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FINANCIAL PERFORMANCE ANALYSIS OF ROMANIAN CONSTRUCTION COMPANIES

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Abstract: *This paper analyses the financial performances of two Romanian companies in the construction sector, Astalrom and Aedificia respectively, for the 2012-2016 period. For these two companies, I have analysed their financial performances using return on equity (ROE) and capital intensity, with their influence upon companies' self-financing capacity and financial competitiveness. I have found that both companies registered an unfavourable evolution of ROE 2016/2015 and that this was confirmed by a deterioration of capital intensity levels for Aedificia. Astalrom registered a slight improvement in capital intensity levels, yet it did not manage to transfer that upon ROE. Both companies should improve profitability and efficiency of new and past investments.*

Key words: *financial approach, capital intensity, return on equity, financial performance impact of capital intensity*

1. Introduction

In this paper I have analysed the financial performances of two Romanian construction companies, Astalrom and Aedificia, for the 2012-2016 period.

For these two companies I have analysed their financial performances using two financial measures, ROE (return on equity) and capital intensity respectively, with their influence upon financial competitiveness.

I have connected the economic and financial performance aspects via the capital intensity measure and its influence upon the company self-financing capacity as revealed by the comparative analysis of the two Romanian companies. I have used the DuPont method and the indexes' method to calculate the influences of the independent variables upon the evolution of ROE from the base year to the final year of analysis and establish some correction measures the management of the companies can undertake to improve the levels of profitability measures.

2. Literature Review

Martani, Mulyono and Khairurizka (2009) observed the fact that financial information has a great importance for investors, facilitating profits and adjusted market return. In

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their study, the most significant indicators in terms of their influence over the final return were the *Sales/Total assets*, the *Net profit Margin*, the *Return on Equity* and the *Market Value Ratio*. Nevertheless, their regression model showcased the fact that there are external factors, independent of the financial reports or internal performance which determine fluctuations in the value of the stock price.

So far, financial reports have been used for predicting future performance of companies in terms of growth and earnings (Lev and Thiagarajan, 1993) or share price (Abarbanell and Bushee, 1998).

Financial ratios, mainly the core of financial analysis, can be grouped in 5 main categories: profitability, asset turnover, debt, liquidity and market value. Considering that markets have such a large diversity of companies with various sets of characteristics, it is expected that their structures and strategies will differ. For example, Höbarth (2006) observed that financial indicators and the firm's performance are highly correlated, such that companies with high equity, high retained earnings, low liquidity and low book-to-market ratios have a high profitability based on ROI (Return on Investments). Companies with higher liabilities, less equity and no audit expertise tend to have a better cash-flow performance, while firms with an efficient working capital administration, low book-to-market ratio, higher equity and fewer liabilities and a high EBIT margin have better market performance (measured by differences in stock price).

Deari and Dincă (2015) analysed financial performances of 40 selected Romanian companies for the 2009-2013 period. The selected companies operate in the wood industry and the authors used panel type data to perform a quantitative analysis. The two authors found that companies with higher total assets, current assets, average inventory and accounts receivable have higher sales and that larger companies are more profitable than their counterparties.

Dincă and Bociu (2015) approached the link between the results obtained applying discriminant analysis and lending decision. They carried out the research on a sample of 24 Romanian private companies, for the period 2010-2012, using two popular bankruptcy risk prediction models, Altman's model and Anghel's model. The authors double-checked and confirmed the results of their research by comparing the results from applying the two fore-mentioned models as well as by checking existing debt commitments of each analysed company to credit institutions during the 2010-2012 period.

Daniati and Suhairi (2006) showed that expected return on shares is influenced by company size, cash flows from operating activities and gross profit. On the contrary, Meythi (2006), on a sample size of 100 manufacturing companies listed on Jakarta Stock Exchange (BEJ), concluded that cash flows from operating activities do not influence stock price, having profit persistence as an intervening variable.

In USA, in a research conducted by Lev and Thiagarajan (1993), it was observed that changes in inventory, capital expenditure, receivables, gross margin, sales and administrative expense, order backlog influence significantly return, with a α=5%. This correlation is strengthened by the presence of macroeconomics indicators such as gross national product growth or inflation rate.

Ameer and Othman focus their study published in 2011 on the importance of long-term planning, focusing on strategies which are directed towards improving financial

performance. They observed that the top 100 sustainable companies from a sample of 3000 from developed and emerging markets are the ones with higher return on assets, higher sales, and higher cash flows from operations.

In a 2010 study, Bărbuță-Mișu and Stroe developed a model in order to predict future financial performances of Romanian companies from the construction industry. They used a Conan & Holder model for assessing bankruptcy risks with regard to the country's specificity. For the period 2001-2006, the test showed consistent results, with success rates of 75% and higher. This high level of success might be assimilated to the steadiness of the markets at that time. The inclusion of crisis or even post-crisis data would make it a lot harder to predict future performances with such high volatilities in place.

Jezovita (2015) emphasizes the importance of the defining characteristics of a company when it comes to evaluating its financial position and its capability of running its operations. Characteristics such as the size of a company, competitive advantages or the market it participates in influence the strategy a financial analysist might consider to assess performance, liquidity and solvency.

On a test conducted in the US market on some of the biggest companies at that moment, Teece (1981) observed the fact that, even if external factors of influence are eliminated, such as market shocks or competition, profitability is subject directly to the internal managerial aptitudes and forms, also known an M-Form. The latter is a way of dividing the structure of a company so that it is easier to coordinate first towards departmental goals and then towards the company's final objectives.

This acknowledgement has a relevant significance towards understanding certain unquantifiable characteristics of firms and their behaviour.

Takii (2007) noticed that the firm size, measured by the amount of intangible assets, did significantly influence firm profits. When referring to intangible assets, mainly the human capital was considered. Consequently, stable human capital provided stable and even increasing profits, because it has the capability of gathering knowledge and experience, highly valuable assets for firms in any industry.

Rachev (2006) explains that there are no perfect series of data because of the lack of evidence capable to sustain this assumption. In large samples, the theory of deterministic chaos applies, meaning that there will be unpredictable, random variances from the datasets. Therefore, any econometric model needs to be tested for linearity, mainly to be acknowledged, because the tracking and elimination is a process which has not yet been fully researched.

Goddard et al. (2005) studied the determinants of profitability ratios for over 10,000 EU companies (from the manufacturing and services segment) and found their profits were negatively correlated to the size and liquidity of the companies and positively correlated with the market share.

Chan et al. (2003) studied how growth rates can be predicted having a 40-year time period and several means of measuring operational performance. All of the indicators showed about the same average of 10% for growth, but with considerable outliers which drastically influence a sustainable model concerning expected growth rates. Firm growth rates usually follow an upwards trend until they reach a certain size, from which, without any further investments in innovation, research and development they will stagnate.

3. The Companies

For the purpose of this research two companies have been selected from the Romanian construction sector, Astalrom and Aedificia respectively.

ASTALROM

Astalrom is a fully private company, part of one of the most important construction companies, Astaldi SpA respectively. The company was founded in 1991, as a result of reorganizing a company originating from the former Galati Construction Heavy Machinery company and it has completed its identity when taken over by the ASTALDI group in 2007.

Astalrom has undertaken a lot of civil and industrial construction works, works of road and railway infrastructure, civil engineering works. As such, Astalrom managed to make good use of its human resources – construction specialists and of its technical capabilities provided by the highly mechanized machineries for construction, its road and naval transportation means and in-house produced construction materials.

The financial situations for the last 5 years (balance sheet and profit and loss account) of Astalrom can be found in Table 1 below.

Balance sheet and profit and loss account of Astalrom [in Lei] Table 1

BALANCE SHEET	2012	2013	2014	2015	2016
Total fixed assets	50,420,530	40,847,071	31,417,799	27,383,037	24,354,692
Total current assets	62,165,456	73,325,195	67,237,452	90,520,982	80,064,226
Prepaid expenses	-	-	-	35,471	7,695
Total Assets	112,585,986	114,172,266	98,655,251	117,904,019	104,418,918
Inventories	6,424,717	6,621,320	5,506,325	5,537,310	4,364,433
Cash and equivalents	513,911	29,511	254,892	6,976,878	52,101
Accts. receivable	55,226,828	66,674,364	61,117,267	77,997,084	75,647,692
Total Capital	15,760,873	12,915,440	10,326,904	11,872,573	12,278,554
Social Capital	3,809,898	3,809,898	3,809,898	3,809,898	3,809,898
Rev. in advance	8,929,174	4,897,490	1,105,996	-	-
Provisions	2,784,285	2,199,932	2,761,752	2,179,927	3,139,590
Total Debt	85,111,654	94,159,404	84,460,599	103,886,990	89,008,469
Total Capital &Debt	112,585,986	114,172,266	98,655,251	17,904,019	104,418,918
INCOME STATEMENT	**2012**	**2013**	**2014**	**2015**	**2016**
Sales	92,907,506	89,249,005	58,586,967	48,594,593	47,594,600
Total revenues	99,354,706	97,978,598	64,584,366	50,856,479	48,139,673
Total expenditures	91,328,330	96,283,132	67,396,697	49,033,475	47,238,316
Gross Profit	8,026,376	1,695,466	(2,812,331)	1,823,004	47,095
Net Profit	6,575,099	1,154,566	(2,812,331)	1,545,669	405,981
No. of employees	393	329	264	237	227

Data collected by the author from the site of the Ministry of Finance

AEDIFICIA Carpati S.A.

Aedificia Carpati was created in 1992 as a result of reorganizing the Carpaţi Autonomous State Company, keeping most of the valuable employees and specialists.

Since 1993, it has operated as a private company in the Romanian construction industry. The founding team was preserved and extended in each subsequent year, adding new valuable professionals, new architecture, construction and restauration talents.

The financial situations for the last 5 years (balance sheet and profit and loss account) of Aedificia can be found in Table 2 below.

Balance sheet and profit and loss account of Aedificia [in Lei] Table 2

BALANCE SHEET	2012	2013	2014	2015	2016
Total fixed assets	102,135,063	80,010,487	109,731,550	93,478,280	85,077,852
Total crt. assets	134,566,295	143,371,664	114,160,962	131,705,729	89,097,832
Total assets	236,701,358	223,382,151	223,892,512	225,184,009	174,175,684
Inventories	2,701,221	16,306,574	6,935,370	10,359,828	11,712,943
Cash and equivalents	54,197,480	58,654,294	42,368,403	48,714,060	22,191,690
Accts. receivable	7,710,566	15,071,531	18,161,213	18,684,488	15,884,746
Total Capital	128,645,554	129,507,792	132,691,283	130,556,215	125,366,238
Social Capital	4,330,700	4,330,700	4,330,700	4,330,700	4,330,700
Provisions	65,387,615	51,779,739	41,417,310	35,986,660	26,254,086
Total Debt	42,668,189	42,094,620	49,783,919	58,641,134	22,555,360
Total Capital &Debt	236,701,358	223,382,151	223,892,512	225,184,009	174,175,684
INCOME STATEMENT	**2012**	**2013**	**2014**	**2015**	**2016**
Sales	154,084,043	131,289,090	197,045,377	203,553,764	65,387,243
Total revenues	166,456,290	154,383,654	196,062,070	209,097,660	67,429,947
Total expenditures	138,417,354	141,172,320	183,947,997	199,521,230	66,144,190
Gross Profit	28,038,936	13,211,334	12,114,073	9,576,430	2,131,413
Net Profit	23,967,366	11,362,238	10,398,681	8,263,613	1,810,023
No of employees	631	572	583	N/A	447

Data collected by the author from the site of the Ministry of Finance

We can notice that the two companies are big companies, with relatively similar values for sales, total assets and number of employees, however with a noticeable advance for Aedificia Carpați.

4. Methodology

Capital Intensity (CI) is the most interesting and important assets efficiency measure (it expresses the economic and financial performances of the company):

$$CI = \frac{Total\ Assets}{Annual\ Sales} \times 1000$$

It shows how much a company needs to invest in its assets to generate 1,000 lei of sales. Intuitively, the level of *CI* should be lower than 1,000 (a company should invest less than 1,000 lei in its assets to generate 1,000 lei of sales).

The increase in assets efficiency requires a decrease in the level of CI (the level from 2016 should be lower than the one from 2015, corresponding to a lower than one index:

$$Index\ of\ CI = \frac{CI\ from\ 2016}{CI\ from\ 2015} < 1$$

The situation for the two analysed companies is described in Table 3 below.

Evolution of total assets efficiency Table 3

Measures Astalrom	**2016**	**2015**	**Index 2016/2015**
Number of uses (Sales/Total Assets)	0.455	0.412	1.1
Sales at 1000 lei total assets (Sales/Total Assets) x1000	455	412	1.1
Capital intensity (Total Assets/Sales) x 1000	2198	2427	0.9056
Measures Aedificia	**2016**	**2015**	**Index 2016/2015**
Number of uses (Sales/Total Assets)	0.38	0.9039	0.414
Sales at 1000 lei total assets (Sales/Total Assets) x 1000	375	903.9	0.414
Capital intensity (Total Assets/Sales) x 1000	2667	1106	2.41

Data collected and processed by the author from the site of the Ministry of Finance

As such, Astalrom registers an apparent improvement in using its total assets, with 0.455 uses in 2016 and 0.412 in 2015 (an index of 1.10).

Aedificia has a quite unfavourable evolution in 2016 compared to 2015, since the number of uses decreased dramatically from 0.90 in 2015 to 0.375 in 2016. It means company sales decreased at a much higher pace than company assets.

The two companies apparently present a different picture, since Astalrom managed to improve its efficiency in 2016 compared to 2015, whereas Aedificia registered a dramatic worsening in its efficiency. However, both companies have something in common, they report a number of uses below one, they do not manage to have at least one full cycle of employing their assets during one year.

In case of Astalrom, the levels of capital intensity are of 2,427 lei in 2015 and of 2,198 lei in 2016 respectively, whereas Aedificia has 1,106 lei in 2015 and 2,667 lei in 2016. Obviously the two companies do not register a good economic performance since they invest too much in their assets to obtain 1,000 lei of sales. The explanation lies either in the improper setting of investment projects (the companies acquire assets without having a very good forecast of their sales) or in losing some clients or some bids for new projects to competitors. Either way, the economic performance of the two companies is not satisfactory, they have assets which are not properly used.

To find the financial performance impact of capital intensity – *FPI* (dividends and interests paid to have the assets supporting sales worth of 1,000 lei), we have to multiply capital intensity by the weighted average capital cost:

$$FPI = CI \times WACC$$

For our companies, if we use a theoretical WACC value of 10% for each, we get the following levels for the financial performance impact (see Table 4 below):

Levels of the financial performance impact Table 4

Measures Astalrom	**2015**	**2016**	**Index 2016/2015**
Capital Intensity	2,427	2,198	0.9056
Weighted Average Capital Cost	0.1	0.1	1
Financial performance impact (lei of dividends and interest to generate sales of 1000 lei)	242.7	219.8	0.9056
Measures Aedificia	**2015**	**2016**	**Index 2016/2015**
Capital Intensity	1,106	2,667	2.41
Weighted Average Capital Cost	0.1	0.1	1
Financial performance impact (lei of dividends and interest to generate sales of 1000 lei)	110.6	266.7	2.41

Data collected and processed by the author from the site of the Ministry of Finance

Those levels are quite high and impair significantly both the economic and the financial performances of the two analysed companies, since they reduce their self-financing capacity. When a company pays around 200 lei dividends and interests to generate 1,000 lei of sales, it is left with little space of manoeuver, since it also has to cover salary and material expenditures, utilities, local and national budget taxes and other commitments.

The two companies have to be much more careful when planning new investments to acquire new assets and to be more pro-active in contracting new construction projects.

In order to get a clearer picture of the overall company efficiency it is necessary to compare the different types of profit with different types of assets and the capital sources which were invested to create the profit.

This comparison allows more types of benchmarking, such as the one against inflation rate, economic growth rate, interest rate, cost of equity and other percentage expressed landmarks.

There are several types of profitability ratios, return on assets, return on equity and return on invested capital, respectively.

Return on Equity (ROE) expresses the percentage compensation of equity owners, i.e. the ratio between net profit after tax and equity from the balance sheet.

$$\text{ROE} = \frac{Net\ profit\ after\ tax}{Equity\ owner} \cdot 100$$

ROE is predominantly a financial measure and, in this capacity, it can be compared to the cost of equity (seen otherwise as a minimum required level of ROE), to the interest rate and to ROA.

When ROE is higher than the cost of equity the company manages to ensure a surplus for equity owners compared to what they require and usually generates an increase in company value.

When ROE is higher than ROA, it also usually generates an increase in the company value, as equity owners, the residual owners of the company, which assume most risks, are better rewarded compared to the other investors (mostly financial creditors), which assume lower risks.

The evolution of ROE for the two companies is presented in Table 5 below.

Situation of ROE for Astalrom and Aedificia [in %] Table 5

Astalrom	**2015**	**2016**
ROE (NP/Eq)	13.01	3.3
Index of Equity Multiplier	-	0.9927
Index of Total assets turnover	-	0.954
Index of net profit margin	-	0.2681
Aedificia	**2015**	**2016**
ROE (NP/Eq)	6.33	1.44
Index of Equity Multiplier	-	0.9261
Index of Total assets turnover	-	0.3612
Index of net profit margin	-	0.6818

Data collected and processed by the author from the site of Finance Ministry

ROE for **Astalrom** had an acceptable level in 2015, with 13.01%, which most likely covered all the opportunity costs and made attractive shareholders' investment in company equity. However, in 2016, the level of ROE dropped to 3.30%, which is quite low and under the prevailing interest rate for new loans.

Using the DuPont method, we can deepen the analysis to discover the factors which influenced this evolution (of -9.71 pp) and their corresponding contributions for Astalrom. According to the DuPont method, we can express ROE as follows:

$$ROE = \frac{Total\ Assets}{Equity} \cdot \frac{Sales}{Total\ Assets} \cdot \frac{Net\ profit}{Sales} = \\ = Equity\ multiplier \cdot Total\ assets\ turnover \cdot Profit\ margin$$

The influence of the three factors, equity multiplier, total assets turnover, net profit margin respectively, can be determined as follows:

$$\Delta_{ROE}^{Eq.multiplier} = ROE_{15}(Index\ of\ Eq.Multiplier - 1) = 0.130(0.9927 - 1) = -0.095\ pp$$

The equity multiplier, in fact the financial leverage the company uses to finance its assets, has slightly decreased in 2016 compared to 2015 (with an index of 0.9927), leading to an insignificant reduction in the level of ROE, of 0.09 pp.

The influence exerted by total assets turnover can be expressed as:

$$\Delta_{ROE}^{TAT} = ROE_{15}\,Index\ of\ Eq.M(Index\ of\ TAT - 1) = 0.130 \cdot 0.9927(0.9540 - 1) = -0.59\ pp$$

As total assets turnover registered a more significant decrease, of 4.60%, it translated into a more obvious decrease of ROE, of 0.59 pp.

The third factor is the net profit margin, whose influence can be established as:

$$\Delta_{ROE}^{NPM} = ROE_{15} \cdot Index\ of\ Eq.M \cdot Index\ of\ TAT(Index\ of\ N\ Pr\ Marg - 1) = 0.1301 \cdot 0.9927 \cdot 0.9540\,(0.2681 - 1) = -9.01\ pp$$

The net profit margin, which expresses operational efficiency, decreased by 73.19%, which caused a significant decrease in the level of ROE, of 9.01 pp, representing 92.79% of the total modification of ROE in 2016 compared to 2015.

Astalrom starts with a good situation for ROE in 2015, yet in 2016 the situation worsens, mainly as a result of a sharp drop in its operational efficiency and profits.

For **Aedificia**, we can see a similar situation with the one of Astalrom, i.e. we start from an almost acceptable level of ROE (6.33%, at least higher than the passive interest rate) which drops in 2016 to a very low level of 1.44%, which is pretty much equal to prevailing passive interest rate for that period.

As in the case of Astalrom, the net profit margin also deteriorated in the case of Aedificia (it decreased by 31.82%) and thereby induced a 0.673 pp decrease in the level of ROE 2016 compared to 2015. As it was done under a dramatic fall in company sales in 2016 and with a limited number of degrees of freedom (both in assets and in human resource perspectives), it is likely that Aedificia could not perform much better under these circumstances to improve its operational efficiency.

5. Conclusions

The financial performance impact of capital intensity (assumed for a 10% level of weighted average capital cost for both companies) reveals quite high levels for 2016, of 219 lei for Astalrom and of 266 lei for Aedificia respectively.

When a company spends around 200 lei in interests and dividends out of sales worth of 1,000 lei, it means it is left with only 800 lei to cover its material, salary, taxes and other operating costs, as well as money for reinvesting (for co-financing future investment projects). Thus, the diagram of allocating 1,000 lei of sales does not look very encouraging for the two companies, with direct effects upon the self-financing capacity and most likely also upon the investors' confidence and willingness to fund new investment projects. At the same time, ROE suffered a deterioration in its levels from 2015 to 2016 for both companies, especially for Astalrom (from a good level of 13% in 2015 to a quite low level of 3% in 2016). Aedificia also registered a decrease, a smaller one, yet it is a significant one since the level of ROE from 2016, of 1.44%, reveals a poor performance of using shareholders' funds.

In the case of Aedificia, there is also a correlation between the evolution of the capital intensity (from 1106 in 2015, an almost acceptable level to 2,667 lei in 2016, a very poor level) and the evolution of ROE in 2016 compared to 2015 (1.44% compared to 6.33%). The explanation for this is the acute deterioration of total assets turnover, with an index 2016/2015 of only 0.3612 (a decrease by 63.88% in the efficiency of using company assets).

Both companies have to address the issue of selecting and calibrating the new investment projects, as well as of considering some disinvestments (especially in the case of Aedificia, which registered a dramatic decrease in total assets' efficiency). Their managers have to pay more attention to the market signals in order to secure a better performance of their assets and increase the levels of their ROE.

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