

## THE RESULTS OF PRACTICAL APPLICATION OF FS AND D METHODS FOR EVALUATING THE EFFECTIVENESS OF MANAGEMENT SYSTEM OF FINANCIAL CONTROL IN THE JOINT STOCK COMPANIES

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**Abstract:** Comparative analysis of the results received from the application of FS and D methods for evaluating the effectiveness of management systems of financial joint stock company, strategically oriented of one and the same company, has a significant interest. To assess the efficiency of management system of joint stock company finances with FS and D method was conducted a research of efficiency values dynamic SGFSAS of financial potential and financial effectiveness management of S.C. PROBES DRILLING S.A. VIDELE (S.C. FORAJ SONDE S.A. VIDELE).

**JEL classification: M41, M42, M48**

Key words: management system, economic efficiency, control, financial potential

### 1. INTRODUCTION

Currently, the practice of corporate management actively implemented methods oriented strategic financial management. However, the results of implementing these new technologies finance management company stock is not always successful, especially in the specific development of the Romanian economy. For the application of new control systems finance company stock, Romanian companies should conduct a preliminary analysis on the advisability and possibility of their implementation and evaluate the effectiveness of technologies already in place on the organization and control of strategic-oriented company finances

The problem of evaluating the effectiveness of financial management company remains current stock and control of traditional finance company.

### 2 OBJECTIVES:

Concept analysis, the effectiveness of financial management companies"actions and analysis of assessment methods known financial activity analysis showed that the problem does not allow theorists and practitioners to propose an optimal procedure for solving it.

Through this work the authors intend to analyze the economic efficiency of finance management system, taking as its starting point two elements:

- evaluating the financial potential of the company, which is understood as an opportunity to achieve the level of the financial situation of the company;
- evaluating the effectiveness of financial management.

### 3. METHODOLOGY

To achieve the research objectives, the authors used two methods:

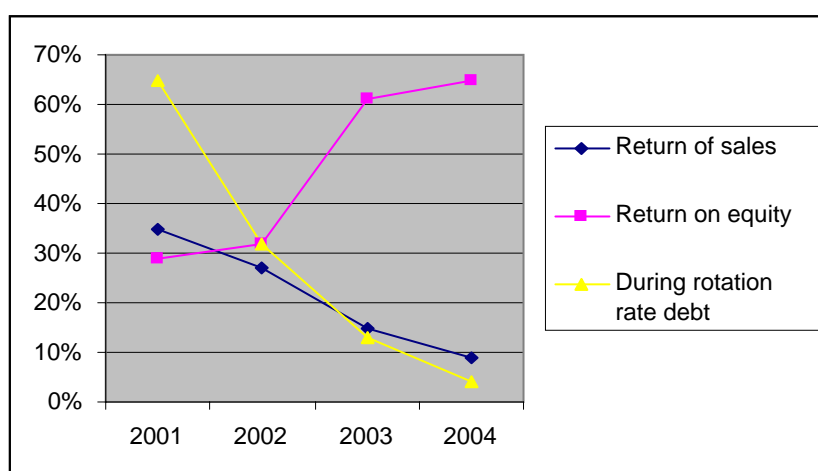
- Method - FS assessment efficiency of financial management of public limited companies in the theory of fuzzy sets. Fuzzy set theory based methods (methods-FS) - are fully type methods used for solving multi-criteria and conditions imposed correspond best methods for evaluating the effectiveness of financial management systems limited liability companies.

- D method of evaluating the effectiveness of financial management systems limited liability companies oriented strategy based on the concept of assessment difficulties.

The research was done using financial accounting information provided by SC PROBES DRILLING S.A. Videos.

### 4. ANALYSIS

By early 2005, S.C. FORAJ SONDE S.A. VIDELE had faced several problems in financial management of joint stock companies (Figure 1).



*Source: developed by the author*

**Figure no. 1. Dynamics of main financial indicators of the company „S.C. FORAJ SONDE S.A. VIDELE”**

The main activity of "FORAJ SONDE S.A. VIDELE" was a decrease in profitability and in the return of equity of the company during 2001 - 2004.

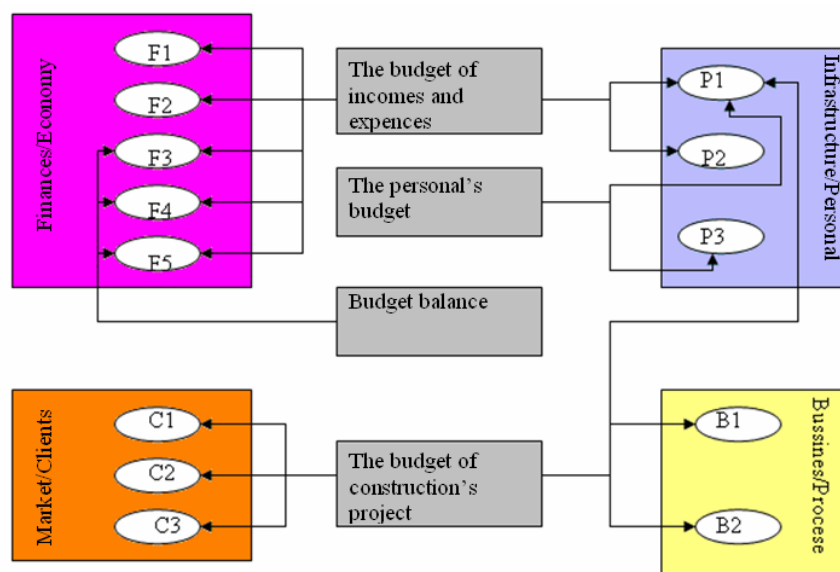
In addition, there were clearly exacerbated cash flow problems for marketed products, works performed and services rendered - during a rotation of short-term debt receivable in 2004 was significantly increased compared with 2001.

The main cause of negative trends is the excessive concentration of projects carried out by the company on a small number of strategic customers.

Reducing the volume of investment programs lead to a significant decrease in revenue and profitability of S.C. "FORAJ SONDE S.A. VIDELE" and the addition cash collection from strategic customers lead in worsening turnover indicator.

Former finance management system of joint stock companies cannot solve appeared problems. The company needed new management tools. In this respect, in mid 2004, management of S.C. FORAJ SONDE S.A. VIDELE decided to set up SGFSAS inside of the company. In accordance with the methodology of implementation of SGFSAS first of all were developed the company's strategic goals. Have been identified both financial and non-financial objectives - which is the necessary condition for achieving financial objectives. Thus, all objectives have been grouped into four areas - "Finance / Economics", "Market / Customer", "Business-process", "Infrastructure / Personal" - and was identified the dependence of financial objectives by the intermediate non-financial ones.

Thus, the formalization of strategic objectives through performance indicators was done so that non-financial interim targets to be characterized as indicators of "financial condition" - indicators that can be relatively easily obtained from existing budget forms from companies. So was established the link between financial strategic objectives and indicators on the one hand, and other tools of SGFSAS - budgeting system - on the other hand. (Figure 2).



Source: developed by the author

Figure no. 2. Relations scheme of budget forms of S.C. FORAJ SONDE S.A. VIDELE and their financial indicators

To assess the economic efficiency of SGFSAS S.C. FORAJ SONDE S.A. VIDELE company used methods FS and D. Setting up algorithm of FS method for assessing the efficiency of SGFSAS and the specific evaluation of financial potential in the model requires an analysis and summary financial information of a group of companies. Because S.C. FORAJ SONDE S.A. VIDELE entered in the rating "Expert-400" for 2007, the group of companies was selected from the members of this rating. Accordingly, the necessary information base to constitute the FS method was the financial reports data of companies participating in this rating.

According to the algorithm for the formation of FS method, the first stage of research is on solved the problem concerning the building of quasi-statistics financial indicators included in the FS method. Therefore, histograms were constructed for each of the financial indicators of FS method, based on accounting data from 2002-2006 of the companies participating in the rating of "Expert-400" in 2007.

**Table no 1 Penta scales of financial indicators of FS method for SGFSAS assessment**

Nodal points	Financial indicators											
	R1 %	R2 %	R3 %	L1	L2 %	L3 %	A1 %	A2	A3	A4	F1	P1
L1	-6,7	-25,5	0,6	0,2	0,7	109,3	0,2	0,8	0,9	0,2	-2,4	0,5
VL2	-3,4	-16,1	2,2	0,4	1,4	118,6	0,4	2,2	2,2	1,7	-1,9	0,8
Cl	2,5	2,3	6,0	0,7	3,6	177,5	0,8	4,6	4,7	5,2	-0,8	1,2
L2	5,2	11,3	8,3	0,9	5,0	227,2	1,0	5,7	5,8	7,0	-0,2	1,4
H1	11,5	25,5	11,3	1,2	8,3	415,3	1,5	8,2	7,9	12,3	1,0	1,8
C2	15,1	30,7	12,0	1,5	10,2	553,7	1,7	9,6	9,0	15,8	1,7	2,1
VH1	34,2	112,2	13,1	2,0	13,0	994,8	2,3	12,2	11,6	27,2	5,6	2,6
H2	49,6	188,6	13,6	2,6	14,0	1297,4	2,6	13,3	13,0	35,1	8,8	3,0

*Source: developed by the author*

Research using the formula for similarity of histograms showed the possibility of consistent aggregation histograms of each financial indicator included in the method-FS. Following this procedure formed quasi-form of the statistics that looks like aggregate histograms for each of the financial indicators. Penta scales of fuzzy classification of each financial indicator from FS-method were obtained as a result of using histograms to the aggregate of the principles outlined in "The objectives of internal control in public entities" and are presented in Table 1. Fuzzy classification of each financial indicator-FS method is based on the key points of these penta scales.

Analysis of Table 1. shows that even the most important companies in stable growth period of the economy as a whole, there is any sign of poor financial situation. Quasi-built statistics show that some large national companies working in loss (approximately 100 elements of quasi-statistics or about 13% of the analyzed group of companies) and not use their capital efficiently (over a quarter of the cases analyzed have a return equity of less than 5%). This is partly due to inefficiency of the main activity of the companies (about 8% of those examined had a negative return on sales). However, it seems that the main reason is hidden in inefficient management of the funding of activities and investments. As a result, additional costs of companies significantly reduce the profit from sales. Inefficient management of financial resources in the group of companies analyzed confirms also the insurance coefficient values of the stocks with their own resources (indicator F1). Absolute confidence interval in estimating the value of this indicator as "medium" (comfortable) is [-0.2: 1.0], means partial lack of own resources, a phenomenon common to most large companies.

The evaluation of SGFSAS effectiveness using FS method confirm the vision received as a result of comparing content analysis of aggregated histograms and penta-scales of large Russian company financial indicators, that the corporate financial management is ineffective in some of these companies. Later stages of research the effectiveness of financial management of joint stock companies, using the method-FS are

presented by calculating the unknown values of the efficiency inside the method-FS, using data of accounting reports of S.C. FORAJ SONDE S.A. VIDELE for 2006.

Applying the formulas for calculating the histogram to the values of financial indicators of S.C. FORAJ SONDE S.A. VIDELE for 2006 evaluate the degree of belonging to the levels of penta scales of FS method for assessing the financial indicators SGFSAS. (Table 2).

**Table no 2. The degree of belonging of financial indicators of S.C. FORAJ SONDE S.A. VIDELE for 2006 to the levels of penta scales of FS method for SGFSAS**

Indicator	Level of penta scale				
	VL	L	C	H	VH
R1	0,00	1,00	0,00	0,00	0,00
R2	0,00	0,93	0,07	0,00	0,00
R3	0,00	1,00	0,00	0,00	0,00
L1	0,00	0,00	1,00	0,00	0,00
L2	0,00	0,00	0,00	1,00	0,00
L3	0,00	0,00	0,00	1,00	0,00
A1	0,00	0,38	0,62	0,00	0,00
A2	0,00	1,00	0,00	0,00	0,00
A3	0,00	1,00	0,00	0,00	0,00
A4	0,00	0,00	1,00	0,00	0,00
F1	0,00	0,00	0,79	0,21	0,00
P1	0,00	0,08	0,92	0,00	0,00

*Source: developed by the author*

Calculations show that in 2006 the profitability of S.C. FORAJ SONDE S.A. VIDELE was generally considered as low. Only return on equity R2 can be considered as average, but with a very low degree of certainty. Liquidity and stability of S.C. FORAJ SONDE S.A. VIDELE in the 1st quarter of 2006 it can give value "above average". Here only current liquidity coefficient P1 can be evaluated as Low with a small degree and insignificant of certainty (8%). Turnover of S.C. FORAJ SONDE S.A. VIDELE can be rated as below average.

Generalizing the values received by the formula for calculating the histograms, we can get for SGFSAS efficiency of S.C. FORAJ SONDE S.A. VIDELE in 2006, as a whole, values of the degrees of belonging to the levels of standard penta scale on exponent 01.

S.C. FORAJ SONDE S.A. VIDELE may be, with a certainty of 32%, evaluated as low due to low values of the profitability and turnover indicators. But the high enough values the liquidity and financial stability indicators have received, which received the most bends coefficients in method-FS. These allow us to evaluate the effectiveness of SC SGFSAS of S.C. FORAJ SONDE S.A. VIDELE in 2006 with a degree of certainty of 42% as medium, and a certainty of 26%, as high.

High or low degree of certainty in assessing SGFSAS of S.C. FORAJ SONDE S.A. VIDELE in 2006 to complement one another, so it is clear that must be evaluated the efficiency at qualitative level as medium. This conclusion is confirmed by the formal calculations too. The ensemble of belonging degrees received using convolution values of functions belonging to the financial indicators provides a general value of SGFSAS efficiency of S.C. FORAJ SONDE S.A. VIDELE and the recognition of this value with

help of standard penta scale on exponent 01 allows to characterize this efficiency at level of quality as "medium".

Financial potential values of the company are 0.5887. This means that in correlation with the environment of market sales, the convenient value of efficiency of SGFSAS would not be 0.4883 ("medium"), but 0.5887 ("above medium"). The value of corporate financial management efficiency of S.C. FORAJ SONDE S.A. VIDELE in 2006 is calculated based on the values received on its financial condition and financial potential.

Thus, evaluating the effectiveness of the S.C. SGFSAS of S.C. FORAJ SONDE S.A. VIDELE after FS method showed that in 2006, the company finance management system operated with an medium degree of efficiency. In a tighter competition, the efficiency of financial management in financial management leading segment of the Romanian economy was not high enough to unlocking the potential of the company's financial. The main factor that prevented this activity was low profitability of the company.

Analysis of the efficiency parameters dynamics of SGFSAS shows that the overall reduction efficiency of the S.C. FORAJ SONDE S.A. VIDELE in 2006 compared to 2005 resulted in reducing the company's financial potential and to decrease the effectiveness of its financial management. Overall, the analysis of efficiency of financial management of joint stock company finances of the largest companies in Romania reveals the existence of some contradictions in the trends of development the autochthonous joint stock companies finances in 2002-2006. The period examined is characterized by increasing financial potential values in most leading companies in Romania, which shows a positive trend in developing country as a whole.

**Table no 3. The main indicators of the company's financial strategy S.C. "FORAJ SONDE S.A. VIDELE", included in BSC**

Code	Names	Units	Ratio
F1	Income	Milion lei	1,0
F2	Profitability as net profit	%	1,0
F3	Return on equity	%	1,1
F4	Return on assets	%	1,2
F5	Coefficient circulation claims on short finish		1,0
C1	Share of total income customer	%	1,0
C2	Share a client's current business cash flow	%	1,0
C3	The share of foreign projects in total income	%	1,1
R1	Minimum return on new projects in the portfolio	%	1,2
R2	The share of work done in-house	%	1,2
E1	Efficiency for staff remuneration costs		1,1
E2	Effectiveness of spending for the remuneration of managers		1,2
E3	The share of variable pay fund	%	1,2

*Source: developed by the author*

However, research results have identified the main factor that slows the development of joint stock companies finances in Romania - corporate financial management efficiency. Research the causes of this negative trend has led to the identification of opportunities to use other methods to evaluate the economic efficiency of SGFSAS, and first of all the D-method. After the results of 2008, the company S.C. FORAJ SONDE S.A. VIDELE realized for the first time in 2009, evaluating the

effectiveness of using the method SGFSAS-D based on the concept of assessment of the difficulties.

Algorithm of evaluation the effectiveness of SGFSAS in S.C. FORAJ SONDE S.A. VIDELE was shown in Proceeds indicator data. Expected value for the indicator F1, and its planned and actual value for 2008 according the Tables 3, 4 was 81, 31.5 and 35.1 million lei respectively.

Since the actual value of the indicator is higher than planned, the calculation of particularly financial potential of the company's and the efficiency of SGFSAS after F1 upon F1 indicator and conditions versus the quality of F1 indicator to be performed as follows:

**Table no 4. Strategic financial indicators of company FORAJ SONDE S.A. VIDELE**

Code	Ratio	Criterion function (2012)	2008 .		2009 .	
			Plan	Fact	Plan	Fact
F1	1,0	81,0	31,5	35,1	53,0	68,9
F2	1,0	5,0	1,0	1,4	1,4	1,5
F3	1,1	8,0	2,0	1,3	2,5	3,0
F4	1,2	12,0	3,0	3,1	5,0	5,5
F5	1,0	6,0	1,5	1,8	3,0	3,5
C1 (mod)	1,0	75,0	10,0	11,0	20,0	35,0
C2 (mod)	1,0	50,0	7,0	8,0	15,0	21,0
C3	1,1	30,0	5,0	5,5	14,0	16,0
R1	1,2	12,0	5,0	4,0	10,0	8,5
R2	1,1	35,0	5,0	6,0	10,0	13,3
E1	1,1	0,8	0,3	0,2	0,5	0,8
E2	1,2	1,6	1,0	0,9	1,0	0,9
E3	1,2	50,0	15,0	23,0	25,0	48,0

*Source: developed by the author*

Thus, the conditions of the company's management to achieve the expected strategic value of the indicator F1 in 2008 was 38.9% of the expected value. Actual level of performance, expressed in a particular efficiency value of SGFSAS was 43.3% of the expected value.

Particular efficiency of corporate financial management, after F1 indicator is calculated from values obtained in particular financial potential and efficiency of SGFSAS. Thus, to overcome the minimum required value of the indicator F1 through its effective value, the difference between them is not large enough to assess the effectiveness of corporate financial management. The possibility to develop any administrative decisions by the financial management of the company, that allow to achieve the expected value of the indicator  $\Phi 1$  in 2009, is assessed as 16.8%.

Analogically is also calculated the company's financial potential, efficiency of SGFSAS and effectiveness of corporate financial management for other financial indicators of D-method. After that, the result of applying the formulas for calculating the histograms it was obtained full financial potential values, SGFSAS efficiency values and financial management of S.C. FORAJ SONDE S.A. VIDELE.

The results of main parameters calculations of SGFSAS efficiency of S.C. FORAJ SONDE S.A. VIDELE after-D method are shown in Table 5.

**Table no 5. Values of main parameters of efficiency SGFSAS of S.C. FORAJ SONDE S.A. VIDELE for 2008-2009 inside of D-method**

Indicators	2008			2009		
	Value of particular financial Value	The value of private efficiency of SGFSAS	Value of financial management efficiencies	Value of particular financial value	The value of private efficiency of SGFSAS	Value of financial management efficiencies
F1	0,389	0,433	0,168	0,654	0,851	0,668
F2	0,200	0,280	0,357	0,280	0,300	0,093
F3	0,000	0,000	0,000	0,313	0,375	0,242
F4	0,250	0,258	0,043	0,417	0,458	0,156
F5	0,250	0,300	0,222	0,500	0,583	0,286
C1	0,133	0,147	0,105	0,267	0,467	0,584
C2	0,140	0,160	0,145	0,300	0,420	0,408
C3	0,167	0,183	0,109	0,467	0,533	0,234
R1	0,000	0,000	0,000	0,833	0,850	0,118
R2	0,143	0,171	0,194	0,286	0,380	0,347
E1	0,000	0,000	0,000	0,625	1,000	1,000
E2	0,625	0,675	0,198	0,625	0,675	0,198
E3	0,300	0,460	0,497	0,500	0,960	0,958
Full potential values of the company's finances				0,986	0,99988562886	
Full efficiency value of SGFSAS				0	0,99988562889	
Full efficiency value of the company's financial management				0	0,0000003	

*Source: developed by the author*

## CONCLUSIONS

In 2008, financial management SGFSAS of S.C. FORAJ SONDE S.A. VIDELE is generally considered to be ineffective. This is caused by essential deviation from graphic plans after a number of indicators, which led to equal zero of the individual efficiencies values of SGFSAS and the effectiveness of financial management by these indicators.

In 2006 efficiency of SGFSAS S.C. FORAJ SONDE S.A. VIDELE and effective financial management of the company grew up - the appropriate values being different from zero. But, following of the mentioned drawback of D-method, the values of integral parameters of SGFSAS efficiency do not differ too much. So, the possibility of adopting managerial solutions to achieve the expected financial position, for BSC consists of 13 indicators, are evaluated in fractions million percent. Therefore, a positive clearer trend in management of joint stock company finances of S.C. FORAJ SONDE S.A. VIDELE is observed at particular efficiency of corporate financial management after a series of indicators. This was possible due to implementation of action plans to improve financial management of joint stock company in S.C. FORAJ SONDE S.A. VIDELE.

These plans were developed by financial services of S.C. FORAJ SONDE S.A. VIDELE in the analysis of the causes of deviations from approved plans-graphics by top-management company after the results of 2008. The main purpose of the action plans was the maximum orientation of the company staff in strategic financial objectives. In this



respect, it was decided to stress the main focus on non-financial factors, founded as a basis for long-term to reach the expected values of indicators of department "Finance / Economics."

The main actions highlighted were:

- Project management principles spread to all business-unit of S.C. FORAJ SONDE S.A. VIDELE;
- company's financial service reform by establishing a settlement center;
- reorganizing the company by highlighting the assets side;
- optimizing planning principles of financial resources traffic;
- Development and implementation of material incentives to achieve the expected values of the financial indicators of the strategy;
- Certification of the management of the company.
- The result to achieve those actions was positive growth in management of oriented strategic finance of S.C. FORAJ SONDE S.A. VIDELE. Planned growth of the company's financial potential led also to corporate financial management efficiency growth.

The greatest improvements in the SGFSAS of S.C. PROBES DRILLING S.A. VIDELE are shown in strategic directions as "Infrastructure / Personal" and "Market / Customer". Expected value of the indicator E1 was achieved and the possibility of obtaining the expected value of the indicator E3 is of 95.8%. In addition, increase work efficiency of the management (significant increase in the value of E2) as a result of implementing the system of material incentives and optimization team of specialists by certification staff, has created opportunities for advancement projects abroad of S.C. FORAJ SONDE S.A. VIDELE, which led to the increase of peculiar efficiency value of financial management after indicator C3 from 0.109 to 0.234.

Among the actions that have directly influenced the financial sector, we should mention traffic management reform funds. One result of this reform was short-term debt decreasing rotation, which was reflected in the increase of peculiar efficiency value of the corporate financial management by F5 indicator from 0.222 to 0.286. This positive trend is partly conditional on the normalization of the project portfolio by customer – peculiar efficiencies of financial management in this aspect of financial activity increased significantly (F4-from 0.105 to 0.584, C2-from 0.145 to 0.408).

Reorganization of S.C. FORAJ SONDE S.A. VIDELE led to significant increase in return on equity. If in 2008 the expected value to assess as unattainable, then in 2009 the level to achieve is on 37.5% from the expected value and the possibility to reach the expected value for the remainder of time is evaluated as 24. 2%.

Thus, if the method-FS to examine the effectiveness of parameters of SGFSAS of S.C. FORAJ SONDE S.A. VIDELE in 2009 show a worsening of the efficiency of financial management company, then the results received from the application of method-D, show the opposite.

The composition method-FS includes only financial indicators. Thus, in my opinion, assessing the effectiveness of financial management of joint stock companies is based only on financial results. The inclusion in the method-D of non-financial indicators, which are factors to achieve financial indicators, form links with future financial results. If you made plans-graphic of non-financial indicators, this is considered by the management of S.C. FORAJ SONDE S.A. VIDELE as an effective strategic direction of financial

management, even if the company's financial results are more modest than those of competitors

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