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Do investors care about CSR?
Evidence from Polish public listed companies

Abstract

The CSR (corporate social responsibility) concept has become an increasingly important part of corporations' strategies and plans. However, it does not have to translate into investors' decisions to buy their shares. The article investigates the relationships between companies implementing a CSR strategy, the rates of return on their stocks, and their investment risk. The paper aims to verify whether applying a CSR strategy affects stock market parameters (lower risk, higher investment profitability) and whether investors consider CSR companies less risky or more profitable and reliable than non-CSR firms. The following hypotheses have been formulated: (I) CSR companies are less risky (in terms of investment risk) than non-CRS ones; (II) CSR companies are characterized by higher rates of return than non-CSR ones.

1. Introduction

The CSR (corporate social responsibility) concept has become an increasingly important part of corporations' strategies, not only in Western Europe and other old free-market economies but also in developing and newly developed countries, including Central and Eastern Europe. More and more companies introduce CSR practices as their standard. However, it is important to remember that implementing CSR does not necessarily translate into investors' interest in their shares or stocks. Decisions to buy their shares can, to some extent, be affected by it, but it is not always the case.

On the other hand, CSR implementation means introducing the highest ethical standards in economic, ecological, and social aspects. It should translate into lower investment risk or higher rates of return on the stocks of CSR companies.

The paper aims to verify whether investors take into account CSR information when making their investment decisions and if they consider CSR companies less risky or more profitable than non-CSR firms. The following hypotheses have been formulated:

(1) CSR companies are less risky (in terms of investment risk) than non-CRS ones;

(2) CSR companies are more profitable (in terms of the rates of return) than non-CSR ones.

The study focuses on the Polish capital market and the Warsaw Stock Exchange (WSE). Poland is now considered a newly developed state (see: *Emerging markets…*, 2019; *MSCI emerging markets index*, 2019; *Reclassification of Poland…*, 2018) with a relatively stable financial market, and CSR plays an increasingly critical role in corporate management processes (Długopolska-Mikonowicz, Przytuła & Stehr, 2019).

There are two different indices that group socially responsible PLCs on the Warsaw Stock Exchange market. The first – RESPECT – was historically the first CSR index implemented by the Warsaw Stock Exchange. It was published from November 19, 2009, until the end of 2019. The base date for the index was December 31, 2008, and the base value amounted to 1,000 points. It was an income index that included dividend income and subscription rights. The index composition was reviewed once every six months. The eighth (and the last) edition of RESPECT was announced on December 18, 2018, and consisted of 31 companies. According to the WSE announcements (see: http://respectindex.pl/), the index helped to promote the highest management standards in public listed companies in the economic, ecological, and social aspects.

As some financial market participants criticized the RESPECT index (cf. Cegliński, 2015), it was replaced by the ESG index (see: https://www.gpw.pl/aktualnosc...). The ESG index has been published since September 3, 2019, based on a portfolio of socially responsible companies listed on the Warsaw Stock Exchange. Socially responsible companies are defined as PLCs that comply with the

principles of socially responsible business, in particular, regarding environmental, social, economic, and corporate governance issues.

The base value of the ESG index was determined as at December 28, 2018, and amounted to 10,000 points. The ESG is an income index, which means that both its transaction prices and dividend income are taken into account in calculations of its value. The share of a particular company in the whole index is limited to 10%, while the total percentage of companies, each of which exceeds 5%, is limited to 40%.

The Polish stock market has existed since 1991, and the RESPECT index was introduced in 2009. As of February 09, 2020, only 59 out of 448 PLCs were included in the WIG-ESG, meaning that CSR is still a new and relatively uncommon phenomenon in Poland. It makes the study itself and the research goal and hypotheses even more interesting.

The article is divided into several parts. After the *Abstract* and *Introduction*, the CSR concept and RESPECT index idea are outlined, then the data for the empirical study are introduced together with the research methods. Finally, the outcomes of the empirical research were described. The essential findings are presented in the last part of the article, i.e., *Summary*.

2. The CSR concept – theoretical background and pragmatic approach

CSR can be understood as a self-regulating business model (see, e.g., Doś, 2019) that helps a company be socially accountable (see, e.g., Rasche, Morsing & Moon, 2019):

    (1) to itself,
    (2) to its stakeholders,
    (3) to the general public.

CSR can provide a mechanism for regulating market allocative inefficiencies, which is particularly important in areas such as the natural environment, health care, public safety, and social welfare (see, e.g., Fisher, Turner and Morling, 2009; Stiglitz, 1999). Corporate social responsibility modifies assumptions about the goals and motivations of companies. Incorporating ethical motives and striving for compliance with social norms into the enterprise's activities reduces the importance of profit as the only decision-making criterion (Doś, 2019).

CSR can be considered in an interdisciplinary and multidimensional way (Buczkowski et al., 2016). Being socially responsible, companies are conscious of their impact on the economic, social, and environmental aspects of the market and society. Corporate social responsibility can take different forms depending on the particular company, as well as the whole industry (see, e.g., Moon, 2014; Kotler & Lee, 2004). Through CSR programs, philanthropy, and volunteer work, companies can benefit society while enhancing and strengthening their brands.

In 2010, the International Organization for Standardization (ISO) released a set of voluntary standards relevant to corporate social responsibility implementation that are included in the ISO 2010 formula. This standard is unique in that it provides guidance rather than requirements, and it cannot be certified (see: *ISO 26000: Social Responsibility*, 2010). The ISO 26000 standard explains what CSR is. Additionally, it helps corporations convert CSR principles into practical activities. The ISO 2600 standard is designed for all types of businesses and other organizations, regardless of their activity, size, or location, and it represents an intercontinental compromise.

Studies on CRS in Poland have been conducted (see, e.g., Długopolska- -Mikonowicz et al., 2019); however, it is still an interesting field of research to see if the CSR practices affect the market valuation of a given company.

3. Data for the empirical study

The data used in the study were derived from open-access databases: the official data repository of the *Warsaw Stock Exchange* (www.gpw.com.pl), the *Stooq* database (www.stooq.pl), as well as the *Bankier* (www.bankier.pl) and *Biznesradar* (www.biznesradar.pl) web-sites. Additionally, interest rate time series were taken from *Eurostat*.

Two different time-spans were implemented. First, a study focused on one year (2019) and 248 daily observations based on the share prices. On that basis, the measures for rates of return and risk were calculated. The sample of 17 public listed companies included in both the RESPECT and ESG indices (see: Attachment 1) served as the basis of the study. As stated earlier, these indices consist of PLCs that introduced CRS into their strategies. As the RESPECT index was last revised in December of 2018 and the ESG index is a new one on the Polish capital market, there was no problem with the stability and consistency of the sample.

However, in the second approach (supportive study), a three-year (2017– 2019) sample based on 745 daily observations was used. Of course, the composition of RESPECT changed during this period, and not all companies from the sample were included in the index from the beginning of this period. However, it can be assumed that introducing CSR strategies was a long-term process, and it could be seen and assessed by the (potential) investors even before attaching particular companies to the CSR indices.

Subsequently, a matching sample of the similar PLCs listed on the Warsaw Stock Exchange but not included in the Respect and ESG indices was prepared (see: Attachment 2). The matching sample was chosen in order to follow the similarity criteria of the industry, total assets value, revenues from sales, and the number of strategic investors within a company.

4. Research methods

In the empirical part of the study, the following methods and indices were used: a modified excess rate of return, the beta (β_i) coefficient (see: Tarczyński, Witkowska & Kompa, 2013), the Treynor (T_i) formula (Treynor, 1965), the Sharpe (S_i) method (Bacon, 2009, p. 65), and the M_p^2 index (Modigliani & Modigliani, 1997). They are well-recognized and described in the literature (see, e.g., Borowski, 2014). The calculations and estimations were conducted for particular companies, as well as for the portfolios that consisted of CSR and non-CSR companies. The same shares of the specific stocks in both portfolios were assumed. For all the calculations and estimations, both data samples (248 daily observations for 2019 and 745 daily observations for 2017–2019) were used.

The empirical research started by calculating the modified excess rates of return (er_{it}) and estimating the beta coefficient. Then the outcomes for both groups of PLCs, CSR, and non-CSR companies, were compared. The following equation was used to calculate the modified excess rate of return:

$$er_{it} = r_{it} - r_{Mt} \qquad (1)$$

where:
r_{it} is the particular, observed rate of return on the shares of the "i" PLC in period t,
r_{Mt} is the specific, perceived rate of return on the market index in period t.

The following equation was implemented to estimate the beta coefficients:

$$\beta_i = \frac{\sum_{t=1}^{n}(r_{it}-\bar{r}_i)(r_{Mt}-\bar{r}_M)}{\sum_{t=1}^{n}(r_{Mt}-\bar{r}_M)^2} \quad (2)$$

where:
$\bar{r}_i$ is the average rate of return on the shares of the "i" PLC for the analyzed period,
$\bar{r}_M$ is the average rate of return on the market index for the analyzed period, the rest as in equation (1).

To calculate r_{Mt} and, $\bar{r}_M$ the data on the WIG (most general Warsaw Stock Exchange index) was used. Therefore, using equations (1) and (2) for all the CSR and non-CSR PLCs, it was possible to assess how investors evaluate particular PLCs and how they evaluate the risk of investing in those companies and compare the results for both groups (and for both portfolios).

Thirdly, the Treynor formula, as shown in equation (3), was applied:

$$T_i = \frac{r_i - r_f}{\beta_i} \qquad (3)$$

where:
r_i is the rate of return from the "i" shares (or portfolio),
r_f is the risk-free rate,
β_i is the beta coefficient for the "i" shares (or portfolio).

The Treynor index measures the rate of return on the given stocks (or portfolio) over the risk-free rate to the beta coefficient of these stocks (or portfolio).

The Sharp formula and the M_p^2 index were also used. For the Sharp method, the following equation was employed:

$$S_i = \frac{r_i - r_f}{\delta_i} \qquad (4)$$

where:
- δ_i is the standard deviation of the rates of return on the "i" shares (or portfolio),
- the rest as in equation (3).

The Sharpe index measures the rate of return on the given shares (or portfolio) over the risk-free rate to the risk of a given investment. The measure of risk, in this case, is the standard deviation.

The M_p^2 index was calculated as follows:

$$M_p^2 = r_i + S_i(\delta_M - \delta_i) \qquad (5)$$

- S_i is the Sharpe formula,
- δ_M is the standard deviation of the rates of return on the market index,
- the rest as in equations (3) and (4).

The M_p^2 measure is a linear function of the Sharpe coefficient.

5. Results

The empirical research started with the estimations of the *beta* coefficients for the enterprises on both samples. The outcomes are presented in Table 1.

Table 1. Outcomes for *beta* coefficient estimations

	CSR sample		Matching sample	
	Three years	One year	Three years	One year
Average ($\bar{x}$)	0.98	1.02	0.36	0.35
std. dev. (δ)	0.31	0.38	0.23	0.29
$V = \delta/\bar{x}$	0.32	0.38	0.64	0.84
median	0.98	1.00	0.34	0.30

Source: own elaboration.

The results show that, on average, CSR companies go along with the whole Warsaw Stock Exchange market. The beta coefficient values for the portfolio of CSR companies for the one and three-year periods are very close to one (i.e., the level for the market portfolio). The variation coefficient (*V*) was 31% and 38%, and we can consider it to be moderate.

It is essential to highlight that these companies are relatively huge, and, to some extent, they can affect the whole market. However, they are only 17 compa-

nies out of more than 400 PLCs listed on the Warsaw Stock Exchange, which is why it is impossible to assume that these companies drive the whole WSE market.

What is more interesting is that the portfolio of non-CSR companies seems much more defensive than the CSR sample. Its beta coefficients for one and three years were 0.36 and 0.35, respectively, which means that the portfolios of non-CSR companies reacted to the changes that took place on the market less than proportionally. In terms of investment risk, they were simply safer than the whole market.

The investment risk should now be confronted with the rates of return. First, the modified excess rate of return was used. The outcomes are presented in Table 2.

Table 2. Outcomes for the modified excess rate of return and the modified daily-average excess rate of return

	CSR sample		Matching sample	
	Three years	One year	Three years	One year
Modified excess rate of return				
Average ($\bar{x}$)	-26.66%	-10.56%	-27.38%	14.76%
std. dev. (δ)	52.18%	33.75%	69.18%	66.61%
$V = δ/\bar{x}$	-1.96	-3.20	-2.53	4.51
median	-35.68%	-15.32%	-53.01%	-0.68%
Modified daily-average excess rate of return				
Average ($\bar{x}$)	-0.0391%	-0.0764%	-0.0364%	0.0515%
std. dev. (δ)	0.0803%	0.1761%	0.0937%	0.1697%
$V = δ/\bar{x}$	-2.05	-2.31	-2.57	3.30
median	-0.0346%	-0.0728%	-0.0359%	-0.0028%

Source: own elaboration.

Both: the CSR and non-CSR portfolios generated significant losses in the three years in comparison to the whole market. Their outcomes were around 27% below the entire WSE market performance. The non-CSR portfolio made a profit higher than the market in one year only. The variation coefficients (*V*) were very high.

These outcomes are proved by the results for the modified daily average excess rate of return, as shown in Table 2. The results for the CSR sample (in three years and one year) and the non-CSR sample (in three years) were slightly below the market.

The results are quite surprising: the Non-CSR portfolio generated lower investment risk than the CSR sample, followed by similar (for three years) and much higher (for one year) rates of return.

The research outcomes were supported by the results for the Treynor and Sharpe formulas as well with the M_p^2 index. They are presented in Table 3.

All three indices confirm the earlier results. The Treynor formula for the market portfolio is equal to 2.44% for the three years (2017–2019) and -3.13% for one year (2019). The results for the CSR sample were much worse than those in three years and better in one year. The outcome for the non-CSR portfolio (and for one year) had the best performance.

Table 3. Outcomes for the Treynor and Sharpe formulas and the M_p^2 index

	CSR sample		Matching Sample	
	Three years	One year	Three years	One year
	Treynor formula			
Average ($\bar{x}$)	-0.30	-0.08	-1.33	2.28
std. dev. (δ)	0.61	0.45	3.43	7.65
$V = δ/\bar{x}$	-2.02	-5.58	-2.58	3.35
median	-0.32	-0.14	-0.70	-0.02
	Sharpe formula			
Average ($\bar{x}$)	-9.30	-5.57	-5.93	4.79
std. dev. (δ)	22.71	13.82	26.18	20.60
$V = δ/\bar{x}$	-2.44	-2.48	-4.42	4.30
median	-16.18	-10.93	-16.43	-6.07
	M_p^2 *index*			
Average ($\bar{x}$)	-0.04	-0.07	-0.09	0.09
std. dev. (δ)	0.26	0.23	0.41	0.51
$V = δ/\bar{x}$	-6.30	-3.39	-4.62	5.78
median	-0.04	-0.07	-0.14	0.01

Source: own elaboration.

Similar results were found for the Sharp formula. The non-CSR sample had the highest rate of return in relation to the level of investment risk. The risk-adjusted performance (M_p^2) ratio proved these outcomes: the best performance characterized the non-CSR portfolio in one year.

6. Summary

CSR strategies have become more and more important for Polish companies. However, the introduction of these strategies may not be recognized, and, even if it is, it may not be positively accepted by the financial market participants. That is why it was so important to verify the relation between CSR implementation and the market valuation of companies.

Based on the results of this article, the portfolio of CSR companies recorded beta coefficient values very close to one (i.e., at the level of the market portfolio). At the same time, the sample of non-CSR PLCs is characterized by this coefficient at a level of 0.35–0.36, which means that the non-CSR portfolio proved to be safer (in terms of investment risk) than the CSR portfolio. In addition, the non-CSR portfolio generated a very similar modified excess rate of return and the modified daily average excess rate of return to the CSR sample for three years (2017–2019). Additionally, the non-CSR portfolio proved to be much more profitable in the one-year period.

The results were proved by the Treynor and Sharpe formulas, as well as the M_p^2 index. The non-CSR portfolio (for one year) generated a much higher rate of return

at a much lower investment risk than the CSR sample. Thus, the portfolio of CSR companies should be considered ineffective compared to the matching sample.

The results are quite surprising as they go against the theoretical background. The portfolio of non-CSR companies can be considered more effective than the CSR portfolio. It means that the investors do not care about CSR practices when making decisions about their investments on the Polish stock market. Thus, it is still necessary to promote CSR practices and show how they can (in the long run) affect a company's financial situation.

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Attachment 1. The CSR PLCs sample – list of companies

Company name	Revenues (III Q'19) mln PLN	capitalization (26.I.'20) mln PLN	Total assets (XII'18) mln PLN	number of large share-holders
Amrest Holdings SE	504.8	9,970.5	9,909.2	3
Budimex S.A.	2,134.1	4,850.7	6,162.9	3
CCC S.A.	1,447.7	3,754.5	7,368.9	4
Energa S.A.	3,035.0	3,105.5	21,798.0	1
Fabryki Mebli "FORTE" S.A.	263.9	705.9	1,594.6	5
Grupa Azoty S.A.	2,563.9	2,735.8	14,870.7	5
Grupa LOTOS S.A.	7,877.8	15,873.2	22,223.9	1
Intercars S.A.	2,241.2	3,272.9	4,686.7	5
Jastrzębska Spółka Węglowa S.A.	2,164.5	2,411.6	14,298.4	1
KGHM Polska Miedź S.A.	5,641.0	19,472.0	40,099.0	3
Lubelski Węgiel Bogdanka S.A.	527.8	1,156.5	4,169.5	1
Orange Polska S.A.	2,870.0	9,593.3	24,152.0	1
PGE Polska Grupa Energetyczna S.A.	9,696.0	13,911.0	82,130.0	1
PGNIG S.A.	7,029.0	23,459.9	54,012.0	1
PKN Orlen S.A.	29,229.0	36,577.7	71,551.0	3
Tauron PE S.A.	4,861.8	2,755.0	41,223.2	3
Trakcja PRKiI S.A.	427.0	153.9	1,739.2	3

Source: own elaboration on the basis of WSE data

Attachment 2. The matching sample – list of companies

Company name	Revenues (III Q'19) mln PLN	capitalization (26.I.'20) mln PLN	Total assets (XII'18) mln PLN	number of large share-holders
Sfinks S.A.	45.6	19,0	302.1	3
Polimex Mostostal S.A.	482.4	539,5	1,808.7	2
Baltona S.A.	161.5	74,8	790.7	2
Zespół Elektrowni "Pątnów-Adamów-Konin" SA	751.1	396,4	3,667.0	3
Stelmet S.A.	127.8	223,1	769.2	2
Zakłady Chemiczne Police S.A.	546.5	1316,2	2,496.9	3
Serinus S.A.	8.4	105,6	467.5	5
Auto Partner S.A.	391.5	713,2	721.6	5
Prairie Mining (balance sheet 2018)	no data	114,6	36.7	5
ZAP Puławy S.A	776.8	1395,4	4,792.7	1
Coal Energy S.A.	2.7	5,4	348.8	1
Netia S.A.	319.8	1520,2	2,690.2	3
CEZ a.s.	47,194.0	46805,1	113,762.3	2
Unimot S.A.	1,261.0	223,0	803.7	2
Polenergia S.A.	643.4	1354,2	2,510.5	5
Neuca S.A.	2,005.0	1732,0	3,269.8	4
Torpol S.A.	399.0	179,6	878.7	4

Source: own elaboration on the basis of WSE data