

Victoria FIRESCU
University of Pitesti, Romania, Faculty of Economics

IRRELEVANCE OF FINANCIAL INDICATORS IN MEASURING PERFORMANCE ROMANIAN COMPANIES

Empirical
studies

Keywords

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Abstract

This paper, by means of the model of correlation coefficient between the two variables, this paper tests the intensity of the correlation between the three traditional financial indicators: the return on assets (ROA), the return on equity (ROE), the financial leverage (LF) and the indicators reflecting the change of the exchange rate (the total shareholder return-TSR and the price-to-earnings ratio -PER). The empirical research is addressed both transversely (on a sample of companies listed on the Bucharest Stock Exchange (BSE) with have as their object of activity manufacturing pharmaceuticals and longitudinally (for the 2011-2012 period) based on the positive research method. The results show that between the stock exchange indicator (TSR, PER) and the aforementioned traditional financial indicators (ROA, ROE, LF) there is a weak connection, which means that the traditional financial indicators calculated for the Romanian companies cannot anticipate the investors' expectations on the future benefits.

Introduction

The notion of performance measurement is of great complexity and at the time being it seeks a way to retrieve itself, in order not to be confused with the indicators that describe and measure it. Performance is a multidimensional concept which is difficult to be technically measured.

Kelvin said that „*If you can not measure it, it does not exist*”. Performance exists only if it can be measured, i.e. If it can be described by a set of measures or indicators, more or less complex.

There are authors according to which determinant financial indicators based on financial reports fail to explain the changes to the course of actions and long-term profitability.

Thus, M.C. Jensen (2001) believes that the share price is the indicator which measures best the company's performance since it incorporates expectations of investors concerning the future benefits.

According to other researchers, the financial indicators must be ranked for a better measurement of the management performance. (Itner, 2001)

In this context it is also enrolled this paper which aims to test the correlation between financial indicators, traditional indicators of performance measurement and indicators of creating value, stock indicators quantifying future expectations of investors.

The measurement is not an end in itself. Performance measurement is " the process that allows an abstract concept of empirical indicators " (Niculescu, 1997)

Taking into consideration the interest shown by the measurement of performance , we must ask ourselves if we really measured what our intention was to measure and if the results are relevant.

In other words, we must establish the validity and reliability of performance measurement. The validity is conceptualized as a correlation between measurement and criteria (indicators) independently relevant (Porter, 2001).

2. The indicators used for assessing performance

Performance appraisal criteria were different from one era to another which means that performance indicators used are dynamic, as shown in the table no.1

Vernimmen (2005) believes that traditional financial indicators (net profit, earnings per share, financial rate of return, etc.) have a high potential for manipulation by the management of the economic entity, while indicators of value creation (economic value added, market value added , total return to shareholders, etc.) does not have this risk, as they are strongly influenced by the reaction of the financial markets.

The notion of performance is multiple and sometimes paradoxical. However it is

certain that: *“the performance it is not found today, it is built in time”*

Authors Martin, J.D. and Petty, J.W. found many distortions induced by the financial indicators used in measuring the company's performance.

Specifically, the above mentioned authors show how different accounting methods lead to different results, how time value cannot be reflected by the traditional indicators, how accounting information are unable to reflect the opportunity cost of assets placed by investors. (Martin & Petty)

3. Research Methodology

Epistemology research topics are positioned within scientific knowledge on issues of financial indicators in measuring the performance of economic entities that trade shares on the stock market. We believe that any knowledge is a concise answer to a realistic and relevant question, in relation to the research field addressed.

Specifically, the question to which the present research subordinates to, it can be: *"It is necessary to prioritize financial ratios depending on the degree of correlation with variation in the share?"*

The investigation of the literature shows that existed many studies that approached the relevance of accounting information in the sense that they have analysed whether the accounting values created within the company are recognized by the market.

Thus, Ball and Brown (1968) are among the first researchers who have analyzed the relationship between the financial accounting indicators and the profitability indicators of the economic entity. In Lev's opinion (Lev, 1989), the relevance of the financial indicators is defined by their ability to create a value for investors. Most studies have measured the relevance of financial indicators by the modification degree of the exchange rate with the publication of the financial statements of a listed company .

The research approach is included in the current positivist framework, linking in the spirit of scientific requirements on several assumptions

According to the French philosopher Auguste Comte "positive it's the same with real and useful", in the sense that empirical observations have universal value. Caplow states that: "a conjecture is the statement of a causal relationship in a form that enables the empirical verification". The rigor of inductive reasoning, allows the passage from facts to hypotheses.

The empirical research undertaken in this study, we set the dependent variables (ROA-Return on economic, ROE- financial profitability, financial leverage LF) and independent variables (total shareholder return

TSR-) and PER (coefficient of capitalization of results).

In our empirical research we aim to determine the intensity of the correlation between the independent variable and the three dependent variables using the correlation coefficient.

The mathematical model of the correlation coefficient is:

$$R_{xy} = \frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^n (x_i - \bar{x})^2} \cdot \sqrt{\sum_{i=1}^n (y_i - \bar{y})^2}}$$

Where: X is the independent variable;

Y is the dependent variable.

The correlation coefficient is a number between -1 and 1 and shall be construed:

- when $r > 0$, one increase of X determines the overall growth of Y (related position);
- when $r < 0$, an increase of X generally results in a decrease of Y (negative relationship);
- the more $|r|$ approaches 1 the correlation between the two variables will be stronger.

Research Hypotheses

In our research approach we formulated the following hypotheses:

Total shareholder return (TSR) is poorly correlated with return on assets (ROA), the return on equity (ROE), with leverage (financial leverage-LF);

Correlation between capitalization coefficient of results and the three financial indicators: ROA, ROE and LF is poor.

Empirical study on the financial indicators relevance in measuring performance Romanian companies listed on Bucharest Stock Exchange.

This empirical study aims to test the direction and intensity of the correlation between the three indicators of financial performance measurement company (ROA, ROE and LF) and two stock indicators (TSR and PER) which quantifies future expectations of investors on example of Romanian firms sample listed on Bucharest Stock Exchange (BSE).

We have made the sample of the Romanian companies listed on Bucharest Stock Exchange (BVB) which have as their object of activity manufacturing pharmaceuticals. There are only 3 companies listed BVB: (Appendix A,)

We believe that companies listed on the BSE are information sources relevant to the calculation of performance indicators that are able to include exchange rate movements, in order to anticipate future benefits of shareholders. Collecting

the data of the accounting information necessary to determine the three financial indicators mentioned above it is made through the transversely criterion (to collect data on net income, total assets, equity, total debt etc. of financial statements of the 3 companies in the sample), and the time criterion (the period of time we made the study is from 2011 to 2012) by taking the information needed for this study from the non-participating observation. In the same manner there were collected from the website www.kmarket.ro, the courses of the 3 companies listed on the stock share companies during 2011-2012, which were needed to calculate the two indicators stock TSR and PER.

The calculation of the financial and stock indicators for the 3 companies listed on the period 2011-2012 was performed using calculation formulas presented in the table no. 2

For the scientific approach of the empirical study we aimed the validating formulated research hypotheses. Hammersley believes that research "is truly valid" if "we really measure what we want to measure." [13] Internal validity refers to the differences regarding the causal relationships underlying our research.

Appendix B reflects the values calculated for the three financial indicators ROA, ROE and LF as stock indicator TSR for the years: 2011, 2012.

For calculating TSR value were taken as reference exchange rates where there were traded the companies studied when there were made public the financial statements. Correlation intensity between TSR, independent variable and the three accounting financial indicators (ROA, ROE and LF) is tested using the correlation coefficient. Based on the descriptive statistics of the TSR independent variable and the dependent variables (ROA, ROE, LF) during 2011-2012 for the 3 companies listed on BSE, presented in the annexes mentioned above, we determined the correlation coefficients.

According to empirical rules of Colton, a correlation coefficient of -0.25 to 0.25 means low or zero correlation, from 0.25 to 0.50 (or -0.25 to -0.50) shall mean an acceptable degree of association; 0.5 to 0.75 (or from -0.5 to -0.75) is a moderate correlation to good; from 0.75 (and less than -0.75) is a very good combination or conjunction. Given the results of the research for the correlation coefficient values shown in Table no. 3 and Colton's rules on their interpretation, it results that the first research hypothesis "Total shareholder return (TSR) is poorly correlated with the return on assets (ROA), with return on equity (ROE), with leverage (financial leverage-LF)" it is confirmed.

To validate the second research hypothesis, we used Appendix C on PER values,

the dependent variable and the three financial indicators (ROA, ROE, LF) independent variables on the same sample of companies and the same period (2011-2012). To calculate the correlation coefficients between PER and the three financial indicators, we used the information regarding descriptive statistics of these indicators, reflected in the annexes mentioned above. The correlation coefficients determined according to the relation (1) of the research methodology are presented in table no. 4.

Conclusions

The traditional financial indicators (ROA, ROE, LF) determined on the 3 companies listed on the BSE sample are poorly correlated with stock market indicators (TSR, PER), creating value for the shareholders of these Romanian companies in the years 2011-2012.

We believe that the freedom of management to choose for a particular accounting policy has led to distortions in accounting information and that explains that the financial indicators calculated based on this information are unable to anticipate future expectations of the investors.

To achieve a correct hierarchy of the financial indicators, in addition to the intensity analysis of the correlation between accounting information and exchange rate changes, we must take into consideration the efficiency of the capital market. Traditional financial indicators create a value when ROE exceeds their cost.

Limitations of the study and research perspective

The analysis of only 3 companies listed on the stock market can be a risk of representativeness for the chosen sample, with unfavorable effect on the generalization of the conclusions.

The model is an instrument of reality representation that should not be obviously confused with reality, in the same way that a map should not be confused with the territory.

The dogmatic universal determinism is notable to explain a complex world.

On the other hand, the time period under study was of only two years, given the data collection effort in the context of our country do not have easy access to the database to find financial ratios calculated for all companies listed Bucharest Stock Exchange for a representative period.

The econometric models is testing the relevance of the financial indicators for long periods of time. As Michel Capron stated, even accounting truth has many facets as there can be seen several "images of the same reality" according

to the research purposes. Basically, the truth provided by the financial statements to shareholders as privileged users is actually a compromise between "expectations and demands". (Niculescu, 1997).

In a future research perspective we will test the relevance of the accounting financial indicators when creating the value for the investors, in a sample of listed companies and a more generous period of time. For the hierarchy of these financial indicators, we will determine a "coefficient of hierarchy" calculated as the ratio between the return realized by the shareholders (reflected by TSR) and the return expected by them (cost of capital).

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Table no.1
The indicators used to measure performance of the economic entity

Period	Performance criterion	The performance indicators used
1960-1970	Size of the enterprise	☞ Turnover ☞ The total enterprise value
1970-1980	Return	☞ Net profit ☞ Earnings per share ☞ PER (Price Earning Ratio)
1980-1990	Liquidity	☞ Treasury released operating ☞ Global treasury ☞ Treasury available
1990-2001	Creating Value	☞ Return on invested capital (ROI) ☞ Economic value added (EVA-Economic Value Added) ☞ The market value (MVA-market value added) ☞ The added value of customer (Customer value added)
Prezent	Creating value in the context of sustainable development	☞ Indicators that measure the impact on the environment; ☞ Indicators to measure the consumption of resources;

Source: Processing after M. Niculescu, Financial Diagnosis, Vol.2, Economic Publishing House, Bucharest, page 49

Table no.2
Formulas for calculation of financial indicators and stock

Indicators	The formula	Explanations
1. Economic profitability - ROA	$ROA = \frac{Net.profit}{Asset} \times 100$	$Asset = \frac{Total.asset_{N-1} + Total.asset_N}{2}$ Calculating ROA is taken total average asset to improve the impact of its dynamic evolution on the size of economic profitability.
2. financial return -ROE	$ROE = \frac{Net.profit}{Equity} \times 100$	Net profit is a common indicator to measure business performance and ensures comparability of information.
3. financial Leverage -LF	$LF = \frac{Total.debt}{Equity} \times 100$	The size of the indicator presents an interest for the investors
4. Total shareholder return - TSR (Total Shareholder Return)	$TSR = \frac{Price_{share_N} - Price_{share_{N-1}}}{Price_{share_{N-1}}} \times 100$	TSR depends on the change in the stock of the action; reflects the company's value. It is used after 1995, when indicators are useful for measuring the future value benefit of the investors. The formula for calculating the TSR didn't take into consideration dividends received by shareholders, options supported by Modigliani and Miller's theory, according to which the dividend policy has no impact on the stock exchange or on the cost of capital. On the other hand, there are few companies providing dividends to shareholders
5. Capitalization coefficient results -PER (Price earning ratio)	$PER = \frac{Stock.Course}{Net.profit / share}$	PER can be determined as a ratio between the market capitalization and net result.

Table no.3
The correlation between TSR and the three financial indicators: ROA, ROE and LF

Years Name	2011	2012	Interpretation according to empirical rules of Colton
Rxy between TSR and ROA	0.392211	0.179306	Weak correlation
Rxy between TSR and ROE	-0.08476	0.101553	Weak correlation
Rxy between TSR and LF	0.09429	-0.09788	Weak correlation

Source: author's own calculations

Table no.4
The correlation between PER and the three financial indicators studied

Years Name	2011	2012	Interpretation according to empirical rules of Colton
Rxy between PER and ROA	0.577612	0.688512	Moderate to good correlation in 2011 and 2012.
Rxy between PER and ROE	-0.07481	0.310604	Weak correlation in 2011; Moderate to good correlation in 2011 and 2012.
Rxy between PER and LF	0.087576	-0.36965	Weak correlation in 2011; Moderate to good correlation in 2012.

Source: author's own calculations

Appendix A

Lista societăților listate la BVB care au ca obiect de activitate fabricarea produselor farmaceutice

Nr. Crt.	DENUMIREA FIRMEI	OBIECT DE ACTIVITATE	Cod Unic de Inregistrare (CUI)	ADRESA
1	S.C. BIOFARM S.A. (BIO)	Fabricarea preparatelor farmaceutice	341563	Bucuresti, str. Logofatu Stautu nr. 99, sector 3, cod 031212
2	ANTIBIOTICE SA	Fabricarea produselor farmaceutice	1973096	Iași, str. Valea Lupului nr.1
3	S.C. ZENTIVA S.A. (SCD)	Fabricarea preparatelor farmaceutice	336206	Bd. Theodor Pallady 50, Bucuresti

Appendix B

Determinarea corelației dintre TSR și cei trei indicatori financiari (LF, ROA, ROE)

Nr. Crt	DENUMIREA FIRMEI	TSR	LF	\bar{x}	\bar{y}	$x_i - \bar{x}$	$y_i - \bar{y}$
Exercițiul financiar 2011							
1	S.C. BIOFARM S.A. (BIO)	0	0.003	-20.72	0.74	20.72	-0.737
2	S.C. ANIBIOTICE SA (ATB)	-37.1	0.52	-20.72	0.74	-16.38	-0.22
3	S.C. ZENTIVA SA (SCD)	-11.3	0.26	-20.72	0.74	9.42	-0.48
Exercițiul financiar 2012							
1	S.C. BIOFARM S.A. (BIO)	-5.9	0.0001	13.386	5.665	-19.286	-5.6649
2	S.C. ANIBIOTICE SA (ATB)	-3.49	1.42	13.386	5.665	-16.876	-4.245
3	S.C. ZENTIVA SA (SCD)	-12.63	0.12	13.386	5.665	-26.016	-5.545
	DENUMIREA FIRMEI	TSR	ROA	\bar{x}	\bar{y}	$x_i - \bar{x}$	$y_i - \bar{y}$
Exercițiul financiar 2011							
1	S.C. BIOFARM S.A. (BIO)	0	0.08	-20.72	-	20.72	0.101

					0.021		
2	S.C. ANIBIOTICE SA (ATB)	-37.1	0.05	-20.72	0.021	-16.38	0.071
3	S.C. ZENTIVA SA (SCD)	-11.3	0.09	-20.72	0.021	9.42	0.111
Exercițiul financiar 2012							
1	S.C. BIOFARM S.A. (BIO)	-5.9	0.11	13.386	0.003	-19.286	0.107
2	S.C. ANIBIOTICE SA (ATB)	-3.49	0.06	13.386	0.003	-16.876	0.057
3	S.C. ZENTIVA SA (SCD)	-12.63	0.1	13.386	0.003	-26.016	0.097
	DENUMIREA FIRMEI	TSR	ROE	\bar{x}	\bar{y}	$x_i - \bar{x}$	$y_i - \bar{y}$
Exercițiul financiar 2011							
1	S.C. BIOFARM S.A. (BIO)	0	0.09	-20.72	0.032	20.72	0.058
2	S.C. ANIBIOTICE SA (ATB)	-37.1	0.07	-20.72	0.032	-16.38	0.038
3	S.C. ZENTIVA SA (SCD)	-11.3	0.11	-20.72	0.032	9.42	0.078
Exercițiul financiar 2012							
1	S.C. BIOFARM S.A. (BIO)	-5.9	0.13	13.386	0.759	-19.286	0.889
2	S.C. ANIBIOTICE SA (ATB)	-3.49	0.09	13.386	0.759	-16.876	0.849
3	S.C. ZENTIVA SA (SCD)	-12.63	0.13	13.386	0.759	-26.016	0.889

Appendix C

Determinarea corelației dintre PER și cei trei indicatori financiari(LF, ROA, ROE)

Nr. Crt	DENUMIREA FIRMEI	PER	LF	\bar{x}	\bar{y}	$x_i - \bar{x}$	$y_i - \bar{y}$
Exercițiul financiar 2011							
1	S.C. BIOFARM S.A. (BIO)	1.22	0.003	1.128	0.74	0.092	-0.737
2	S.C. ANIBIOTICE SA (ATB)	3.38	0.52	1.128	0.74	2.252	-0.22
3	S.C. ZENTIVA SA (SCD)	6.28	0.26	1.128	0.74	5.152	-0.48
Exercițiul financiar 2012							
1	S.C. BIOFARM S.A. (BIO)	9.05	0.0001	1.1512	5.67	7.8988	-5.6699
2	S.C. ANIBIOTICE SA (ATB)	2.44	1.42	1.1512	5.67	1.2888	-4.25
3	S.C. ZENTIVA SA (SCD)	5.78	0.12	1.1512	5.67	4.6288	-5.55
	DENUMIREA FIRMEI	PER	ROA	\bar{x}	\bar{y}	$x_i - \bar{x}$	$y_i - \bar{y}$
Exercițiul financiar 2011							
1	S.C. BIOFARM S.A. (BIO)	1.22	0.08	1.128	-0.021	0.092	0.101
2	S.C. ANIBIOTICE SA (ATB)	3.38	0.05	1.128	-0.021	2.252	0.071
3	S.C. ZENTIVA SA (SCD)	6.28	0.09	1.128	-0.021	5.152	0.111
Exercițiul financiar 2012							
1	S.C. BIOFARM S.A. (BIO)	9.05	0.11	1.1512	0.0035	7.8988	0.1065
2	S.C. ANIBIOTICE SA (ATB)	2.44	0.06	1.1512	0.0035	1.2888	0.0565
3	S.C. ZENTIVA SA (SCD)	5.78	0.1	1.1512	0.0035	4.6288	0.0965
	DENUMIREA FIRMEI	PER	ROE	\bar{x}	\bar{y}	$x_i - \bar{x}$	$y_i - \bar{y}$
Exercițiul financiar 2011							
1	S.C. BIOFARM S.A. (BIO)	1.22	0.09	1.128	0.032	0.092	0.058
3	S.C. ANIBIOTICE SA (ATB)	3.38	0.07	1.128	0.032	2.252	0.038
	S.C. ZENTIVA SA (SCD)	6.28	0.11	1.128	0.032	5.152	0.078
Exercițiul financiar 2012							
1	S.C. BIOFARM S.A. (BIO)	9.05	0.13	1.1512	0.759	7.8988	-0.629
2	S.C. ANIBIOTICE SA (ATB)	2.44	0.09	1.1512	0.759	1.2888	-0.669
3	S.C. ZENTIVA SA (SCD)	5.78	0.13	1.1512	0.759	4.6288	-0.629

