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Investing in Shares of CSR Companies as an Instrument of Investment Risk Management

Abstract

Objective: Corporate Social Responsibility (CSR) is a concept of running a company that is more and more implemented among companies around the world. Not only companies are more and more interested in CSR, but also the financial community. The objective of this study is to research the influence of CSR on the investment risk level among companies whose shares are listed on the Warsaw Stock Exchange.

Research Design & Methods: In this study, an analysis and assessment of literature was used as well as empirical research whose scope covers the period of 2009–2017. In empirical research for investments in shares of companies included in the RESPECT Index there were estimated risk measures and their levels were compared with levels of those risk measures for investment in WIG.

Findings: Companies from the RESPECT Index were characterised by higher total risk and lower systematic risk. Moreover, the results of skewness and kurtosis were mixed.

Implications / Recommendations: The practical implication of this study is showing companies whose shares are listed on the Warsaw Stock Exchange and which implemented CSR. Moreover, mixed results of this study demonstrate that investing in shares of CSR companies is a complex issue, because the results depend on the kind of risk that is analysed. This is important knowledge in investment risk management. Information about companies that implemented CSR and about the risk level of those companies is important to investors who want to invest in CSR companies as well as to the managers of companies, because the influence of CSR on the investment risk level is indicated.

Contribution / Value Added: Investing in CSR companies is a complex issue and its results depend on risk measure. The added value of this study is to compare risk levels for investment in shares of companies included in the RESPECT Index with risk levels for investment in WIG. Moreover, this study contributes to a better understanding of the consequences of implementing CSR in a company as well as better understanding of a company's attractiveness for investors.

Keywords: Corporate Social Responsibility; investment risk management; risk measure

Article classification: research article

JEL classification: G32, M14

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Introduction

Corporate Social Responsibility (CSR) is a concept of running a company, which is more and more implemented among companies around the world. Not only companies are more and more interested in CSR, but also the financial community. According to K. Bouslah and colleagues (2018), there is growing importance of CSR within the financial community; the authors mentioned several indicators that support this claim. The first of them is the emergence and growth of specialised investment companies which monitor the behaviour of companies in social domains and provide social ratings for these companies. The second indicator is the emergence of mutual funds and indices which select companies on the basis of CSR criteria. Third of all, one can observe an increased interest among investors in CSR issues. Finally, many companies in order to discuss CSR issues produce a specific report, or in their annual report there is a specific section to discuss these issues (Bouslah et al., 2018, p. 643).

The objective of this study is to research the influence of CSR on the investment risk level among companies whose shares are listed on the Warsaw Stock Exchange. In order to reach this objective, two research questions are proposed. The first question is – which companies among those whose shares are listed on the Warsaw Stock Exchange implemented CSR? The second one – is there a statistically significant difference in the risk level of investing in shares of CSR companies and investing in WIG? This study is based on the analysis and assessment of literature and empirical research whose scope covers the period of 2009–2017.

Literature review

The primary responsibility of the risk management function is to understand the portfolio of risks that is currently being taken and the risks that are planned to be taken in the future. Moreover, there has to be taken a decision whether the risks are acceptable or not and, if they are not, what action should be taken (Hull, 2015, p. 1). "In a market economy, a security's risk is measured in terms of the volatility of its price (or of its rate of return). The greater the volatility, the greater the risk, and vice versa" (Vernimmen et al., 2009, p. 391). When money is invested, there is a trade-off between risk and return, which means that higher expected returns can usually be achieved by an investor only by taking higher risks (Hull, 2015, p. 2, 19). Therefore, risk is very important in the process of investing on capital market.

Investment risk is broken down into the volatility of security itself and the volatility of the market as a whole (Vernimmen et al., 2009, p. 420). The value of security can change due to fluctuations in the entire market or due to factors which are specific to the company and which do not affect the market as a whole. Due to these two sources of fluctuation, there are two types of risk. The first type is called market, systematic, or undiversifiable risk, and this type of risk is due to trends in the entire economy and affects all securities. The second type of risk is called specific, intrinsic, or idiosyncratic risk, which is due to factors affecting just the one company; this type of risk is independent of market-wide phenomena (Vernimmen et al., 2009, p. 395). According to X. Luo and C. B. Bhattacharya (2009), a company's total risk or volatility has two parts. The first one, called systematic, is the company's sensitivity to the changes in market returns or sensitivity to news of broad market changes which are common to all stocks. The second part, called idiosyncratic, reflects the risk associated with company-specific strategies (Luo & Bhattacharya, 2009, pp. 199–200).

Diversification is defined as "reducing risk by dividing a portfolio between many different assets" (Hull, 2015, p. 674). Therefore, when investors buy a portfolio of assets, they can reduce overall risk of this portfolio and that is the reason why investors do not buy single assets but they prefer to hold well-diversified portfolios (Vernimmen et al., 2009, pp. 394–395). The risk of a portfolio is lower than the average risk of the shares making up that portfolio (Vernimmen et al., 2009, p. 414), because investment risk consists of systematic risk and idiosyncratic risk; the first one (systematic risk) "cannot be diversified away" (Hull, 2015, p. 685), and the second one (idiosyncratic risk) "can be eliminated by diversification" (Vernimmen et al., 2009, p. 395).

Corporate Social Responsibility is a complex concept. According to A. B. Carroll, "the social responsibility of business encompasses the economic, legal, ethical, and discretionary expectations that society has of organizations at a given point in time" (Carroll, 1979, p. 500). Total CSR is constituted by four kinds of social responsibilities (Carroll, 1991, p. 40): economic, legal, ethical, and philanthropic. CSR means that companies "voluntarily take actions that benefit not only their shareholders, but also broader groups of stakeholders as well as society at large" (Jiraporn et al., 2014, p. 507).

In CSR literature, there are two opposite views regarding the relationship between risk and social performance. The first one, the risk mitigation view, suggests that there is a negative relationship between social performance and company risk, because a higher level of social performance may decrease the likelihood of negative events at the company level. Moreover, a higher level of social performance allows the company to be better prepared for difficult periods. The second view, the over-investment view, suggests a positive relationship between social performance and company risk due to managerial entrenchment (Bouslah et al., 2018, p. 644).

X. Luo and C. B. Bhattacharya researched companies from different countries in terms of the impact of corporate social performance (CSP) on systematic and idiosyncratic risk. The research scope covered the period of 2002–2003. The results show that CSP has impact in lowering systematic and idiosyncratic risk (Luo & Bhattacharya, 2009, pp. 198–213).

P. Jiraporn and colleagues (2014) researched US companies in terms of influence of CSR on S&P credit rating. The research scope covered the period of 1995–2007 and the results show that companies with higher level of CSR have better credit rating (Jiraporn et al., 2014, pp. 505–531).

Y. Kim and colleagues (2014) researched US companies in terms of influence of CSR on risk. The research scope covered the period of 1995–2009 and the results show that CSR has an influence on lowering risk (Kim et al., 2014, pp. 1–13).

I. Oikonomou and colleagues (2012) researched US companies in terms of the influence of CSR on risk. The research scope covered the period of 1992–2009 and the results show that CSR is negatively but weakly related to systematic company risk and that corporate social irresponsibility is positively and strongly related to financial risk (Oikonomou et al., 2012, pp. 483–515).

K. Bouslah and colleagues (2018) researched US companies in terms of the impact of financial crises (2008–2009) on the relationship between a company's risk and social performance. The research scope covered the period of 1991–2012. The results show that the relation between social performance and risk is time-varying and depends on market conditions. Social performance reduces volatility during the financial crisis (Bouslah et al., 2018, pp. 643–669).

W. Breuer and colleagues (2018) researched companies from thirty-nine countries in terms of the influence of CSR on the cost of equity. The research scope covered the period of 2002–2015. The results show that the influence of CSR on the cost of capital depends on the level of investor protection. CSR can substantially decrease companies' cost of equity in countries where investor

protection is strong. In countries with low investor protection, however, this relationship may be reversed (Breuer et al., 2018, pp. 34–55).

L. Djoutsa Wamba and colleagues (2020) researched European-listed companies in terms of the relationship between a company's environmental performance and its systematic risk. The research scope covered the period of 2007–2015. The results show that the synthetic global index of environmental performance negatively affects the systematic risk of company (Djoutsa Wamba et al., 2020, pp. 1677–1694).

Zu Rehman and colleagues (2020) researched European and Asian companies in terms of the influence of CSR initiatives by company on company performance and company risk as well as the mediating role of company reputation in CSR / performance and CSR / risk relationship. The research scope covered the period of 2014–2018. The results show that CSR has a significant positive influence on company reputation and company performance, whereas the impact on company risk is negative (Rehman et al., 2020, pp. 2991–3005).

E. Meira and colleagues (2023) researched ESG best practices indexes across four different regions in terms of added value and statistical differentiation among ESG strategies in the stock market. The research scope covered the period of 2011–2021. Classic and modern portfolio metrics as well as nonparametric tests were used. The results are mixed (Meira et al., 2023, pp. 1816–1834).

G. Cardillo and colleagues (2023) researched European companies in order to compare more sustainable companies with other companies in terms of risk-return trade-off and stock market liquidity. The research scope covered the year 2020. The results show that more sustainable companies have a better stock market performance than other companies (Cardillo et al., 2023, pp. 602–623).

A. J. Useche and colleagues (2024) researched companies from Chile, Colombia, and Peru in terms of the performance of investment portfolios built under the ESG criteria. The research scope covered the period of 2011–2019. The results show the value of responsible investment criteria (Useche et al., 2024, pp. 1323–1339).

There are many studies that research the influence of CSR on the investment risk level, but the results are mixed.

Research methodology

Due to the mixed results of previous studies researching the influence of CSR on the investment risk level, the objective of this study is to research this influence among companies whose shares are listed on the Warsaw Stock Exchange.

The first research question is – which companies among those whose shares are listed on the Warsaw Stock Exchange implemented CSR? The research scope covers companies whose shares are listed on the Warsaw Stock Exchange and which were included in the RESPECT Index (the index of Corporate Social Responsibility companies). The research scope covered the period of 2009–2017 and was divided into one-year periods. There were two reasons why the 2009–2017 period was chosen. The first reason was connected with the beginning of the period – the beginning of research scope was in 2009, because the RESPECT Index was launched in 2009. The second reason was connected with the end of the period – the end of research scope was in 2017, because after that year there were significant changes in the way the index of Corporate Social Responsibility companies was constructed.

Companies which implemented CSR were included in the RESPECT Index. The number of companies included was mixed. Some companies were in the RESPECT Index during the whole period and some companies were included for only one year. Table 1 presents companies included in the research scope.

Table 1. Companies included in the research scope

Sector	Company	Sector	Company
Auto parts	Inter Cars S.A.	Insurance	Powszechny Zakład Ubezpieczeń S.A.
Banks	Bank BPH S.A.	Metals products	RAWLPLUG S.A.
	Bank Handlowy w Warszawie S.A. (City Handlowy)	Mining	Jastrzębska Spółka Węglowa S.A.
	Bank Millennium S.A.		KGHM Polska Miedź S.A.
	Bank Ochrony Środowiska S.A.		Lubelski Węgiel Bogdanka S.A.
	Bank Pekao S.A.	Oil & Gas	Grupa LOTOS S.A.
	Bank Zachodni WBK S.A. (Santander Polska S.A.)		Polskie Górnictwo Naftowe i Gazownictwo S.A.
	BRE Bank S.A. (mBank S.A.)		Polski Koncern Naftowy ORLEN S.A.
	ING Bank Śląski S.A.	Paper & packaging	Mondi Świecie S.A.
Capital Market	DM IDM S.A.	Pharmaceuticals Wholesales	Pelion S.A.
	GPW S.A.	Power	Energa S.A.
Chemicals	Ciech S.A.		PGE Polska Grupa Energetyczna S.A.
	PCC Rokita S.A.		Tauron Polska Energia S.A.
	Zakłady Azotowe w Tarnowie – Mościcach S.A. (Grupa Azoty S.A.)		Zespół Elektrociepłowni Wrocławskich KOGENERACJA S.A.
Civil and water engineering	Trakcja PRKiI S.A.	Publishing	Agora S.A.
Consumer Durables	Fabryki Mebli „FORTE" S.A.	Telecom	Netia S.A.
Construction materials	Zakłady Magnezytowe „ROPCZYCE" S.A.		Telekomunikacja Polska S.A. (Orange Polska S.A.)
Drinks	Grupa Żywiec S.A.	Wood	Barlinek S.A.
Electro machinery	Apator S.A.		
General construction	Budimex S.A.		
Industry construction	Elektrobudowa S.A.		
	PBG S.A.		
	RAFAKO S.A.		

Source: Own work.

Table 1 demonstrates that the RESPECT Index included companies from various sectors, but the biggest number of companies is from the banking sector. The second place is taken by the power sector. Moreover, some companies changed their names; new names are provided in brackets. Because the number of companies included in the RESPECT Index was mixed and there were nine one-year periods, the total number of observations is 197.

The second research question is as follows: Is there a statistically significant difference in the risk level of investing in shares of CSR companies and investing in WIG? According to the literature presented in this study, there are three kinds of risk (Luo & Bhattacharya, 2009, pp. 199–200; Vernimmen et al., 2009, pp. 395, 420): investment risk (total risk), systematic risk, and idiosyncratic risk. Moreover, systematic and idiosyncratic risk are two parts of the total risk (investment risk). Because idiosyncratic risk can be eliminated by diversification (Vernimmen et al., 2009, p. 395), in this study this kind of risk was not calculated. Therefore, total risk and systematic risk were the two calculated types. Total risk is measured by estimating the standard deviation of return and systematic risk is measured by estimating the beta (β) coefficient (Luo & Bhattacharya, 2009, p. 200; Vernimmen et al., 2009, pp. 402–403).

In this study, daily percentage log-returns were calculated. Moreover, the standard deviation of daily percentage log-return, the skewness of daily percentage log-return, the kurtosis of daily percentage log-return, and the β coefficient were all calculated, too. Levels of these risk measures for investments in shares of companies included in the RESPECT Index were compared with levels of these risk measures for investment in WIG.

In order to estimate total risk, the standard deviation of daily percentage log-return was calculated. A higher level of standard deviation means a higher level of total risk. Moreover, skewness and kurtosis were calculated; these are – with the standard deviation – the basic characteristics of time series.

The skewness of daily percentage log-return is a measure in which its sign is important – positive or negative – and its absolute value. Positive skewness means that there are more positive returns. Negative skewness means that there are more negative returns. The absolute value informs about the strength of skewness. A higher absolute value means stronger skewness. Therefore, the analysis of skewness had two stages. The first stage was the analysis of the sign of skewness for returns of shares; whether it was the same as the sign for WIG. The second stage was research of the absolute value of skewness for returns of shares; whether it was lower or higher than for WIG.

The kurtosis of daily log-return presents the shape of the distribution of the return in compare with normal distribution. Therefore, the level of kurtosis for returns of shares was analysed; whether it was higher or lower than the level of kurtosis for WIG. The standard deviation, skewness, and kurtosis were estimated in the MS Excel programme.

The next risk measure is β coefficient, which is the measure of systematic risk. During the estimations of β coefficients, GARCH models were used. Therefore, at first, the ARCH effect test was carried out, and after that the estimations of GARCH models (0,1), (1,1), (1,2), (2,1), (2,2) were conducted, and conditional normal distribution, conditional Student's t-distribution, and conditional distribution GED were used. It means that in order to estimate the β coefficient, 15 GARCH models were estimated. The GARCH model was chosen based on information criteria AIC and BIC. Lower levels of these criteria means that the model is better, but in situation when these criteria indicated that different GARCH models were the best, a GARCH model was chosen which was indicated by BIC. The estimations of the β coefficients were made in GRETL, and

daily percentage log-return of shares and WIG were used. The estimations were made based on data from Thomson Reuters Eikon.

For every one of these risk measures and for every year there were calculated proportions of companies for which levels of risk measures for investments in shares were higher than for WIG (except for an analysis of the sign of skewness, in which the proportion of companies for which the sign of skewness was opposite than for WIG was calculated). Next, the sum of the 2009–2017 period for every risk measure was calculated. In order to answer the research question, a proportion significance test for the sum of the 2009–2017 period was carried out. The zero hypothesis of this test assumes that proportion in population is 0.5, it means, $p = 0.5$ (the share of companies with the level of risk measure higher than for WIG was 50% and for the sign of skewness, the share of companies for which it was opposite than for WIG was 50%). An alternative hypothesis of this test assumes that proportion in population is different from 0.5, i.e. $p \neq 0.5$. The significance level $\alpha = 0.05$. It needs to be explained that p means proportion and is different than the p-value, which is the observed significance level. Estimations of this test were made in GRETL.

The discussion of the results

Table 2 presents an analysis of risk measures for investment in shares of companies from the RESPECT Index for the period 2009–2017.

Table 2. The analysis of risk measures for investment in shares of companies from the RESPECT Index for the period 2009–2017

Specification	Total number of observations	Level of risk measure higher than for WIG / a sign of skewness opposite than for WIG		Test statistic z	p-value (two-sided critical area)
		Number of observations	Share (%)		
Standard deviation	197	196	99.49	13.89	0.00
Sign of skewness	197	91	46.19	–1.07	0.29
Absolute value of skewness	197	68	34.52	–4.35	0.00
Kurtosis	197	91	46.19	–1.07	0.29
β coefficient	197	67	34.01	–4.49	0.00

Source: Own work.

At the beginning of the analysis of risk measures for investment in shares of companies from the RESPECT Index for the period 2009–2017, it needs to be explained that in the sign of skewness there is a share of companies for which it was opposite than for WIG. Moreover, in β coefficient, its levels for shares of companies from the RESPECT Index were compared with the levels for WIG (for WIG $\beta = 1$); it was the analysis where the β coefficient for shares is higher than 1, and these shares are called aggressive and are characterised by higher than average level of systematic risk.

Based on proportion significance tests, it has to be stated that at the significance level $\alpha = 0.05$ in standard deviation, the absolute value of skewness and β coefficient zero hypothesis showed that proportion in population is 0.5, i.e. $p = 0.5$ has to be rejected, and an alternative

hypothesis stated that proportion in population is different from 0.5, i.e. $p \neq 0.5$ has to be accepted. The results shows that in these risk measures the share of companies was significantly different than 50%, but depending on the risk measure, investments in shares of companies from the RESPECT Index were characterised by higher or lower risk level than investment in WIG. Meanwhile, in the sign of skewness and kurtosis, there are no grounds to reject the zero hypothesis. The results shows that in cannot be stated that the risk level of investing in shares of companies from the RESPECT Index was different than the risk level of investing in WIG, because the share of companies was not significantly different from 50%.

The results shows that in case of standard deviation, which is the measure of total risk, the share of observations with the level of this risk measure for company was higher than for WIG – nearly 100% – which means that in almost every case, shares of companies were characterised by higher total risk than WIG. On the other hand, in the case of the β coefficient, which is the measure of systematic risk, the situation was opposite, because the share of observations with the level of this risk measure for company was higher than for WIG (higher than 1) – much lower than 50%. It means that in nearly 34% cases, shares of companies were characterised by higher systematic risk than WIG.

In the case of skewness, its sign was first researched comparing it with the sign of skewness for WIG. The share of observations in which the sign was opposite than for WIG was nearly 50%, which means that if in the WIG case, the sign of skewness was negative, there were more negative returns. If the signs of skewness were positive, there were more positive returns (the right tail of the distribution was longer than the left tail). This opposite behaviour of returns means higher risk. Secondly, the researched absolute value of skewness, that is the strength of skewness (higher skewness means higher risk). The share of observations in which the absolute value of skewness was higher than for WIG was lower than 50%. It means that in about 34.5% cases, the absolute value of skewness was higher than for WIG, i.e. the shares of those companies were characterised by higher risk.

In case of kurtosis, share of observations, in which its level was higher than for WIG was nearly 50%. It means, that in about 46% cases concentration of returns from investment in shares of companies around means returns was higher than concentration of returns from investment in WIG. Distributions of daily percentage log-returns from investments in shares of those companies were more peaked than for WIG and that means higher probability of occur extreme events, that is very high or very low returns compared with probability for WIG, that is higher risk.

Conclusions

The objective of this study was to research the influence of CSR on the investment risk level among companies whose shares are listed on the Warsaw Stock Exchange. In order to reach this objective, two research questions were posed. The first question was – which companies among these whose shares are listed on the Warsaw Stock Exchange implemented CSR? In order to answer this question, an analysis was conducted concerning which companies were included in the RESPECT Index. The second research question was – is there a statistically significant difference in the risk level of investing in shares of CSR companies and investing in WIG? In order to answer this question, for every risk measure a proportion significant test was carried out. The results were mixed. Companies from the RESPECT Index were characterised by higher

total risk and lower systematic risk. Moreover, the results of skewness and kurtosis were mixed as well. To sum it up, the objective of this study was reached.

The practical implication of this study is in indicating companies whose shares are listed on the Warsaw Stock Exchange and which implemented CSR. Moreover, mixed results of this study showed that investing in shares of CSR companies is a complex issue, because the results depend on the kind of risk that is analysed. This is important knowledge in investment risk management. Information about companies that implemented CSR and about risk levels of those companies is important to investors who want to invest in CSR companies as well as for managers of companies, because they show the influence of CSR on investment risk level.

The contribution and value of this study is that discipline is significant, because it extends knowledge about investment risk management and using shares of CSR companies as an instrument of that risk management. Moreover, this study contributes to a better understanding of the consequences of implementing CSR in a company and of company's attractiveness for investors. That attractiveness can have an influence on accessibility to equity, the cost of equity, the structure of capital, and, finally, the possibilities of the development of a company.

There are limitations to this research. The first of them is that the research scope covered a short period; therefore, the results were not obvious. Moreover, during the assessment of the implementation CSR, information was used from reports produced by companies, and these reports do not always allow an objective assessment of the level of CSR in a company.

Due to the mixed results of this study, there has to be the continuation of research into the influence of CSR on the investment risk level among companies whose shares are listed on the Warsaw Stock Exchange. In further research, different risk measures could be used, e.g. downside risk measures. Moreover, an analysis of the portfolio of the shares of companies which implemented CSR could be performed.

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All data will be available and shared upon request.