

# CASE STUDY REGARDING FINANCIAL PERFORMANCE IN TERMS OF CASH FLOW RETURN ON INVESTMENT (CFROI) FOR COMPANIES LISTED AND TRADED ON THE BUCHAREST STOCK EXCHANGE, DURING 2006-2013

Nicolae BALTEȘ\*  
baltess\_n@yahoo.com

Diana Elena VASIU\*\*  
diana.vasiu@yahoo.com

\* "LUCIAN BLAGA" UNIVERSITY, SIBIU, ROMANIA

\*\* "ROMANIAN-GERMAN" UNIVERSITY, SIBIU, ROMANIA

## ABSTRACT

*The specialized literature suggests the modern analytical indicators of the listed companies' potential, in their construction starting from the concept of value creation. One of this indicators is Cash Flow Return on Investment (CFROI-Rli), considered as the best measuring indicator of value creation. It represents an internal rate of return on investment, expressing in percentage the ratio between the gross cash flow for the period, after deducting amortization and total gross investments of the same period. This paper presents a case study regarding financial performance in terms of cash flow return on investment (CFROI), of Companies listed and traded on the Bucharest Stock Exchange, during 2006-2013.*

## Keywords

*Cash Flow Return on Investment-CFROI, Bucharest Stock Exchange, financial performance*

### 1. Introduction

#### Cash Flow Return on Investment (CFROI) – Rli

Cash flow return on investment (RLI) represents an internal rate of return on investment, expressing in percentage the ratio between the gross cash flow for the

period, after deducting amortization and total gross investments of the same period. The indicator was introduced in 2002 by CFSB Holt Value Associates Chicago, considering it the best measuring indicator of value creation [1].

Return on invested capital is estimated by taking into account the cash-flow generated by the activity financed with it, for added value, the company having to increase the difference between this indicator and the cost of capital invested in the enterprise [2].

Cash flow return on investment is calculated considering the size of gross investments achieved by the company, embodied in the assets held by it, the gross cash-flow generated by the assets representing the investment in the company, the average lifespan of investments and residual value of the investment at the end of its life.

Cash flow return on investment represents the internal rate of return on investment, i.e. the discount rate for which the present value of cash-flows, summed with the present value of the residual value is equal to the investment made to generate those cash-flows. An investment adds value to shareholders if Cash flow return on investment is superior to the opportunity cost of capital raised to finance that investment.

Relations between the RLI calculation elements give raise to the following factorial models for calculating the indicator [3]:

$$RLI = \frac{Cfb - A}{Ib} \times 100 = \frac{Rnet + D + A - A}{Ib} \times 100 = \frac{Rnet + D}{Ib} \times 100$$

$$= \frac{Rnet + D}{Ib} \times 100 \times \frac{Cfs}{Cfs} = \frac{Rnet + D}{Ib} \times 100 \times \frac{Cfs}{Cfs} \times 100 \times \frac{1}{100} = \frac{Rnet + D}{Ib} \times 100 \times \frac{Cfs}{Cfs} \times 100 \times \frac{1}{100}$$

Where:

Cfb – gross cash flow.  $Cfb = Rnet + D + A$

Rnet – net result

D – expenses with the interests

A – depreciation

Ib – gross investments.  $Ib = Ai + Ac$

Ai – gross fixed assets, at the current inflation rate

Ac – net current assets

Cfs – sustainable cash flow.

$Cfs = Cfb - A = Rnet + D$

Introducing the Cash Flow (CA) in the relation above, Cash flow return on

investments (Rli) can be divided in two other ratios, as follows:

$$RLI = \frac{Cfb - A}{Ib} \times 100 = \frac{Cfb}{Ib} \times 100 \times \frac{Cfs}{Cfs} = \frac{Cfb}{Ib} \times 100 \times \frac{Cfs}{Cfs} \times 100 \times \frac{1}{100}$$

Where

$\frac{Cfb}{Ib} \times 100 = CM$  – Cash Flow Margin

$\frac{Cfs}{Cfs} \times 100 = AT$  – Asset Turnover Ratio

According to this approach, RLI provides a comprehensive view of performance, integrating aspects of asset, sales management, and hence the marketing and management policy of customers.

Typically, the indicator is calculated annually and must be compared with inflation-adjusted cost of capital to determine whether the entity has obtained higher costs than the capital's cost.

## 2. Cash Flow Return on Investment Analysis (CFROI)

An investment adds value to shareholders if Cash Flow Return on Investment – CFROI is higher than the opportunity cost of capital raised to finance that investment.

## 3. Research Hypothesis:

The analysis carried out starts from the following hypothesis: for the corporations studied, the financial performance assessed in terms of Cash-flow return on investment follows a downward trend.

## 4. The Objectives of the Research are:

- The calculation of Cash-Flow return on investment and its dynamic analysis;
- Factorial analysis of the causes of Cash-Flow return on investment evolution;
- Building a scoring model to notice the financial performance evolution in terms of Cash-Flow return on investment.

## 5. Methodology of Research:

Analysis of Cash Flow Return on Investment was done through a case study of companies listed and traded on the Bucharest Stock Exchange, operating in industry and construction. This is part of a

larger paper, the PhD thesis on the analysis of the financial performance of companies listed and traded on the Bucharest Stock Exchange during the period 2006-2013.

Given the share of the total market capitalization sectors, the number of companies, the performance criteria that must be met, the criteria of homogeneity on the work done, we have chosen for the case study, the analysis of the financial performance of the companies listed and traded on the BSE, which are operating in industry and construction. In November 2013 there was 51 companies listed and traded on the Bucharest Stock Exchange, BSE section, categories I; II; III during 2006-2012, having the business line in industry and construction, according to NACE revision 2. Under this classification, Industry includes Mining and Quarrying, Manufacturing, Electricity, Gas, Steam and Air-conditioning Supply (sections: B, C, D and E).

The Cash Flow Return on Investment was based on information provided by the companies' financial statements available on the website [www.bvb.ro](http://www.bvb.ro), for the period 2006-2013. Starting with the financial statements of year 2012, companies listed on a regulated market were required to apply IFRS in preparing separate financial statements, according to Minister of Finance

Order no. 1286/2012. In applying these regulations, companies restated financial statements for 2011, according to the law, which led to the recording of value differences between the information provided by the initial and restated financial statements. The financial statements for 2011 are extracted from the reports for the year 2012 made in accordance with IFRS and presented in the following as „the year 2011r”.

To analyze the causes that generated variation of Cash-Flow return on investment – Rli, chain substitution method was used, starting from factor analysis model:

$$Rli = Mcf \times Na$$

Where:

Mcf – cash-flow margin

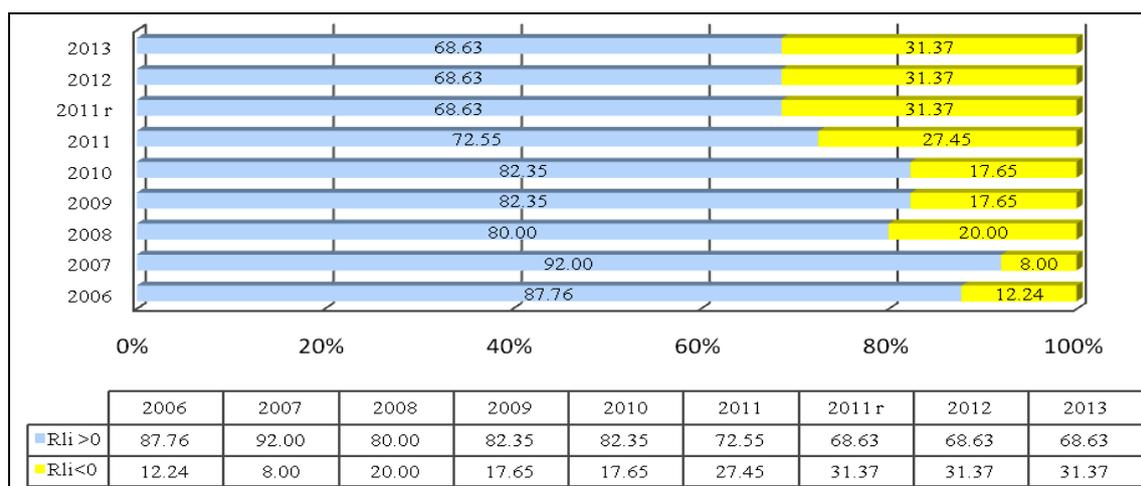
Na – asset turnover ratio

The total variation of Cash-Flow return on investment, in the period  $t_1$  as compared to  $t_0$ , where  $t_1$  and  $t_0$  are two consecutive years from the period 2006-2013, is calculated according to the model:

$$\Delta Rli = Rli_1 - Rli_0$$

## 6. Data Analysis and Presentation of the Results [4]

Figure no. 1 presents the structure of the company in the period 2006-2013, grouped according to obtaining positive or negative Cash Flow Return on Investment.



Source: author's processing, based on information provided by the annual financial statements in the period 2006-2013 of the companies listed and traded on the BSE, which operate in industry and construction, available on [www.bvb.ro](http://www.bvb.ro)

Figure no. 1 Grouping of companies, in the period 2006-2013, depending on obtaining positive or negative cash flow return on investments

Obtaining a positive Cash Flow Return on Investment is strongly conditioned by obtaining a positive net result. If in 2006, 87.76 % of companies obtained a positive Cash-Flow Return on Investment, the proportion of those which achieved this performance is reduced to only 68.63 % in 2013, decreasing by an average annual rate of 3.45 %. If in 2006, 12.24 % of companies registered a negative Cash-Flow return on investment, their share increased by an average annual rate of 14.39 %, so that in 2013, 31.37 % of the analyzed companies registered a negative Cash-Flow return on investment.

To determine the causes that led to the change in Cash-Flow return on investment, we apply the chain substitution method,

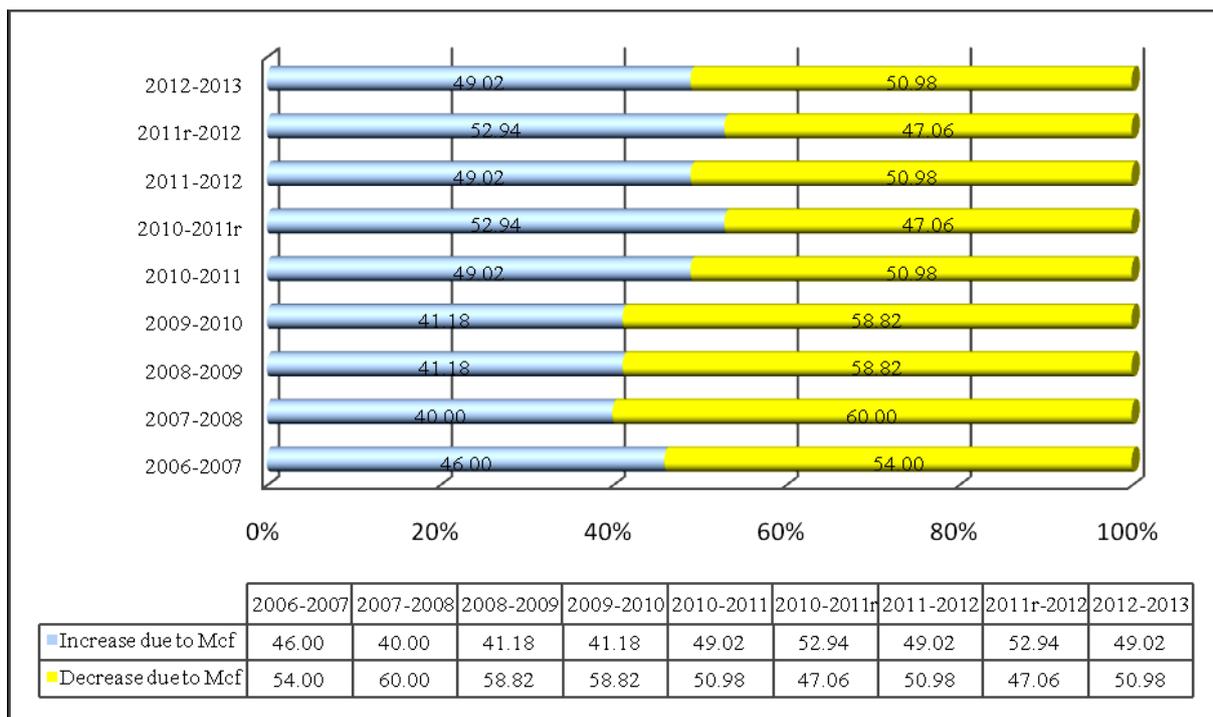
using the following factorial analysis model shown in the methodology of research.

The influence of direct action on the indicator's change:

– cash-flow margin influence (Mcf)  
 $\Delta Rli_{Mcf} = Mcf_1 * Na_0 - Mcf_0 * Na_0 = (Mcf_1 - Mcf_0) * Na_0$

– influence of asset turnover ratio  
 influența ratei de rotație a activelor (Na)  
 $\Delta Rli_{Na} = Mcf_1 * Na_1 - Mcf_1 * Na_0 = Mcf_1 (Na_1 - Na_0)$

The impact of Cash Flow Margin (Mcf), calculated as a percentage ratio between the sustainable Cash-flow the Cash-Flow, is outlined in figure 2, monitoring the evolution of companies that registered growth in the Cash-Flow Return on Investment, or losses due to the change in cash-flow margin (Mcf).



Source: author's processing, based on information provided by the annual financial statements in the period 2006-2013 of the companies listed and traded on the BSE, which operate in industry and construction, available on [www.bvb.ro](http://www.bvb.ro)

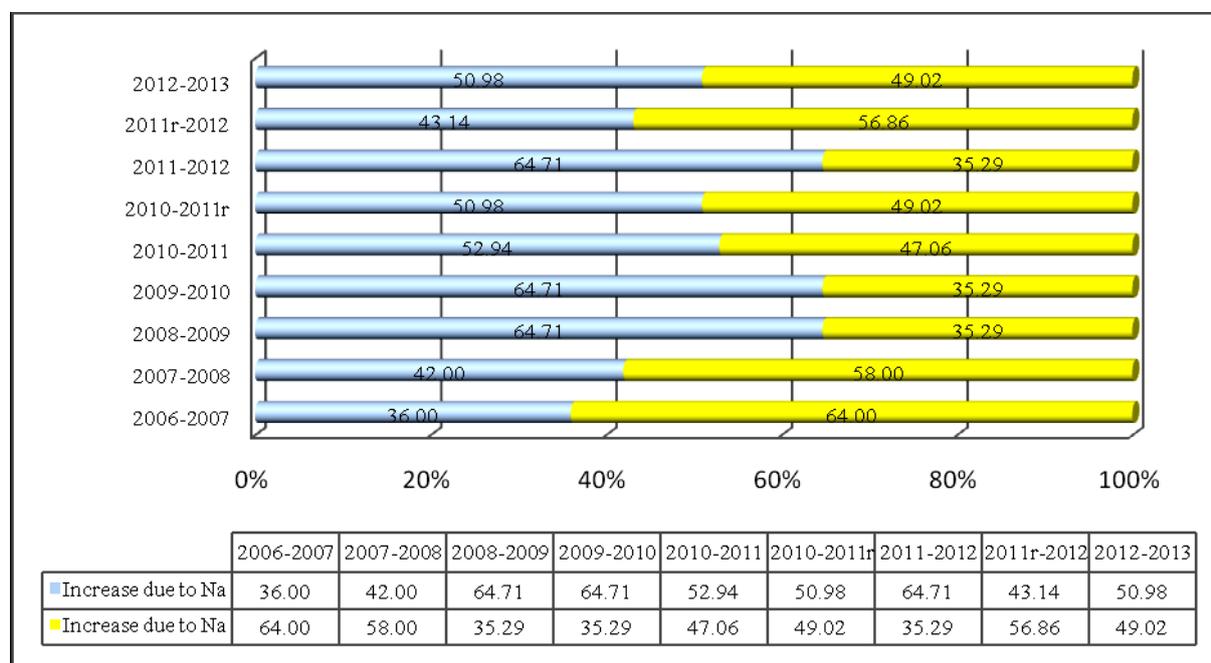
Figure no. 2 The evolution of the share of companies that registered increases, or losses of Rli due to Mcf

Without recording significant differences, in most cases the variation of margin cash flow margin had a negative influence on Rli Cash-Flow return on

investment's variation, leading to declining Cash-Flow return on investment. Most companies were affected by the influence of cash-flow margin's variation, in the period

2007-2010 (between 58 % and 60 %). Most companies have benefited from the positive impact of Mcf variation in the period 2010-2012 (52 %).

The influence of asset turnover ratio (Na), calculated as a ratio between turnover and gross investment, is highlighted in Figure no. 3.



Source: author's processing, based on information provided by the annual financial statements in the period 2006-2013 of the companies listed and traded on the BSE, which operate in industry and construction, available on [www.bvb.ro](http://www.bvb.ro)

Figure no. 3 Evolution of companies that registered increases or decreases of Rli due to Na

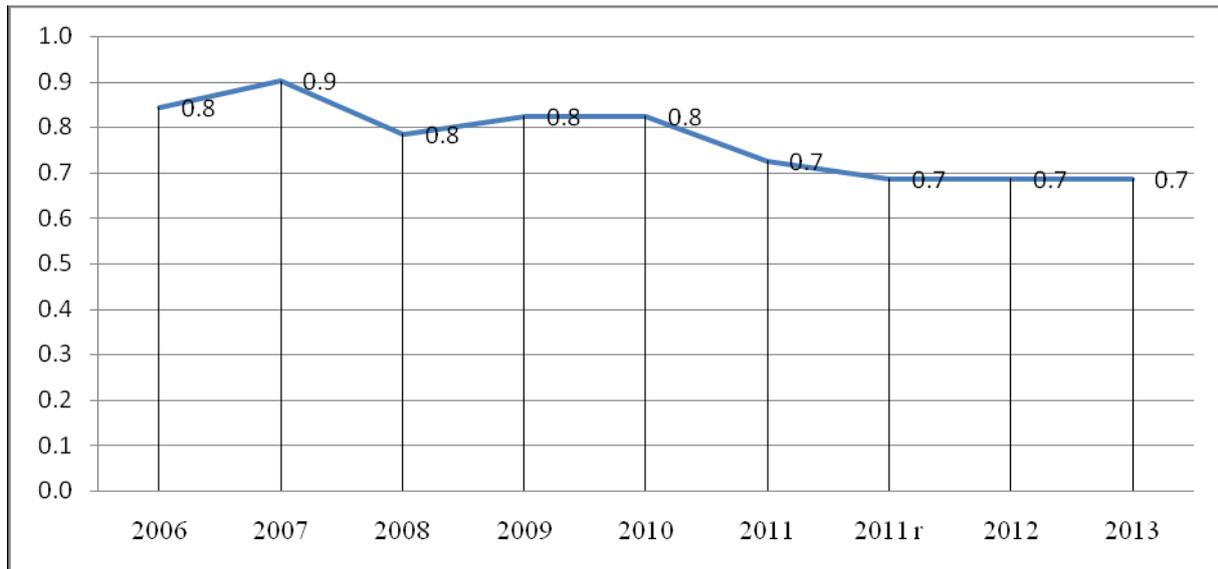
Changes in total assets turnover (Na) had variable impact on the evolution of Cash-Flow return on investment, depending on the time period analyzed. Between 2006-2008 and 2011r-2012, the proportion of companies have registered decreases of Cash-Flow return on investment on account of total assets turnover (Na) was higher than the share of companies that have registered increases in Rli Cash-Flow return on investment due to total assets turnover (Na). In the period 2009-2013 the proportion of companies that were positively impacted by change in total assets turnover (Na), was higher than the proportion of companies that were adversely affected by the change in total assets Rotation (Na), declines in profitability RLI Investment liquids.

Therefore, in most cases, the variation of cash-flow margin influenced most companies in the sense of decreased Cash-Flow return

on investment, while the variation of total assets turnover (Na) has positively influenced most companies in the sense of increased Cash-Flow return on investment, but the differences between the companies that registered increases in Cash-Flow return on investment or decreases of Cash-Flow return on investment at the expense of two indicators are insignificant.

To assess performance based on Cash-Flow return on investment, we propose building a scoring model, giving each company, in each period, 1 point if they have obtained a positive Cash-Flow return on investment and 0 points if the Cash-Flow return on investment was negative.

Based on individual scores for each company, an annual average score was calculated of performance appraisal, depending on the Cash-Flow return on investment, whose developments are shown in Figure no. 4.



Source: author's processing, based on information provided by the annual financial statements in the period 2006-2013 of the companies listed and traded on the BSE, which operate in industry and construction, available on [www.bvb.ro](http://www.bvb.ro)

*Figure no. 4 Evolution of the average annual score performance assessment, according to the Cash-Flow return on investment*

For the entire period, Cash-Flow Return on Investment score values is above average (considering a maximum score of 1, and thus, an average of 0.5). However, one can notice the downward trend in the performance of the companies analyzed to obtain positive Cash-Flow return on investment. Since the cash-flow return on investment is the internal rate of return on investment, i.e. discount rate for which the present value of cash-flows summed with the present value of the residual value is equal to the investment made to generate those cash flows and an investment that adds value to shareholders if cash-flow return on investment is to opportunity costs of capital raised to finance that investment, the decrease of the share of companies that obtain a positive cash-flow return on investment indicates a loss of value for the shareholders of the companies analyzed.

## 6. Conclusions

Cash-flow return on investment analysis leads us to the following conclusions:

- The percentage of companies that obtain a positive cash-flow return on investment decreases with an average

annual rate of 3.45%, while the share of companies that obtain a negative cash-flow return on investment increased in the analyzed period by an average annual rate of 14.39 %, so that, in 2013, 31.37% of the analyzed companies recorded negative cash-flow return on investment.

- In most cases cash-flow margin variation (Mcf) had a negative impact on cash-flow return on investment variation, which decreased the value of the indicator.

- Change of the asset turnover ratio (Na) has influenced most companies in the sense of increased Cash-Flow return on investment, but the differences between the companies that registered increases in Cash-Flow return on investment or decreases of Cash-Flow return on investment at the expense of two indicators are insignificant. liquids

- The assessment score of performance based on cash-flow return on investment has values above average. However, owe can notice the downward trend in terms of performance of listed companies to achieve positive cash-flow return on investment.

– Decreased performance of selected companies to obtain positive cash-flow return on investment indicates value consumption for the shareholders of the analyzed companies.

Achieving the research objectives has allowed us to validate the research hypothesis, namely: financial performance of the companies analyzed, assessed on the basis of cash-flow return on investment recorded a downward trend during the period analyzed.

## References

1. Nicolae Balteș, (coord.), *Analiză și diagnostic financiar*, (Sibiu: “Lucian Blaga” University Publishing House, 2010): 25-28.
2. Bogdan Mârza, *Performanța prin valoare*, (Sibiu: “Lucian Blaga” University Publishing House, 2013): 108-109.
3. Silvia Petrescu, *Analiză și diagnostic financiar-contabil: ghid teoretico-aplicativ*, (Bucharest: CECCAR Publishing House, 2008): 300-301.
4. Diana Elena Vasîu, *Analiza performanței financiare la societățile listate și tranzacționate la Bursa de Valori București*, (Teză de doctorat, Universitatea “Lucian Blaga”, Sibiu, 2015).