2nd World Conference On Business, Economics And Management - WCBEM2013

Estimating the influence of the financial and nonfinancial factors on the capital gains yield in the case of the Romanian Stock Market

Mihaela-Alina Robu*, Elisabeta Jaba, Marilena Mironiuc, Ioan-Bogdan Robu

Abstract
In selecting those shares that provide high returns at an acceptable risk, investors pay attention to the main factors which can influence the stock performance. The purpose of this study is to analyze the influence of some financial factors and of the activity field on the capital gains yield. The target population consists of companies whose stocks are quoted on the Bucharest Stock Exchange (BSE) in 2009-2011 from different activity fields. The research results consist of an ANCOVA model which reveals a significant influence of the return of equity and of the activity field on the capital gains yield.

Keywords: Capital gains yield, financial and nonfinancial factors, regression analysis, ANCOVA model;

1. Introduction
The increase of opportunities offered by financial markets but also the market risks determine the owners of financial capital to develop and implement new strategies, methods and techniques, which may indicate high performance investments, characterized by a risk level set a priori. Among these types of investments, investors due to the material and decision-making benefits they offer have always preferred financial assets, such as stocks.

Investors consider a company's performance based on the stock return, meaning the gain obtained as a result of holding the stock for a certain period of time. The stock return is perceived, from the perspective of major investors, by the increase of the stock price related to previous period, calculated by means of the capital gains yield, while the minority shareholders target the company's ability to distribute dividends, calculated via the dividend yield. The shareholders seek to reinvest the profits made during a financial year and no to distribute the dividends, in order to influence the growth of the stock price. The stock price represents investors' expectations regarding future cash flows, the firm's ability to create value for shareholders (Mironiuc, 2006).

In order to achieve its performance objectives, an investor identifies those financial assets that can give him a greater gain or return. To do this, one of the strategies that he uses is top-down approach, aimed at selecting financial markets or sectors where they want to invest (Cavaglia and Moroz, 2002). The top-down approach is preferred because of the existence of legal, economic and accounting differences or even because of operating cycle peculiarities specific to each sector. However, studies in this research area have focused mainly on the influence of the activity field on the company's financial performance, measured by traditional ratios, and less on the stock performance expressed as a stock return.

The present study aims to estimate the influence of traditional financial factors, but also non-financial factors, on stock return. The financial factors are considered through ratios provided by the annual financial statements, the non-financial factors target an activity field membership, expressed by dummy variables, and the stock return is taken into account based on the capital gains yield.

The study was conducted on a sample of 48 BSE listed companies, between 2009 and 2011. The results obtained using the ANCOVA linear regression analysis indicates a significant influence of the return on equity, as well as a significant difference between the average stock return among the selected activity fields.

* Corresponding Author: Mihaela-Alina Robu. Tel.: +4-074-978-1363
E-mail address: alina.mihaela.robu@gmail.com
2. Determinants of stock return for a company listed on stock exchange

The first studies in finance sector that analyzed the link between the stock price and the ratios from the financial statements, in particular by calculating the return ratios that expresses a firm’s performance, proved that the results presented in the accounting records are encapsulated by the stock price (Ball and Brown, 1968; Beaver, 1968).

Influence of the activity field on the financial performance was studied using, along with specific financial ratios of a company, either dummy variables indicating membership in a particular sector (Li and Jin, 2006), either variables such as geographical area or activity field by means of the panel data analysis (Cavagli and Moroz, 2002).

After analyzing the performance differences between firms, Hawawini et al. (2003) identifies the factors that determine the occurrence of these differences, as well as the differences between activity fields according to the industrial organization view and firm-specific resources explained by the resource-based view. Manifestation of the two perspectives is determined by the time evolution of the relationship factors – performance, the performance being expressed by values of return ratios, with direct implications on the strategies and methods used by investors in analyzing and assessing the viable assets.

Based on the model developed by Markowitz (1952), Sharpe (1964) and Litter (1965) have stated, by using the Capital Assets Pricing Models – CAPM, that the return on an individual stock is influenced by two factors: expected market return and beta volatility coefficient. Subsequently, it was shown that for determining the stock return is necessary not only to consider these factors, particularly the volatility beta coefficient, but other factors, with greater explanatory power, may be taken into consideration. They can be divided into macroeconomic factors such as the employment rate, the industrial production index, the interest rate, the monetary policy, the inflation, the price of some key assets (e.g. oil prices), the exchange rate, foreign direct investments etc. (Fama, 1981; Chen et al., 1986; Balvers et al., 1990) and other microeconomic factors, specific to each company.

The microeconomic financial factors analysis can be calculated through traditional methods – the analysis of financial ratios regarding the financial statements (Return On Investments - ROI, Return On Equity - ROE, Return On Assets – ROA), through those based on value creation (Economic Value Added - EVA, Market Value Added - MVA) or through those based on information provided by the market (Earnings-Price Ratio – E/P ratio, Book-to-Market Ratio – B/M ratio) (Merchant, 2006). Among financial ratios specific to such methods, a positive explanatory power on stock return, Basu (1983) and Fama and French (1992) have identified the E/P ratio, Rosenberg et al. (1985) and Fama and French (1992) have identified the Cash-Flow to Price Ratio and B/M ratio, and Min and Madala (1999) have identified the dividend yield. In contrast, Banz (1981) proved a negative relationship between the return of an individual stock and its size, measured by market capitalization. In terms of the ratios calculated based on the company’s stock price, Berk (1995) underlines the default connection that is established between expected returns and these ratios, demonstrating a doubtful correlation.

One of the categories of factors over which investors have focused attention is the information provided by the annual financial statements, being considered as a credible source associated to financial markets (Ragab and Omran, 2006). The main concern that investors have is to identify those financial ratios which directly influence the stock price and that can predict future cash flows related to this stock. The importance of these factors derives from their use in the fundamental analysis regarding the determination of the intrinsic value of a stock. One difference between the current stock price and the intrinsic value indicates the possibility of obtaining a reward by placing available funds in that stock (Kothari, 2001).

Some authors (Dimitropoulos, 2009; Barton et al., 2010) have analyzed the influence of traditional financial ratios derived based on the financial statements on the stock return, concluding that results from operating activities are best correlated with the stock return, while the turnover and the comprehensive income show the lowest correlation coefficient. Haugen and Baker (1996) showed that among the factors with the greatest explanatory power one can find ROE. Martani and Khairurizka (2009) conclude the same, highlighting, besides the positive impact of ROE on stock price, also the Net Profit Margin – NPM.

As regards to the Romanian financial market, Tudor (2012) proved, using panel data analysis on a sample of listed companies on the BSE during 2002 and 2008, that between the return ratios (ROE and ROA) and the stock return there is a positive connection, but weak in intensity.

Although the traditional financial ratios are commonly used in the impact analysis provided by the accounting statements on the financial market, Rappaport (1998) criticizes their use due to their inability to measure changes related to economic value, due to the manipulation of financial information by means of the used accounting policies, due to the existence of alternative accounting methods that can be used and by not taking into account the value of money over time.

3. Research methodology

The study aims to analyze and estimate the influence of the variation of some financial factors (ROE, ROA, NM) specific for analyzing financial performance, based on annual financial statements, and of some non-financial factors (activity field) on the stock return expressed through capital gains yield. In order to achieve the research objectives, the study proposes to test the following hypotheses

$H_1$: The stock return is significantly influenced by firm performance, based on accounting data, and by the activity field.

$H_2$: There are significant differences between the average values of stocks’ return depending on the company’s performance, expressed in terms of the accounting data, and on the activity field.
3.1. Study population, sample analysis, the variables used and data source

The studied population is represented by all the companies listed at BSE, comprising a number of 77 listed companies, in the 1st, 2nd and 3rd category, between 2009 and 2011. From this population the survey database was constructed eliminating a number of 11 companies due to the fact that the activity fields were financial intermediation, monetary intermediation, administration of financial markets or mutual funds. By eliminating these firms the homogeneity of the sample was ensured, in terms of using the same ratios regarding the financial reporting. From the survey database another 18 companies were eliminated either because they have begun to be listed from 2010 or they have as activity field trading or construction, the number of companies included in each activity field being less than 10. Thus, the final sample consists of 48 companies, 8 listed in the 1st category, 39 in the 2nd and only one company in the 3rd category. The sample was build based on the principle of rational choice (Jaba, 2002).

Evaluating the impact of the financial statements’ publication on the evolution of the stock price did the estimation of the influence of a number of factors specific to the firm’s financial performance on the stock return. Variables involved in the analysis are presented in Table 1.

Table 1. Study variables

| Variables                        | Calculus formula                                      | Source code of the variables |
|----------------------------------|-------------------------------------------------------|------------------------------|
| CGY – Capital Gains Yield        | (Price \_t – Price_{t-1}) / Price_{t-1}               | [(P\_t – P\_{t-1}) / (P\_{t-1})] |
| AROE – Relative Variation of Return On Equity | (Net Income_{t} / Shareholder’s Equity_{t}) - (Net Income_{t-1} / Shareholder’s Equity_{t-1}) | [(WC08301\_t) - (WC08301\_{t-1}) / (WC08301\_{t-1})] |
| AROA – Relative Variation of Return On Assets | (Operating Income_{t} / Total Assets_{t}) - (Operating Income_{t-1} / Total Assets_{t-1}) | [(WC01250\_t) - (WC01250\_{t-1}) / (WC01250\_{t-1})] |
| ANM – Relative Variation of Net Margin | (Net Income_{t} / Revenue_{t}) - (Net Income_{t-1} / Revenue_{t-1}) / (Net Income_{t-1}) / Revenue_{t-1} | [(WC08366\_t) - (WC08366\_{t-1}) / (WC08366\_{t-1})] |

The data necessary to calculate the values of these variables are collected fromDataStream database, belonging to Financial Thompson. Table 1 also presents the source code from the database needed for obtaining the financial ratios used in the analysis.

In order to analyze the influence of the activity field on the capital gains yield, companies in the sample were divided into three categories: firms that manufacture consumer goods, firms that manufacture intermediate goods or means of production, machinery, and aircrafts required in the activity of other firms, and firms that activate in the service sector. For this, the study uses two dummy variables, as depicted in Table 2, with values \{0; 1\}, the service sector being considered the reference category. A value of 0 indicates that the company does not belong to the respective activity field, while a value of 1 indicates the sector membership.

Table 2. Dummy variables involved in the analysis and their values

| Dummy variables | Values for dummy variable |
|-----------------|---------------------------|
| D1              | D1 = 1 (The activity field targets the manufacturing of consumer goods) and D1 = 0 (The activity field does not target the manufacturing of consumer goods) |
| D2              | D2 = 1 (The activity field targets the production of intermediate goods and goods for heavy industry) and D2 = 0 (The activity field does not target the production of intermediate goods and goods for heavy industry) |

3.2. Data analysis method

Research results were obtained using linear regression analysis ANCOVA type. In the proposed model, the dependent variable is a quantitative variable and the independent variables are both quantitative (scale variables) and alternative (dummy variables) (Gujaratı, 2003). In the study, the proposed ANCOVA model has the following form:

\[ Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_j X_j + \beta_{j+1} D_{1} + \beta_{j+2} D_{2} + \beta_{j+3} (X_1 D_1) + \beta_{j+4} (X_2 D_2) + \ldots + \beta_{j+k} (X_j D_j) + \beta_{j+k} (X_j D_j) + \epsilon \]  

(1)

where: \( \beta_{i=0...n} \) = parameters of the regression model; \( X_{i=1...j} \) = independent variables represented by financial ratios; \( D_1 \) and \( D_2 \) = dummy variables associated to the activity field; \( \epsilon \) = random variable. The product \( X_i D_k (i=1,...j; k=1,...,2) \) represents the interaction between the variables expressed as financial ratios, used as independent variables, and the activity field.

Data processing was performed using SPSS 20.0.

3.3. Results and discussion

Following the data analysis, the study obtained a series of descriptive statistics about the stock return, measured through the capital gains yield, for each activity field. According to Table 3 it can be inferred that there are 20 companies that have as main activity the production of intermediate goods or machinery, aircraft, which are required in the activity of other companies, goods further found in heavy industry, while in the consumer products industry there are only 18 companies listed in BSE in one of the categories 1st, 2nd or 3rd. In the services category there are only 10 companies.
The average capital gains yield in each area of activity shows a relative variation in the stock price rate close to zero for all three fields, as a consequence of the financial crisis which began to be felt by its adverse effects in Romania since 2008, investors thus showing some reluctance in placing financial funds in the form of stocks. However companies which have as the main activity the production of intermediate goods or that of machinery and aircraft, required the activity of other companies, have on average a negative capital gains yield. Thus, the stock price of these companies at the end of a financial year is decreasing from the same stock price, measured at the beginning of financial year. This suggests an unattractive area for the investors as a result of a decrease in the activity of the companies during the crisis due to the bankruptcy of the client companies, the impossibility to access additional funds by client companies in order to purchase products (increase of the interest rate), the relatively high value and lifespan of these products, which do not require replacement every year. Such situations indicate the inability to increase the value of the company that can be further reflected by an increase in the stock price.

For companies in the consumer products industry or for those in the services domain, the average of capital gains yield is positive. Thus, based on the positive values of average capital gains yield, the areas considered attractive by investors are the services and consumer products industries. Regarding the difference between the average capital gains yield of services and consumer products industry, one could argue that the effects of the financial crisis operate by reducing the real income of the population, thus leading to a decreased preference for self-realization needs and a reorientation towards basic biological needs (consumer goods), according to Maslow’s pyramid. Products of companies in the consumer products industry (food, beverages, and textiles) preferred by the population also because of their small value, and a high range of substitutable products. Therefore, shareholders will prefer companies in the consumer products industry due to the continuous existence of markets for the products.

Following the testing of the work hypothesis in order to obtain a deterministic model showing the influence of financial ratios and of activity field, some preliminary results include the coefficient of determination $R^2$ of 0.072. The regression model explains 7.20% of the variation of the stock return. This value of the coefficient indicates the need to include in the model other relevant variables such as macroeconomic or microeconomic variables aimed at financial structure, solvency, liquidity and variables that create value for shareholders. The value of the coefficient of determination is consistent with the statement of Chen and Zhang (2007) on the existence of a weak link between stock return and financial ratios such as profitability based on financial statements which explain usually less than 10% of the variation of the stock return. The coefficient of determination can be explained by the financial crisis, during which investors have shown a reluctance to invest their available funds in financial assets, regardless of the economic and financial situation of the company.

Regression model testing is performed by the F test. The F statistics of 2.370 and a Sig. of 0.076 imply that the independent variables explain the changes of the dependent variable with 90% confidence. Table 4 shows the variables whose influence on capital gains yield is significant under the ANCOVA model proposed by this study.

| Area of activity | Number of companies | CGY Average |
|------------------|---------------------|-------------|
| Heavy industry and Intermediates | 20 | -0.1059 |
| Consumer products industry | 18 | 0.0697 |
| Services | 10 | 0.0044 |

Table 3. Descriptive statistics

| Variables | Coefficients | t | Sig. |
|-----------|--------------|---|------|
| AROE | 0.208 | 1.743 | 0.085 |
| AROE D1 | -0.207 | -1.728 | 0.087 |
| AROE D2 | -0.220 | -1.834 | 0.070 |
| (Constant) | -0.032 | 0.514 | 0.608 |

Table 4. Significant variables and parameters of the ANCOVA model

With 90% confidence, both the ROE variable and the interaction between this variable and the two dummy variables describing membership in a particular activity field (consumer goods industry and intermediate goods and heavy industry) influence the stock return measured by capital gains yield, hence the model has the following equation:

$$CGY = 0.208 \cdot AROE - 0.207 \cdot AROE \cdot D_1 - 0.220 \cdot AROE \cdot D_2 - 0.032$$

(2)

The relative variation of ROA and net margin and their interaction with the dummy variables are not considered significant enough to be included in the model, due to a Sig. greater than 0.100. The absence of the ROA variable in the model is explained by its influence and the impact of borrowing on ROE.

According to the obtained model, the relative variation of ROE has a positive influence on the capital gains yield. The regression coefficients indicate that an increase of 1% in AROE will result in an increase of 20.80% in the capital gains yield for companies in the services activity field. In contrast, the capital gains yield average will decrease by 20.70% when the company belongs to the consumer goods industry, respectively with 22.00% when the company belongs to heavy industry and of intermediate goods, compared to the situation when the company is in the services activity field. This difference between the...
areas is given by the size of equity held by the companies, corresponding to the fixed assets used in the activity. Companies from the services will use less capital to achieve financial results, compared to those from the consumer goods industry or those from heavy industry and intermediate goods. Moreover, companies from the heavy industry and intermediate goods industry find it difficult to sell end products with an impact on the exploitation result. Thus, companies in this industry will be characterized by a declining economic profitability, due to exploitation result increasingly lower than the growing total assets. Reluctance to invest in these companies is justified by the values of economic return ratios lower than the cost of the borrowed capital that can indicate the state of financial difficulty.

4. Conclusions

After processing the data, the results obtained show the acceptance of the work hypotheses on obtaining a statistical model depicting the influence of the company’s profitability based on accounting data and the activity field on the stock return, measured through the capital gains yield. Moreover, of the variables involved in the analysis, ROE is the only quantitative variable that influences the capital gains yield, having a positive influence.

Also, the activity field has an impact on the capital gains yield by interaction with relative variation of ROE. In order to obtain the highest return possible, the investor is urged to place the available funds in the capital of companies in the service consumer goods industry, if conditions remain unchanged in the economic activity.

Limitations of this study are given by the relatively small number of companies listed on BSE in the three categories considered in the analysis. Moreover, during 2009-2011, the events related to the financial crisis caused a reluctance of investors in placing resources in the financial markets, reluctance proved by the downward slope of the principal BSE indices.

Future directions of research aim to extend the time span of the study and also the analyzed financial markets and take into account other financial or non-financial factors, microeconomic or macroeconomic. The necessity to analyze other factors is indicated by the coefficient of determination, which does not exceed 10%.

References

Ball, R., Brown, P. (1968). An empirical evaluation of accounting income numbers. Journal of Accounting Research. 6(2), 159-177.
Balvers, R. J., Cosimano, T. F., McDonald, B. (1990). Predicting Stock Returns in an Efficient Market. Journal of Finance. 45(4), 1109-1128.
Banz, R. W. (1981). The relationship between return and market value of common stocks. Journal of Financial Economics. 9, 3-18.
Barton, J., Hansen, T. B., Pownall, G. (2010). Which Performance Measures Do Investors Around the World Value the Most - and Why?. The Accounting Review. 85(3), 753-789.
Basu, S. (1983). The relationship between earnings yield, market value, and return for NYSE common stocks: Further evidence. Journal of Financial Economics. 12, 129-156.
Beaver, W. H. (1968). The Information Content of Annual Earnings Announcements. Empirical Research in Accounting: Selected Studies. 6, 67-92.
Berk, J. B. (1995). A Critique of Size-Related Anomalies. The Review of Financial Studies. 8(2), 275-286.
Cavaglia, S., Moroz, V. (2002). Cross-Industry, Cross-Country Allocation. Financial Analysts Journal. 58(6), 78-97.
Chen, P., Zhang, G. (2007). How do accounting variables explain stock price movements? Theory and evidence. Journal of Accounting and Economics. 43, 219-244.
Chen, N., Roll, R., Ross, S. (1986). Economic forces and the stock market. Journal of Business. 59(3), 383-403.
Dimitropoulos, P. E., Asteriou, D. (2009). The value relevance of financial statements and their impact on stock prices: Evidence from Greece. Managerial Auditing Journal. 24(3), 248-265.
Fama, E. F. (1981). Stock Returns, Real Activity, Inflation and Money. The American Economic Review. 71(4), 545-565.
Fama, E. F., French, K. R. (1992). The Cross-Section of Expected Stock Returns. Journal of Finance. 47(2), 427-465.
Gujarat, D., (2003). Basic Econometrics. (4th ed.). New York: McGraw-Hill Companies, (Chapter 9).
Haugen, R. A., Baker, N. L. (1996). Commonality in the determinants of expected stock returns. Journal of Financial Economics. 41, 401-439.
Hawawini, G., Subramanian, V., Verdin, P. (2003). Is performance driven by industry – or firm-specific factors? A new look at the evidence. Strategic Management Journal. 24, 1-16.
Jaba, E. (2002). Statistica. (Editia a treia), București: Editura Economică.
Kothari, S. P. (2001). Capital markets research in accounting. Journal of Accounting and Economics. 31, 105-231.
Li, D., Jin, J. (2006). The effect of diversification on firm returns in chemical and oil industries. Review of Accounting and Finance. 5(1), 20-29.
Lintner, J. (1965). The Valuation of Risk Assets and the Selection of Risky Investments in Stock Portfolios and Capital Budgets. Review of Economics and Statistics. 47(1), 13-37.
Martani, D., Khairurzika, R. (2009). The effect of financial ratios, firm size, and cash flow from operating activities in the interim report to the stock return. Chinese Business Review. 8(6), 44-55.
Markowitz, H. (1952). Portofolio Selection. The Journal of Finance. 7(1), 77-91.
Merchant, M. A. (2006). Measuring general managers’ performances. Market, accounting and combination-of-measures systems. Accounting, Auditing & Accountability Journal. 19(6), 893-917.
Min, Q., Madala G. S. (1999). Economic Factors and the Stock Market: A New Perspective. Journal of Forecasting. 18, 151-166.
Mironiuc, M. (2006). Analiză economico-financiară: elemente teoretico-metodologice și aplicații. Iași: Sedecom Libris, (Chapter 6).
Ragab, A. A., Omar, M. M. (2006). Accounting information, value relevance, and investors’ behavior in the Egyptian equity market. Review of Accounting and Finance. 5(3), 279-297.
Rosenberg, B., Reid, K., Lanstein, R. (1985). Persuasive evidence of market inefficiency. Journal of Portfolio Management. 11, 9-17.
Sharpe, W. (1964). Capital asset prices: a theory of market equilibrium under conditions of risk. Journal of Finance, 19(3), 425-442.
Tudor, C. (2012). Information asymmetry and risk factors for stock returns in a post-communist transition economy: Empirical proof of the inefficiency of the Romanian stock market. African Journal of Business Management. 6(16), 5648-5656.