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Article

CSR and Company's Stock Price

EE
E u r o E c o n o m i c a
Issue 1(36)/2017 *ISSN: 1582-8859*

CSR and Company's Stock Price. A Comparative Evidence from Bucharest Stock Exchange

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Abstract: This paper aims at analysing the relationship between Corporate Social Responsibility (CSR) and stock price for the companies listed on Bucharest Stock Exchange (BSE) in 2015, comparing with the results obtained for 2014. This study investigates the differences in the market stock price (and other market variables, such as dividends and stock return) of companies that show CSR compared with those that do not. For this purpose we will use three statistical techniques: discriminant analysis, probit analysis model and logistic regression. There is no significant difference between the prediction ability of the models, in the context in which probit model and logistic regression have and average correct classification of 70.29%, while discriminant analysis records 71.62%. Our analysis highlighted that stock return has a significant impact on CSR activities of a company. Moreover, all discriminants have a positive impact on CSR.

Keywords: CSR; market variables; sustainable development

JEL Classification: G12; M14; O16

1 Introduction

All over the world, corporate social responsibility (CSR) has become more and more popular in the business community. CSR allows a business to respond to the emerging needs of a society, whether they are economic, environmental, or social problems. CSR is a form of corporate self-regulation integrated into a business model (Baker & Nofsinger, 2012). According to Carroll (1999), CSR is the decision-making and implementation process that guides all company activities in protecting and promoting international human rights, labour and environmental standards, and compliance with legal requirements within its operations and in its relations to the societies and communities where it operates. In this context, CSR involves a commitment to contribute to the economic, environmental, and social sustainability of communities through the ongoing engagement of stakeholders, the active participation of communities affected by company activities, and the public reporting of company policies and performance in the economic, environmental, and social arenas (Baker & Nofsinger, 2012).

"Social responsibility (is the) responsibility of an organisation for the impacts of its decisions and activities on society and the environment through transparent and ethical behaviour that is consistent with sustainable development and the welfare of society; takes into account the expectations of

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stakeholders; is in compliance with applicable law and consistent with international norms of behaviour; and is integrated throughout the organisation" (Hohnen, 2007).

The importance of CSR activities is well recognized both by academics and practitioners, because CSR has many benefits for a company, including its financial performance can increase.

In our previous study on CSR and stock market (Dornean & Oanea, 2016) we have found that the average price and average dividend are higher for CSR companies, compared with NON-CSR companies. In the same time, the stock return is higher for NON-CSR companies. Based on the estimation of three selected models, we concluded that stock price is the main market driver for the CSR activity of a company, while the other two variables, dividend and stock return do not have a significant impact. Through the present study we want to investigate and to see if we obtain the same results in 2015 compared to 2014, more because in 2015 according to the Law no. 227/2015 regarding the Romanian Fiscal Code were taken actions in order to reduce the dividend tax rate for the dividend paid from 16% to 5%.

The contribution of our work consists on its practical implications because it can motivate potential investors and/or the public at large to decide to invest in companies that demonstrate a higher degree of CSR and improve policymaking through appropriate policies or incentives for CSR activities.

The paper is organized as follows: section 2 reviews the literature regarding the CSR and the stock market; section 3 presents the methodology used in order to capture the impact of CSR on market variables of the companies; section 4 includes descriptive statistics of the main data used in our analysis. In section 5 we report the results and the main findings of our research. Finally, we present the conclusions of our study.

This paper is an original research paper that presents new empirical findings and it adds to the literature on this topic because of its policy implications.

2 Literature Review

CSR and sustainable development (SD) are closely related business concepts that have greatly affected companies and organizations in the early 21st century. Sustainable development involves the use of environmentally responsible and efficient operational practices that preserve environmental resources crucial to long-term business success. CSR involves three dimensions and it encompasses four types (Carroll, 1991) of social responsibilities: economic, legal, ethical, and discretionary (philanthropic).

According to World Business Council for Sustainable Development (WBCSD, 2017) "The days of measuring corporate performance by financial metrics alone are over. Business needs to measure and value its relationship with natural and social capital in a credible and generally-accepted way, to produce reliable, relevant and fit-for-purpose information that can inform decision-making and ensure meaningful reporting and disclosure. In the future, business can then systematically account for natural and social capital, in the same way that it does for financial capital". The WBSCD has described CSR as the business contribution to sustainable economic development: "Corporate social responsibility is the commitment of business to contribute to sustainable economic development, working with

employees, their families, the local community and society at large to improve their quality of life". There seems to be a strong relationship between CSR and sustainable development (SD).

According to another organization, the International Institute for Sustainable Development (IISD), the social responsibility of an organization should define its contribution to the balanced promotion of all three pillars of sustainable development: economic growth, social development and environmental protection.

In their paper, Ebner and Baumgartner (2006) tried to find out, from the reviewed articles, where the focus in the discussion of SD, CSR and their relationship is. They have identified clusters which intend to clarify whether CSR correlates with the social dimension of SD; whether CSR represents SD on a corporate level; whether SD and CSR are used synonymously; or whether articles exist which focus especially on the social dimension of SD but do not use terms such as CSR. As conclusions, they recommend to use CSR as social strand of the SD-concept which is mainly built on a sound stakeholder approach. In their opinion, CSR focus especially on the corporate engagement realizing its responsibilities as a member of society and meeting the expectations of all stakeholders.

CSR and SD are tangent concepts (Ghiga and Ghiga, 2006). Specific elements of SD (people-planet-profit) are used in CSR programmes as well. We subscribe to the opinion (Ghiga, 2006) that sustainable development and corporate social responsibility share the common belief that economic growth and development cannot continue unless the social aspect, in its global dimension, is taken into account. They both work in the direction of increasing the awareness of the social aspects of both governments and companies.

In their study, Margolis et al. (2009) ask themselves: "Can a corporation create wealth and do it in a way that does not harm society, and, in the best of all worlds, even redress social ills?" In this context, the question of whether "doing good and doing well" CSR is about "doing good and doing well".

Therefore, there is a continuous debate regarding the link between Corporate Social Performance (CSP) and Corporate Financial Performance (CFP) because the narrative reviews of the literature and the empirical evidence is too varied to allow for definitive conclusions. Margolis et al. (2009) conducted a meta-analysis of 192 effects revealed in 167 studies. They found that overall effect is positive but small and also they have noticed that the effects are different across nine categories of CSP.

A large number of papers have investigated the link between CSR-CFP and CSR-stock market variables. In order to demonstrate this, Tsaklanganos (2012) conducted an analysis for the companies listed on the Athens Stock Exchange. He found that companies with and without CSR activities do not present great differences, except in terms of stock price, when all data are used or when outliers are excluded. Also, the author analysed the impact of the firm size and he arrived to the conclusion that firm size does not play a role in discriminating between companies that have CSR and those that do not.

In a recent research (Wang and Li, 2016) that analyse a matched sample of Chinese publicly listed firms, the authors found that CSR initiators have higher market valuations than matched CSR non-initiators, and CSR initiators with high CSR reporting quality and perceived credibility have higher market valuations than CSR initiators with low CSR reporting quality and medium or low perceived credibility

of CSR reporting. Also, they found that the market values standalone CSR reports, and that CSR reporting quality and perceived credibility are important factors in market valuation.

Using a sample of listed Spanish companies pertaining to the IBEX35 index for the period 2007-2011, Reverte (2016) investigated whether those firms with higher CSR disclosure ratings are more valued by market participants. The author use a modified Ohlson model in order to demonstrate this and he found that CSR disclosure do have both a direct and indirect effect on stock prices by modifying the value-relevance of earnings and book value of equity. He argue that this results may be due to the fact that CSR disclosures provide information that allow investors to make better assessments of the increased risk related to potential litigation and future environmental liabilities, thereby reducing information asymmetries and the risk of adverse selection.

The relationship between CSR and financial results of companies has been analysed in different studies (Margolis and Walsh, 2003; Orlitzky et al., 2003; Lev et al., 2010; Barnett and Salomon, 2012; von Arx and Ziegler, 2014; Carnevale and Mazzuca, 2014). All these papers indicated that there exist a primarily positive impact of CSR on the financial results, both from the accounting and the market perspectives. Even there is no unanimously agreement on this field, because are authors that consider the favourable influence of social responsibility is not universal but company specific (Barnett, 2007), it may be assumed that the tendency to associate higher CSR standards with the achievement of better financial results is sufficiently supported by empirical research (Adamska and Dabrowski, 2016). In their research on the Polish Equity Market, Adamska and Dabrowski (2016) concluded that there is a positive relation between corporate CSR and financial results of companies. Moreover, investors on emerging markets also take into account the information about changes in the level of corporate social responsibility and respond positively to its growth and negatively to its decline.

On the other hand, Lee (2016) test opposing views of the relationship between CSR and stock price crash risk in a major Asian emerging stock market, namely Taiwan market. His results revealed that CSR significantly mitigates Taiwanese stock price crash risk. This finding is consistent with the notion that socially responsible Taiwanese firms commit to a higher standard of transparency and engage in less bad news hoarding, thus reducing crash risk. Also, Lee (2016) demonstrate that CSR has a more pronounced effect in mitigating crash risk for Taiwanese firms with less effective corporate governance.

Despite the positive societal implications of CSR, there remains an extensive debate regarding its consequences for firm shareholders. The research of Mishra and Modi (2016) made on a sample of 1,725 firms for the years 2000–2009 indicates that the effects of overall CSR efforts on stock returns and idiosyncratic risk are not significant on their own but only become so in the presence of marketing capability. Furthermore, the results reveal that although marketing capability has positive interaction effects with verifiable CSR efforts—environment (e.g., using clean energy), products (e.g., providing to economically disadvantaged), diversity (e.g., pursuing diversity in top management), corporate governance (e.g., limiting board compensation), and employees (e.g., supporting unions)—on stock returns (and negative interaction effects with these CSR efforts on idiosyncratic risk), it has no significant interaction effect with community-based efforts (e.g., charitable giving).

As we could see, the researchers in the field tried to identify the link between CSR and stock market performance of companies. In order to add more results to those that are existing, and to the results of our previous study, we conducted an analysis on listed companies on Bucharest Stock Exchange in 2015.

3 Methodology

Having as purpose the identification of the CSR activities impact on a company stock price, we used the same methodology applied in our previous research (Dornean & Oanea, 2016) namely: discriminant analysis (DA), probit analysis model (PA) and logistic regression (LR). These statistical tools are appropriate to be used in our case, due to fact that we want to see also if variables such as stock price, stock return or paid dividend are suitable to predict the companies' classification in terms of CSR activities.

Discriminant analysis, is a methodology proposed by Fisher (1932), showing the most suitable linear regression with appropriate variables which will best discriminate the two groups: CSR and NON-CSR companies. This methodology implies that variables are normally distributed. In our case, the equation is expressed by equation (1):

(1) $$CSR = \alpha_0 + \alpha_1 \cdot P + \alpha_2 \cdot D + \alpha_3 \cdot R + \varepsilon$$

where CSR – is the dependent variable, equal to 1 if company has CSR activities and 0 otherwise; P – stock price; D – paid dividend, R – stock return, $\alpha_0, \alpha_1, \alpha_2, \alpha_3$ – the discriminant coefficients and ε is error term.

Another approach, probit analysis model, is transforming the linear combination of analyzed variables into normal cumulative probabilities, which can be estimated based on relation (2):

(2) $$prob(CSR = 1) = \phi(\alpha_0 + \alpha_1 \cdot P + \alpha_2 \cdot D + \alpha_3 \cdot R)$$

where CSR – is the dependent variable, equal to 1 if company has CSR activities and 0 otherwise; ϕ - the value from the cumulative normal distribution; P – stock price; D – paid dividend, R – stock return, $\alpha_0, \alpha_1, \alpha_2, \alpha_3$ – the coefficients in linear combination of independent variables.

Logistic regression, is very similar to probit model, the difference being in term of distribution assumption for error term. In this case the errors are assumed to be logistically distributed, instead of normally distributed (as it is stated in PA case). This model will be estimated based on the relation (3):

(3) $$\log\left[\frac{prob(CSR = 1)}{1 - prob(CSR = 1)}\right] = \alpha_0 + \alpha_1 \cdot P + \alpha_2 \cdot D + \alpha_3 \cdot R$$

where CSR – is the dependent variable, equal to 1 if company has CSR activities and 0 otherwise; P – stock price; D – paid dividend, R – stock return, $\alpha_0, \alpha_1, \alpha_2, \alpha_3$ – the coefficients in linear combination of explanatory variables.

4 Data and Descriptive Statistics

In our analysis we used the companies listed at Bucharest Stock Exchange (BSE), by excluding 10 companies due to data availability. From the 74 remained companies, there are only 29 companies which have CSR activities, and which are clear stated in the annual reports or their websites. Most of these companies are from Machinery of Industrial Equipment, according to the industry classification presented in table 1.

Table 1. Companies' classification base on industry membership and CSR activity

Industry Classification	Number of companies	Companies having CSR
Machinery of Industrial Equipment	18	6
Investments fund	9	2
Construction Materials	5	3
Manufacturing rubber products	5	3
Real Estate	4	2
Transportation Services	4	2
Trade	4	1
Hotels	3	2
Banks	3	1
Specialized Chemicals	3	0
Electricity	3	1
Consultancy	3	1
Medical products	2	0
Food and beverage industry	2	2
Manufacturing industry	1	1
Technology – Electrical Office Equipment	1	1
Raw Materials – Aluminum	1	0
Industry Suppliers	1	0
Computer Materials	1	1
Clothes and Accessories	1	0
TOTAL	**74**	**29**

Because on BSE the latest reports which we are able to find are for 2015, all the data used in the analysis are computed for this year.

Table 2. Descriptive statistics for analyzed variables

Variable	Mean	Median	Max	Min	Std. Dev.	Skewness	Kurtosis
CSR companies							
Price	20.9188	1.2663	269.7082	0.0419	54.0658	3.7110	16.9338
Dividend	2.3025	0.0085	27.6100	0.0000	7.0685	3.2027	11.6091
Stock return	16.84%	8.26%	220.87%	-50.53%	46.35%	2.9056	14.1824
NON-CSR companies							
Price	4.8012	0.5549	65.0090	0.0063	12.4810	3.6310	16.0993
Dividend	0.2030	0.0000	4.2070	0.0000	0.6943	5.0590	29.2132
Stock return	-7.30%	-6.89%	56.40%	-75.58%	30.86%	-0.0491	2.9525
ALL companies							
Price	10.8490	0.7540	269.7082	0.0063	35.6609	5.7132	39.6818
Dividend	1.0123	0.0000	27.6100	0.0000	4.5289	5.4325	31.6288
Stock return	2.66%	1.56%	220.87%	-75.58%	38.98%	2.1804	14.5833

For each company we computed the following variables as follows:

- Stock price – average stock price for year 2015. These values will be linearize by applying logarithmic function;
- Dividend paid – dividend value paid in 2015 for each stock by each companies. In case one company didn't paid dividends we equal the value for this variables with 0;
- Stock price return – ratio between the difference of final and initial stock price and the initial stock price, based on relation (4):

(4) $$R = \frac{P_f - P_i}{P_i} \cdot 100$$

In table 2 we present the descriptive statistics for the selected variables, from where we are able to see a clear difference between the 2 analysed groups: CSR companies versus NON-CSR companies.

At a first glance, we can see that CSR companies are over the NON-CSR companies, in all analysed variables. It seems that average stock price for the CSR companies (20.91 RON) is 4 times higher compared with NON-CSR companies (4.80 RON). Also the average dividend value per share for CSR companies is 2.3 RON, 11 times higher than average dividend value per share for NON-CSR companies (0.2 RON). In the same time, when we analyse the stock return for these 2 categories, CSR companies recorded 16%, while the NON-CSR companies recorded a decrease of 7.3% in their stock prices.

Table 3. Normality test: Kolmogorov – Smirnov

Variable	CSR companies		NON-CSR companies	
	Statistic test	Prob.	Statistic test	Prob.
Dividend	0.443	0.000	0.392	0.000
Ln(price)	0.114	0.200	0.069	0.200
Stock return	0.215	0.010	0.081	0.200

Based on Kolmogorov–Smirnov test we tested the normality of the analyzed data. According to table 3 stock return and price for NON-CSR companies are normally distributed, while the divided series is not. Moreover for CSR companies, we can see that only price is normally distributed.

5 Results

By using the three statistical techniques mentioned above, we try to find the best fitting model for data from 2015. The estimated coefficients for each model are given in table 4.

Table 4. Regression models estimation

Variable	Coefficient		
	Discriminant analysis	Probit analysis	Logistic regression
Constant	-0.116	-0.375**	-0.603**
Dividend	0.097	0.085	0.145
Ln(price)	0.194	0.100	0.159
Stock return	0.019*	-0.012**	0.021**
Eigenvalue	0.198	0.054	0.054

Correlation	0.406	0.367	0.367
R-squared	12.730*	15.711*	3.560*

*, **, *** - Indicates significant at the 0.1 level, 0.05 level and 0.01 level

It seems that the stock return is the only significant variable. Moreover all discriminants have a positive impact on CSR.

Based on the estimated discriminant coefficients, the discriminant scores for each company from the sample can be calculated, such that each company to be assigned to one of two groups: CSR companies and NON-CSR companies.

In table 5 we reported the classification results for each model. We can observe that all three types of models has a good prediction ability (DA – 71.62%, LR and PROBIT – 70.27%). These results are better than the classification obtain for 2014 (Dornean & Oanea, 2016), in which we showed that both probit analysis and logistic regression, had an average correct classification of 65.85%, while discriminant analysis had 62.03%.

Table 5. Classification Table for Groups (Percentage Correct – Overall Index)[a]

Model		CSR = 1	CSR = 0	Total
Discriminant analysis (DA)	CSR = 1	12	17	29
	CSR = 0	4	41	45
	Total	16	58	74
	Correct	12	41	53
	%	75.00%	70.68%	**71.62%**
Probit analysis (PA)	CSR = 1	13	16	29
	CSR = 0	5	40	45
	Total	18	56	74
	Correct	13	40	52
	%	72.22%	71.42%	**70.27%**
Logistic regression (LR)	CSR = 1	13	16	29
	CSR = 0	5	40	45
	Total	18	56	74
	Correct	13	40	52
	%	72.22%	71.42%	**70.27%**

[a] – Cut-off point: 0.50

6 Conclusions

The aim of this paper was to expand our previous research and to analyze the relationship between companies' CSR activities and their performance regarding price stock and dividend paid, for listed companies on Bucharest Stock Exchange in 2015.

There are 29 listed companies which had conducted clear CSR activities, from 84 listed on BSE. Before applying the three statistical models (discriminant analysis, probit analysis and logistic regression), we are able to see that average stock price for CSR companies are 4 time higher than NON-CSR companies, while the average paid dividend is 10 times higher.

Our results proves that stock return had a significant impact on CSR activities, which it is logically, because the highly performance companies, having high market return, are the most probably to have financial resources in order to support CSR activities. This paper highlighted the ability of high

prediction for all three models used for data from 2015, due to fact that the average correct classification is close to 71% for all of them (DA – 71.62%, LR and PROBIT – 70.27%). These results are better than the results for 2014, which we obtain in our previous research (Dornean & Oanea, 2016), when we obtained that the best models are probit and logistic model, with a result of 65%, while the discriminant analysis had 62.03%.

Also, compared to our results obtained for 2014 (Dornean & Oanea, 2016) even in both papers the market variables had a significant impact on CSR classification, in 2014 the stock price was the best predictor for CSR and the stock return in 2015. Our results confirm those obtained by Tsaklanganos (2012) for the case of companies listed on the Athens Stock Exchange which indicate that very few of the investigated market variables—stock price, stock returns, earnings per share, and dividends—play a role in discriminating between these two categories of companies (CSR companies and non CSR companies), while firm size plays almost no role at all.

Our study has as limit the fact that is analysing only the companies listed on the BSE. It would be a challenge to apply the presented analysis to data on European countries. Also, further research can extend the analysis through the number of discriminants included in the models, by taking into account financial ratios, such as ROE, debt to equity ratio, working capital ratio, and for a larger period. It would be interesting to investigate the relationship between CSR and market stock price before, during and after the recent financial crisis.

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