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Internal Sources of Financing Companies on the Basis of Static and Dynamic Indicators: Comparative Analysis

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Abstract

The Republic of Serbia is characterized by an unsatisfactory macroeconomic environment (high degree of illiquidity, high inflation rate, rising unemployment, decline in the level of capacity utilization, followed by the process of globalization, deregulation and liberalization of the market with all its negative connotations to the growth and development of our country). Under such conditions where there is a shortage of liquid assets, the financial capital has moved from the real to the financial sector, which led companies to over-indebtedness and shutdown of their own capacities. Therefore, capital investments largely depend on internal sources of financing and the ability of companies to internally generate funds for investments. In this regard emphasis is placed on the difference in the assessment of the investment ability of companies based on internal sources of financing measured using static and dynamic indicators in order to prove the necessity of applying dynamic coefficients which unfortunately are not present in our domestic practice.

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Keywords: taxation policy; local economic development; competitiveness; tax competition.

1. Introduction

In economic theory so far two approaches to measuring the financial results have been differentiated: economic (static, traditional), which is based on the calculation approach to accounting profit, and financial (dynamic, contemporary), which is based on cash flows in order to avoid the limitations of traditional accounting system of

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calculation. The research problem that concerns the analysis of cash flows, as a new concept of management and evaluation of liquidity and financial performance gains the importance in the modern business environment when the possibilities of a solvent and efficient operations in inflationary and insolvent general economic environment are at a very unsatisfactory level. Analytical tools for the analysis of the cash flows were given by several authors in late 1990s. Several authors (Rahaman, 2011), (Goel, et al. 2012), (Caglayan, et al. 2012), (Mohamed, et al. 2014) performed various studies on internal financing of business. At the beginning of the 21st century research papers are beginning to be published on the importance of cash flow statement as supplementary to existing reports and the possible directions of its analysis that are not fully systematized in a unique way and are not empirically validated for a variety of instruments, including the purposes of analysis. The aim was to draw attention to the difference of interpretation of successful operation on the basis of performance indicators and indicators based on cash flow.

This viewpoint determined the large number of companies that operated with profit, but went bankrupt due to the inability to settle their obligations over a longer period of time. Then the role and importance of cash flow analysis (dynamic analysis) and deficiency of analysis based on information from the balance sheet and income statement (static analysis) started to be realized. The proponents of the ratio indicators based on cash flow (Gombola, & Ketz, 1983) (Giacomino, & Mielke, 1993), (Mills, & Yamamura, 1998) suggest that the indicators based on cash flows are more reliable and objective than traditional ratio relations. It is considered that the data from the balance sheet are static since they measure a single point in time as well as that the income statement contains many arbitrary non-cash allocations (Kamal, & Quader, 2010).

Considering that in Serbian literature there are still insufficient papers on the analysis of cash flow reporting, and the opportunities that it provides, and the quantification of difference (asymmetry of financial information) obtained on the basis of cash flow and the traditional indicators are not sufficiently discussed, in this paper a comparative analysis based on static and dynamic indicators will be performed in order to prove diametricity of information and the unreliability of static dimensions. Our analysis in this paper will be in the field of evaluation of the investing capability of enterprises which encompasses other aspect of business operations, after having rated in previous paper (Bukvic, & Pavlovic, 2014) the importance of the application of dynamic parameters in the analysis of the solvency of the company. With regard to capital investments affecting the company's growth and development, and thus the entire economy, there is no doubt that the financial management is a crucial issue, especially in conditions of scarcity of liquid funds.

2. The methodology of work

The research includes a number of variables, which is why it has been approached differentially. Namely, it is essential that the overall objective is deductively broken down into specific goals or tasks. Such methodological way is also used in setting up the hypotheses, taking into account that the general hypothesis is compliant with the overall aim of the research, and that the specific hypotheses, as its projections are in line with the tasks of research. In accordance with the object and purpose of the research empirical research was conducted using statistical models - analysis of variance (dispersion analysis), considering the existence of variability between modern (dynamic) and traditional (static) indicators in the survey sample, consisting of large companies that operate within the industry for production, transmission and distribution of electrical energy, by which a 100% sample is treated based on the analysis of all the major companies operating within the specified industrial branch. Analyzed are all the companies operating in this sector vital for the production and transmission of electricity, where there is a monopoly position and the state property. In Serbia, energy production is based on thermal and hydro energy, and today it is a significant competitive advantage (Bogavac, et al. 2011), belonging to the industrial sector which is the carrier of technical progress, the driving force of economic growth and a creator of synergy effects in the overall economy (Bukvic, 2011).

Analyzing the variance, which is based on an impartial assessment of the variability arising under the influence of controlled factors, there is a reliable estimate of the asymmetry of information gathered by the use of static and dynamic instruments of financial analysis of solvency where it is proven that the indicators of dynamic analysis based on cash flows are more reliable predictors of the financial position of the company, compared to static indicators, thus creating a better informative foundation for more adequate planning, analysis and decision making

in order to improve financial performance, which has been proven at the reliability level of 99% i.e. at the level of significance α = 0.05 based on the relations of:

Estimated value of the variances:

$$S^2A \equiv \left[\sum_{i=1}^{r} \cdot \left(\bar{X}_i - \bar{\bar{X}} \right)^2 * n_i \right] / (\mathrm{r} - 1). \quad (1)$$

$$S^2R \equiv \left[\sum_{i=1}^{r} \cdot \sum_{j=1}^{n} \cdot \left(\bar{X}_{i\,i} - \bar{\bar{X}}_i \right)^2 \right] / (\mathrm{r} * \mathrm{n} - \mathrm{r}). \quad (2)$$

where: S^2A- factorial variance, S^2R- residual variance, X_{ij}- value of observations in the sample, X_i - the arithmetic mean of the sample, r- number of samples, n- sample size, and the test statistics:

$$F = S^2A/S^2R. \quad (3)$$

3. Comparative analysis of the investment capability of a company based on static and dynamic indicators

It is believed that self-financing is a very convenient way to finance investment projects because the own resources are available to the investor at any time and are the cheapest way to finance investment projects which is particularly evident in conditions where external funding sources become very expensive. The term self-financing in the broadest sense should be understood as the process of collecting and placing temporarily or permanently released funds acquired based on the depreciation and the part of income intended for accumulation or allocation for specific purposes (Klobučar, 1974).

Table 1. Capital investments

Company	Land	Construction facilities	Plant, equipment and fixed assets	Assets in preparation	Intangible investments	Investments at own engagement	Investment real estate	Total
Đerdap	-	62066	317627	601132	331	-	-	981156
Drimsko-Limske HE	279	21	32872	614442	1637	-	3892	653143
TENT	15076	17857	166965	5840659	24705	-	-	6065262
TE and mines Kostolac	203596	305996	180025	7343277		-	-	8032894
Panonske TE	-	-	-	46643	6291	-	-	52934
Elektrovojvodina	-	9246	364842	642890	38251	944468		1999697
Elektrodistribucija BG	-	24740	482981	733647	28983	-	-	1270351
Elektrosrbija	121	36411	167960	1732501	9704	119	-	1946816
Jugoistok	2588	-	234552	204912	20491	164767	-	627310
Centar	782	2636	116925	314550	14173	-	-	449066
Total	222442	458973	2064749	18074653	144566	1109354	3892	22078629

Source: The financial statements of companies and PC EPS.

Capital investments of companies that make up the sample are presented in Table 1. The total investment in land, buildings, plant and equipment, intangible assets and investment property amounted to 21,931,996 thousand of dinars with real investments making up 99.34%, while financial investments amounted to 0.66%. Since the

mentioned firms operate in the branch requiring high levels of investment in tangible assets it is necessary to examine and assess the level of the company's investment capability and implications for business performance. In order to make adequate findings, the mentioned assessment will be made in terms of static and dynamic indicators of investment capacity of enterprises.

4. Analysis of the differences of internal investment capabilities of enterprise on the basis of static and dynamic indicators

Table 2. Internal sources of financing investments

Company	Net result	Amortization	Long-term provisions	Total
Đerdap	-332.413	3.673.454	368.619	3.709.660
Drimsko-Limske HE	-656.003	1.935.767	106.718	1.386.482
TENT	-8.695.287	14.936.872	828.345	7.069.93
TE and mines Kostolac	-2.746.911	4.336.07	678.332	2.267.491
Panonske TE	148.453	210.584	88.119	447.156
Elektrovojvodina	-689.64	3.457.747	451.297	3.219.404
Elektrodistribucija BG	-1.272.786	3.381.611	252.402	2.361.227
Elektrosrbija	-2.449.969	3.909.913	643.781	2.103.725
Jugoistok	-2.324.223	2.103.477	454.877	234.131
Centar	-1.082.245	1.276.504	150.907	345.166
Total	-	-	-	23.144.37

Source: The financial statements of companies and PC EPS, and authors' calculation

Based on the data in Table 2 it can be seen that almost all of the companies operated with net loss and on that basis it is impossible to form the accumulation for financing investment. However, the amounts of depreciation and long-term provisions are sufficiently high to replace the negative net result, although it should be noted that this is not a desirable feature observed in the long term.

It is also necessary to consider the structure of long-term provisions, given that they have a high proportion of the total sources of self-financing which will be discussed later. Dynamically observed capital investment in the company depend on the amount of net cash flow, indicating whether a company is able to generate sufficient cash from operations to service its debts after investing in business capacity. Some empirical studies confirm the statistical correlation of cash flow and investments, but it is not clear how the causality functions.

Also, it is believed that the greater the cash flow the company invests more. Some studies show that the current investment is positively correlated not only with the current and expected cash flows, but also with past cash flows and investments (DeMarzo, & Fishman, 2007).

Financially strong company should be able to finance its own development. The coefficient of capital investment measures internally available capital for internal investment and for the payment of existing debts. When the coefficient of capital expenses exceeds 1, the company has sufficient funds available to meet its investment from available capital.

Table 3. Cash flows from operating activities and expenditures for capital investments

Company	Net cash flow from operating activities	Cash expenditure for capital investments
1.	516.451	935.365
2.	-19.764	236.313
3.	5.094.412	3.762.498
4.	563.737	2.100.117
5.	-472.147	43.868
6.	1.585.977	1.228.985
7.	450.824	1.035.29
8.	2.045.499	1.035.699
9.	631.666	462.543
10.	167.152	145.698

Source: The financial statements of companies.

The higher value of this ratio indicates that a company has surplus cash by which it can service and repay the debt (Mills, & Yamamura, 1998) Rational investors use historical costs in forming their expectations as well as to illustrate the sensitivity of the value of the technical analysis of changes in the values of exogenous parameters (Brown, & Jennings, 1989).

From presented Table 3 it can be seen that in a number of companies, net cash flows from operating activities are insufficient to cover expenditure arising from capital investments. By correlating the internal sources of financing with capital investment the coverage ratio is obtained of capital investment by company's own resources (CRCI) and comparing the ratio of capital expenditure based on cash flows (RCE) the following data are obtained (Table 4).

Table 4. Coefficients of investment capability of companies based on internal sources of funding

Company	Indicators of investment capability	
	Static indicator CRCI (X_{11})	Dynamic indicator RCE (X_{12})
1.	3,780907	0,552138
2.	2,122785	0
3.	1,165643	1,353997
4.	0,282276	0,268431
5.	8,447425	0
6.	1,609946	1,290477
7.	1,85872	0,435457
8.	1,080598	1,974994
9.	0,37323	1,365637
10.	0,768631	1,14725

Having in mind data presented in the tables a significant difference can be observed in terms of the interpretation of investment capability of companies based on internal sources of financing of capital investments. Namely, static indicators point to a high level of internal sources of the company to finance investments while with the dynamic indicators the internal capability of company to cover capital expenditures is not at a satisfactory level. In that regard it is necessary to examine whether this difference varies significantly statistically depending on the application of different coefficients for calculating the capability of investment financing by own resources.

H0 : X11 = X12, the capability of company financing investment using the internal sources measured on the basis of both criteria is equal.

H1: X11 ≠ X12, the capability of company financing investment using the internal sources measured on the basis of both criteria is different.

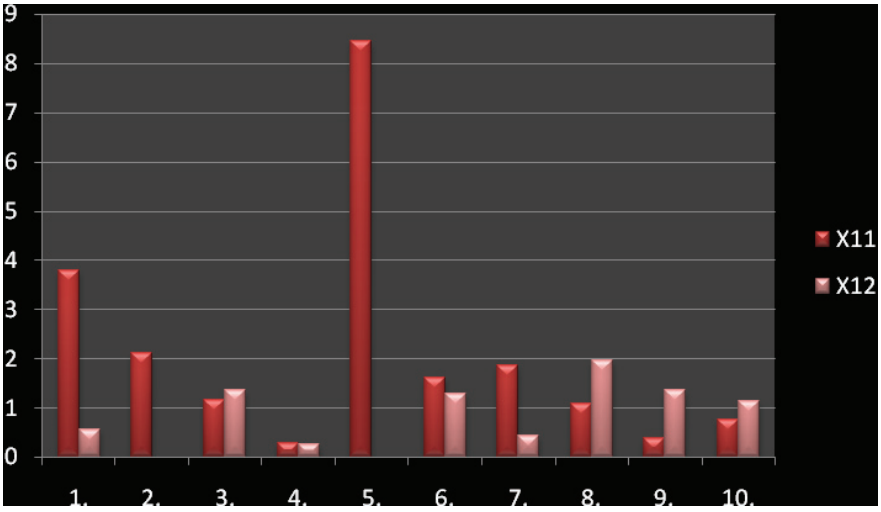

Fig. 1. The values of the indicators of internal of investment capabilities of enterprise

As the critical value F1,18; 0.1 = 3,007 is less than the statistic values of the test F = 3.5829, respectively F> F v1, v2; α, it follows that we do not accept the null hypothesis that the capability of investment financing using internal sources of the company measured on the basis of both criteria is equal with the risk of error of 10%. This indicates that information obtained using dynamic indicators is more reliable for assessing the investment capacity of enterprises. The reason for this is the fact that static indicators that take into account the calculating categories of the net results, depreciation and long-term provisions which, as noted above are subject to the influence of the application of accounting policies on the one hand, while on the other hand, provided that they show a real internal strength of financing investments, there is the problem of their effective use, i.e. whether internally generated funds are directed towards investment activities or the available funds are spent in the form of financial allocations for other purposes. An example of irrational spending of long-term provisions is shown in Table 5.

The implementation of the one-way test with the area of rejection on the right side of the theoretical Snedecor F arrangement with the generally accepted rules of decision-making, it is approached to the necessary elements for the calculation of the aforementioned analysis, at the significance level α = 0.10 based on the relation (1), (2) and (3) the estimated values of the variance is obtained, which are:

$$S^2A \equiv \left[\sum_{i=1}^{r} \cdot \left(\bar{X}_i - \bar{\bar{X}} \right)^2 * n_i \right] / (\mathrm{r} - 1) = 11.4394$$

$$S^2R \equiv \left[\sum_{i=1}^{r} \cdot \sum_{j=1}^{n} \cdot \left(\bar{X}_{i\,i} - \bar{\bar{X}}_i \right)^2 \right] / (\mathrm{r} * 1 - \mathrm{r}). = 3.1928$$

By putting into ratio a greater variance (S^2A) with lower variance (S^2R) we obtain the value of the test statistics (relation 3):

$$F = S^2A / S^2\mathrm{R} = 11.4394 / 3.1928 = 3.5829$$

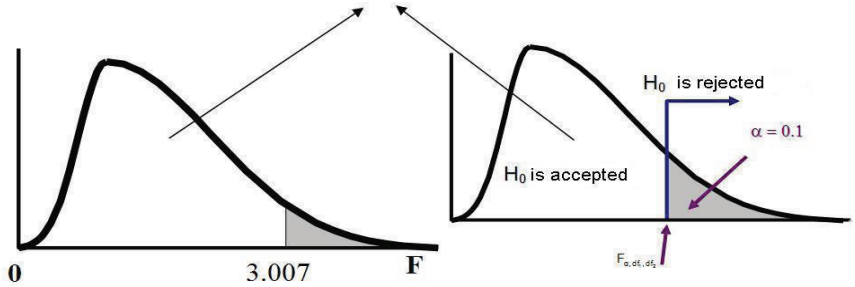

Table 5. Structure of long-term provisions by purpose

Company	For the cost of recovery of natural resources	For employee benefits	For legal disputes	Total
PD Đerdap	0	180.705	187.914	368.619
PD Drimsko-Limske HE	0	83.634	23.084	106.718
PD TENT	0	488.870	339.475	828.345
TE and mines Kostolac	0	598.573	79.759	678.332
PD Panonske TE	0	881.19	0	88.119
PD Elektrovojvodina	0	366.400	84.897	451.297
PD Elektrodistribucija BG	0	252.402	0	252.402
PD Elektrosrbija	0	470.362	173.419	643.781
PD Jugoistok	0	302.332	152.554	454.886
PD Centar	0	147.557	3.350	150.907
Total	0	2.978.954	1.044.452	4.023.406

Source: The financial statements of companies, and authors' calculation.

The total amount of long-term reserves of 4,023,406,000 accounted for 18% of total investments in the observed year and of which 13.5% are employee benefits and the question of justification of the high amount of employee benefits is set due to the fact that the analyzed companies operated with a loss. In this sense, it is necessary to examine also the relationship of expenses on the basis of provisions and total provisions.

Table 6. Provision costs

Company	The costs of benefits	% in the provisions for benefits	% in total provisions	Legal disputes costs	% in provisions for legal disputes	% in total provisions
1.	180705	100	49.02216	81836	43.54971	22.2007
2.	83634	100	78.36916	4386	19.00017	4.109897
3.	174884	35.77311	21.11246	255781	75.34605	30.87856
4.	598573	100	88.24189	10364	12.99414	1.527865
5.	88119	100	100	0	0	0
6.	366400	100	81.18822	61127	72.00137	13.54474
7.	252402	100	100	0	0	0
8.	470362	100	73.06242	112900	65.10244	17.53702
9.	302332	100	66.46325	48575	31.84118	10.6785
10.	147557	100	97.78009	0	0	0
Total	2664968	89.45986	66.23662	574969	55.04983	14.2906

Source: The financial statements of companies, and authors' calculation.

The costs of employee benefits make up 89.5% of long-term provisions for benefits and 66.2% of total long-term provisions, while expenses for legal disputes represent 55% of provisions for legal disputes and 14.2% of total long-term provisions. The high amount of long-term provisions for employee benefits raises the question of the lack of provisions for restructuring costs, considering "that many facilities have not been repaired for years, that 53% of plants that produce energy are older than 30 years and the importance and actuality of the issue is noted which is possible to be overcome by restructuring" (Bogavac, et al. 2011). Also, in the professional and scientific literature it is considered that the benefits, as variable part of the salary, are paid to the employee for his work, and that are used award the greater effect (Stoner, et al. 1997), (Dašić, 2001) and are positively correlated with the extent of realized accounting income within certain implicit or explicit wage limit (Guidry, et al. 1999). Viewed in terms of accounting, education, salary, bonuses and other financial compensation represent costs for the company, which is recognized in the income statement and reduction of liquid assets on the basis of payments, which is recorded in the Statement of Cash Flows (Pavlović, & Pavlović, 2011). Therefore, the restructuring of the company organization needs to go toward reducing the number of management levels, and consequently the number of Directors General posts, which determines that large enterprises must change their personnel policy, remuneration policy and policy of advancement (Drucker, 1995), because companies' capabilities have not developed but the attention has been turned to solutions that the state will find *(*Stamenkovic, 2007).

5. Summary

Examination of the quality and importance of companies' internal sources of financing is an urgent result of considering the relevant business conditions in the Republic of Serbia, which is characterized by turbulence of environment, dynamics of change, discontinuity of economic and business activity, unfavorable macroeconomic environment and illiquidity of the economy with far-reaching implications on the business and market valuation of business entities a particularly high risk and uncertainty and unfavorable external financing conditions. The investment capability of companies measured using static (coverage ratio of companies' own sources capital investment CRCI) and dynamic indicators (ratio of capital expenditure based on cash flows RCE) differs and is not the result of chance but is of systematic character. The analysis based on two groups of indicators, based on the dispersion analysis, showed that we should not accept the null hypothesis that the capability of investment financing using internal sources of companies measured on the basis of both criteria is equal (at the risk of error of 10%).

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