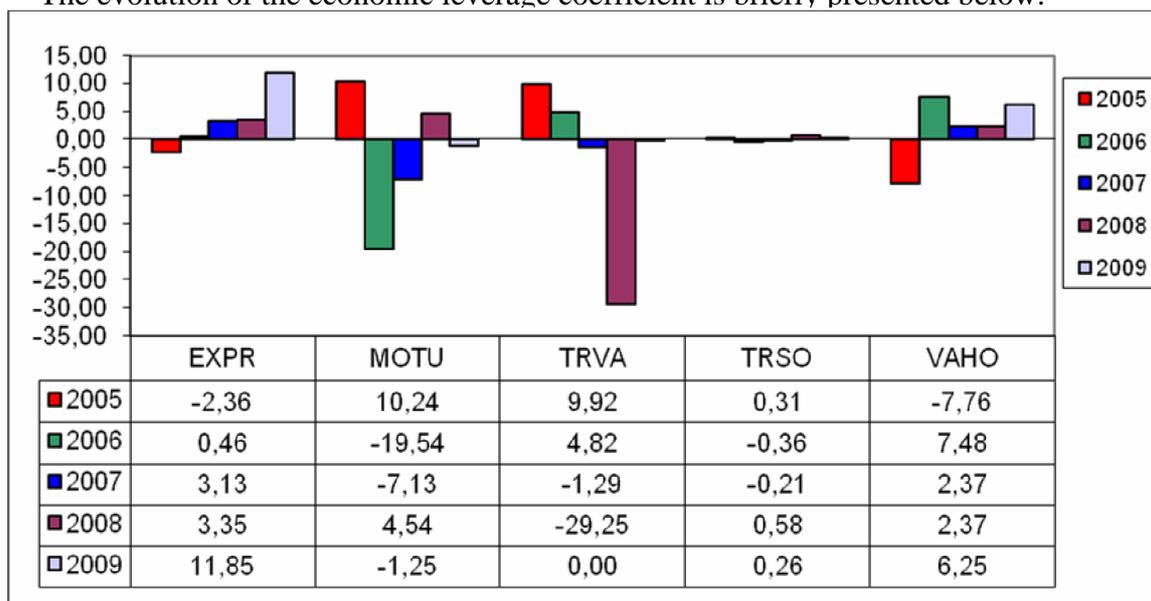
Figure 3. Evolution of operating leverage coefficient during 2005-2009
Source: Personal computation based on financial data presented by the companies at BSE

The evolution of the economic leverage coefficient on the five companies registered differentiated modification during the period under consideration. The registered levels of operating risk are not the kind that let us state that from an operating risk point of view the companies do not register very high levels so the resulting situation is not a concerning one. The resulting values of the economic leverage coefficient are between 0 and 12. The detailed situation by company is presented as following:

- EXPR – if at the beginning of the period the level of risk was a minor one with a value close to 0 (0,46) by the end of the analyzed period the situation got worst when the operating leverage coefficient had a result of almost 12, which proves a very high level of risk;
- MOTU – present an uncertain situation during the whole analyzed period; if in the first two years of the period the level of risk is a very high one with values of leverage coefficient very high, the presented situation of this company got better towards the end of the analyzed period when the leverage coefficient had a value indicated a minor risk;
- TRVA – in the risk level analysis at this company the most interesting period is the one between 2008-2009 when the risk spectacularly evolved from a value indicating a very high risk to one eliminating the existence of risk.
- TRSO – is a company with a constant evolution on the whole analyzed period with values between 0,26 / 0-31, proving that the company's activity is marked by certainty;
- VAHO – is ranked by the resulting levels of the operating coefficient in a middle position with respect to risk situation computed through this method.

ECONOMIC LEVERAGE EFFECT IN THE OPERATING RISK ANALISYS

The financial analysis, which is oriented towards the future, follows the quantification of chain effects of the leverage coefficients for the elaboration of result forecast:

The effect of the operating leverage (ELE) represents the modification of operating result (Rexp) under the impact of increase of sales (turnover)(Silvia Petrescu, 2004):

$$ELE = CLE \cdot \quad q(CA) = \quad Rexpl\ (\%)\ (8)$$

As stipulated above the operating risk presents the modification of the operating result under the impact of sales increase(CA). From this perspective was approached the percentage evolution of turnover in the analyzed period for the five sampled companies and the data are briefly presented below.

	EXPR	MOTU	TRVA	TRSO	VAHO
☐2005	24,99%	14,38%	-15,34%	91,56%	-11,42%
■2006	21,86%	-11,61%	13,58%	24,13%	15,43%
☐2007	-6,20%	-10,06%	12,41%	7,89%	72,89%
☐2008	13,40%	19,58%	2,38%	26,56%	72,89%
■2009	5,07%	53,27%	-99,93%	1,29%	19,04%
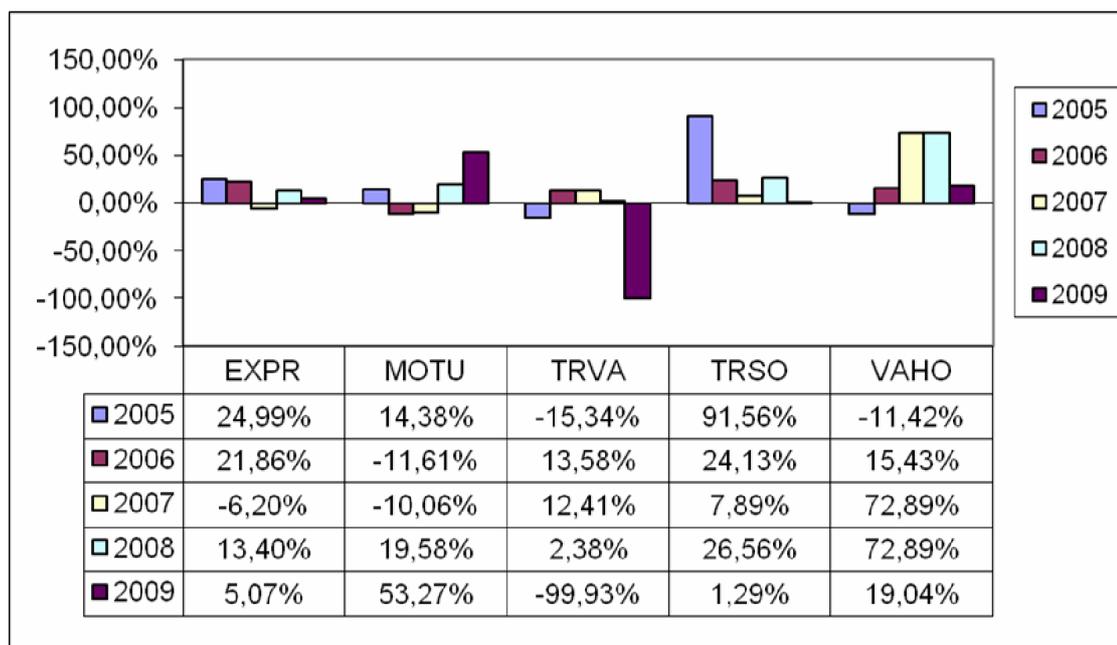
Figure 4. Evolution of percentage modification of turnover during 2005-2009
Source: Personal computation on the basis of financial data presented by the companies at BSE

After the analysis, we can observe that there are differentiated evolution at all five companies taken in consideration.

Thus, EXPR has registered during the entire period positive evolutions of the turnover, with increases between 6-25%, the maximum value being registered at the beginning of the analyzed period. The only negative evolution registered by this company is the one from 2006 when the turnover had a decrease of 6-percentage point against the previous period.

The company MOTU has registered decreases of the turnover values in the period 2006-2007, these being between 10-11 percentage points. The most spectacular evolution was registered in 2009 when the company had an increase of 50% of the turnover.

TRVA has started the analyzed period with a turnover decrease, situation that seemed to get better in the following period but the results obtained at the end of the period under analysis had shown a decrease of almost 100% of the values registered by the turnover.

TRSO is the only company that registered a positive evolution of the turnover in the entire period under consideration thus if at the beginning of the period the company registered a double value of turnover against the previous period, towards the end of the analyzed period the increase was not maintained with same spectacular values, being only of 1,3%.

VAHO presented also positive values of the turnover during 2007-2009 with values of around 73% which comes as a surprise because this period is the one in which the effects of the crisis were highly visible.

	EXPR	MOTU	TRVA	TRSO	VAHO
2005	-0,59	1,47	-1,52	0,28	0,89
2006	0,10	2,27	0,65	-0,09	1,15
2007	-0,19	0,72	-0,16	-0,02	1,73
2008	0,45	0,89	-0,70	0,16	1,73
2009	0,60	-0,66	0,00	0,00	1,19
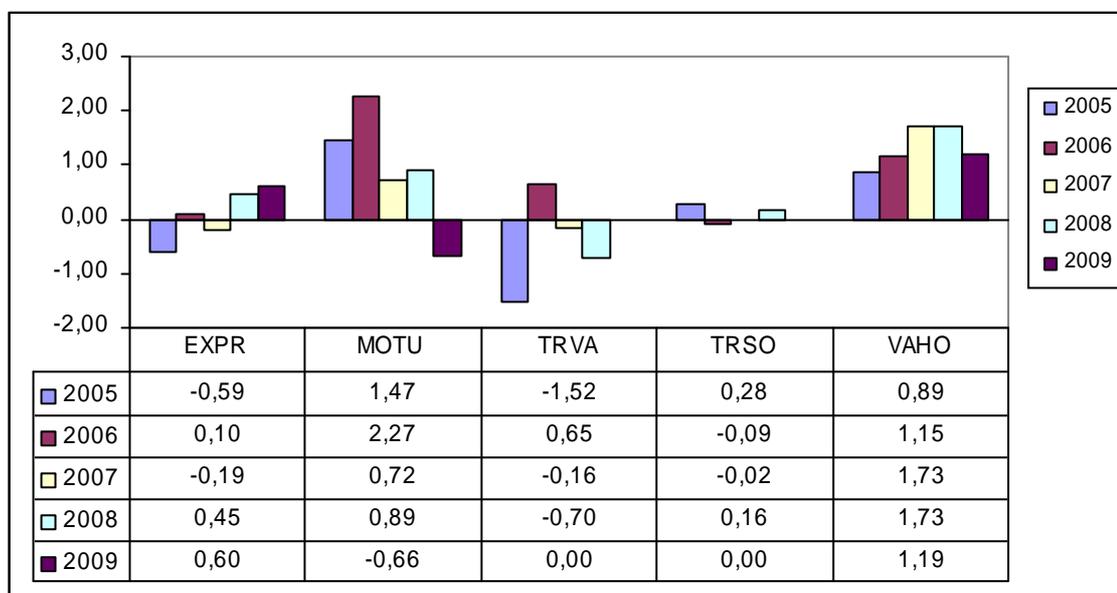
Figure 5. Evolution of operating leverage effect during 2005-2009
Source: Personal computation on the basis of financial data presented by the companies at BSE

The situation of economic leverage effect evolution led to the obtainment of results on the basis of which we can conclude that the level of risk computed like this presents acceptable values. Thus in the period 2005-2009 the values of economic leverage effect were between 0,10 and 2,30 situations that do not indicate a very high level of risk. The results obtained by computing the economic leverage effect are corelated with the ones computed with the economic leverage coefficient.

CONCLUSIONS

-   The problem of economic risk evaluation and mitigation has a significant importance in the area of theory and practice of managing, planning an internal control of the company.
-   It must be an optimal correlation from an analytical point of view, between the level of risk and the results of activities deployed
-   The estimation of the risk level becomes an integral part of the essence of managerial decision making and realization process.
-   Choosing an optimal method for risk evaluation is a difficult task because there is no method with an universal character. Thus, we have to take into consideration the following factors when choosing the risk evaluation method: the character of the situation considered risky, the purpose of the evaluation, the quantity and quality of available information, the dimension of the enterprise's activities, and the existence of necessary resources for a certain type of analysis.
-   The economic leverage coefficient underlines the impact that the variable and the totals expenses have over the turnover in determining the operating result<
-   The financial expenses can be considered as fix expenses until a certain level of activity. For example the allocation of borrowed capital that takes under consideration the cost of debt;
-   The economic leverage coefficient is a tool used by managers because is an element that helps in making decisions related to investments in new products, in modernization and development of a company;
-   It offers information regarding the minimum level of activity necessary to obtain profit;
-   it allows the anticipation of profit under different hypothesis;
-   offers explanations regarding deviations between forecasts and realizations.

AKNOWLEDGEMENT

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