

# **Do investors respond to changes in the composition of sustainability indices?**

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## **Abstract**

This paper investigates the price effects associated with changes in the composition of the first sustainability index in Central and Eastern Europe – the RESPECT Index – over its lifetime, i.e. 2009–2019, using an event study technique and the advanced market model for the calculation of abnormal returns. The results show a strong negative reaction by the stock prices of companies that are either included in or excluded from a sustainability index. The effect is short-lived but statistically significant in some asymmetric event windows. The study contributes to the discussion of how the emerging capital markets perceive the value of socially responsible activities undertaken by firms. The research indicates that events such as addition to and removal from a sustainability index (as well as announcements thereof) create a trading opportunity. Additionally, it suggests that investors at the Warsaw Stock Exchange – at least in the short run – tend to sell stocks of companies formally recognised as socially responsible.

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**Keywords:** emerging markets, index effect, sustainable and responsible investing (SRI), sustainable finance, sustainability indices

**JEL:** G11, G12, G14

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## 1 Introduction

The importance of corporate social responsibility (CSR) can be broadly understood as the acknowledgement of environmental, social and governance (ESG) issues and their integration into a company's management system. For decades, the importance of CSR has had a significant footprint in financial markets in the form of sustainable and responsible investing (SRI) – an investment approach or strategy that considers ESG factors in portfolio selection and management (GSIA 2019).

SRI has already been transformed from a market niche strategy to the mainstream investment approach in developed countries, but investors from emerging markets have slowly become responsive to this trend as well. Globally, sustainable investing assets amounted to USD 30.7 trillion at the beginning of 2018, a 34% increase compared with 2016. The largest three regions – based on the value of their sustainable investing assets – were Europe, the United States and Japan. In Europe, total assets committed to sustainable and responsible investment strategies grew by 11% from 2016 to 2018 to reach EUR 12.3 trillion (USD 14.1 trillion) (GSIA 2019). The key drivers of SRI demand in Europe include the demand from institutional investors, legislative pressure, the materiality of ESG topics, the notion of fiduciary duty, international initiatives, external pressure (NGOs, media, trade unions) and the demand from retail investors (Eurosif 2017).

In practice, SRI implementation means a selective investment portfolio based on assets which meet ESG criteria. This investment solution aspires to provide an attractive risk-return trade-off, resulting, *inter alia*, from portfolios' lower exposure to ESG risks (Cox, Brammer Millington 2004). Stock exchanges all over the world have responded to this trend by creating financial instruments which incorporate ESG factors – sustainability (SRI) indices, the number of which has been increasing since their debut in the 1990s (the first of which was the Domini 400 Social Index, followed by the Dow Jones Sustainability Index World). The objective of SRI indices is to provide financial advisors and investors with a benchmark which allows them to evaluate socially responsible portfolios, as well as to set a point of reference for companies that operate in a socially responsible manner. They are also used as a benchmark for socially responsible mutual funds.

While SRI indices have gained in popularity, scholars and practitioners have wondered whether and how being part of those instruments' portfolios influences a company's market value and its investment attractiveness,<sup>1</sup> in particular whether the mere fact of inclusion in or exclusion from an SRI index impacts a firm (in terms of its stock price). In this context, questions arise as to whether an SRI approach can benefit from financial short-term effects as well, and whether it creates a trading opportunity for investors.

There are numerous studies which attempt to capture how changes to the composition of an index can impact the performance of companies whose stocks are added to or excluded from the index (see Afego 2017, for a detailed literature survey). Those studies, however, mostly relate to conventional stock market indices, and focus mainly on mature financial markets. The comprehensive assessment of the academic literature carried out by Afego (2017) reveals a research gap, suggesting that there is a need for more studies on emerging markets, and in particular those in single-country settings. Additionally, several studies have analysed the impact of events regarding sustainability indices (e.g. Hawn, Chatterji, Mitchell 2018; Cheung 2011; Consolandi et al. 2009; López et al. 2007; Robinson et al. 2011), but most of

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<sup>1</sup> The main aspects of the consideration of SRI indices in the academic discourse regard the comparison of the performance of SRI indices to conventional ones, and the long-term and short-term index effect related to its constituents.

them examined the Dow Jones Sustainability Index (DJSI), and relied heavily on U.S. firms. Filling this gap seems to be relevant, as it may help uncover the extent to which complexities in the institutional, economic and political environment of the individual emerging markets influence the SRI index effect.

Acknowledging this need, and believing that time and space play a role in investor reactions to sustainability announcements, the aim of our study is to evaluate whether being included in or excluded from a sustainability index published in an emerging market has an impact on a company's stock prices and, consequently, on its market value. We examine the issue using the example of Poland, which until September 2018 was classified as an emerging market,<sup>2</sup> and focus on public companies included in the first SRI index in Central and Eastern Europe – the RESPECT Index and its successor, the WIG-ESG Index, both published by the Warsaw Stock Exchange (WSE).

The remainder of the paper is organised as follows. Section 2 presents the research questions and literature review. Section 3 characterises the sustainability stock market indices in Poland. Section 4 describes the methodology and the data sources. Section 5 presents the empirical results of the study. The last section concludes the paper with a discussion of the implications of the results.

## **2 Research questions and literature review**

Our research questions aim to examine whether there is a positive, negative or no effect of a company's inclusion in or exclusion from an SRI index on its stock price in the short term. In other words, we investigate how the capital market reacts to such information, based on the example of Poland.

Generally, the following arguments in favour of a positive impact of the inclusion of a company in a sustainability index can be brought up. Companies that are managed in a responsible manner, or in other words, are responsive to ESG factors, perform better (show higher and less volatile profitability in the long run) and enhance their competitive position (Greenwald 2010; Jo et al. 2010; Renneboog, Ter Horst, Zhang 2008; Vermeir, Van de Velde, Corten 2005). Companies with a high ESG score are exposed to lower idiosyncratic risk (Luo, Bhattacharya 2009; Marsh 2000). In particular, socially responsible companies reduce the risk of very costly litigation (Koh, Qian, Wang 2014), and their reputation risk is lower as well. This is also because CSR activity creates a form of goodwill that acts as insurance-like protection for the company against negative events, and thus can represent added value for its shareholders (Godfrey 2005; Godfrey, Merrill, Hansen 2009).

Numerous studies support the relationship between CSR performance and reporting and a company's reputation (Bebington, Larrinaga, Moneva 2008; Błach, Wiczorek-Kosmala 2017; Havemann, Webster 1999; Kurtz 1997; Pérez 2015). A company's reputation, defined as an ability to deliver value to stakeholders (Błach, Wiczorek-Kosmala 2017), should be particularly noticeable to investors; hence, it constitutes a key asset of a company (Brady, Honey 2007) which is not captured by its book value. According to Brady and Honey (2007, p. 6), 'corporate reputation as a concept embodies the image and values of a company, and was therefore intimately linked with the concept of corporate responsibility'. In turn, as stated by Havemann and Webster (1999), perceived ethical or unethical behaviour can have an impact on a company's reputation and share price.

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<sup>2</sup> On 24 September 2018, the decision of the FTSE Russell index agency, announced in 2017, entered into force, reclassifying the Polish market from emerging to developed. On the other hand, MSCI Inc. still recognised Poland as an emerging market.

There is also evidence that CSR decreases the systematic risk of a company (Albuquerque, Koskinen, Zhang 2018).<sup>3</sup> Moreover, empirical research provides evidence that consideration of ESG factors in management systems can decrease operational costs in the long run, for example by improving employees' motivation and thereby their productivity (Van Liedekerke, De Moor, Vanwalleghem 2007).

Taking the above-mentioned arguments into account, companies included in an SRI index may offer greater utility (in terms of risk/return ratio) to investors, and in such a case they become appealing to a broader spectrum of investors (both those that are CSR sensitive and those indifferent to ESG factors). Although this utility is captured in the medium or long term, its projection (or promise) can be reflected in a short-term financial effect. This can happen if the recognition of a company as socially responsible is positively interpreted by investors.

By the same token, one can offer arguments supporting the case for the negative impact of a company's inclusion in an SRI index. First of all, it can be argued that this inclusion can have a negative impact on a company's stock price due to additional cost factors. Being recognised as socially responsible signals an increase in a company's costs (expenditures) related to compliance with CSR practices, standards and regulations, and last but not least, stakeholders' expectations pertaining to this matter. This means that responsibly managed companies face higher compliance costs (United Nations 2007; Ruwanpura, Wrigley 2011; Statman, Glushkov 2009), especially in areas such as the natural environment, products and services, supply chain management, human resources management, R&D, corporate governance, accounting and corporate finance, health and safety, or business ethics. For certain industries, those costs are a significant financial burden (Buszko 2013). In this context, interesting findings were reached by Naughton, Wang and Yeung (2014), who investigated whether CSR expenditures increase company value and how this is related to investor sentiment. They concluded that there is a positive association between short-term stock returns and CSR expenditures, but that such an association is not indicative of long-term value creation. This suggests that CSR activities (and expenditures) chosen in response to investor sentiment did not increase long-term shareholder value.

Another disadvantage can be noted as well at the level of portfolio management, and is related to asset selection costs, i.e. additional costs that arise from the use of specific methods of asset selection in the portfolio construction process (e.g. negative screening, positive screening) and subsequently methods of management of this portfolio (e.g. shareholder activism integration) (e.g. Bauer, Derwall, Otten 2007; Geczy, Stambaugh, Levin 2005).

Another key argument in a similar vein is that the implementation of CSR policy forces a company to consider a smaller pool of business projects, thus reducing diversification possibilities, as additional limiting criteria have to be taken into account in the decision-making process (e.g. Jo et al. 2010). This may result in high opportunity costs at the company level. At the portfolio level, in turn, it can have a negative effect on investment performance (Schröder 2005), since ESG screening may have two-fold negative implications for portfolio construction: it excludes assets with potentially high returns and it generally reduces the spectrum of assets. Those arguments support the scenario that a company being recognised as socially responsible can be negatively interpreted by investors.

By analogy, our research question has to be completed by the assumption that a company's exclusion from an SRI index can have a positive, negative or no impact on its stock price as well. An argument for this event having a positive impact is the fact that a company's policy-making is not

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<sup>3</sup> The model developed by Albuquerque, Koskinen, and Zhang (2018) predicts that CSR decreases systematic risk and increases firm value and that these effects are stronger for firms with high product differentiation.

restricted to business projects in line with ESG policy, which allows for the full diversification of a project, as well as flexibility of activity and product decisions. There are also lower costs of compliance (or none whatsoever) with voluntary CSR standards and rules.

The main argument for a negative impact is related to risk issues. The ESG risk of an excluded company is higher, and it can result in litigation costs and higher reputation risk. This risk can materialise through stakeholders' activism (lawsuits, strikes, and protests). In this sense, companies with a low ESG score are generally exposed to higher operational risk.

In the context of this study – since we are testing the response of the financial markets to CSR information – it is worth adding that CSR activities undertaken by a company can influence (positively or negatively) its future cash-flows, dividend policy, as well as the cost of capital.

We address our research questions from the perspective of the Polish emerging capital market. Unlike most prior studies of the Polish sustainability index (e.g. Buszko 2013; Czerwińska 2012; Golaszewska-Kaczan, Kilon, Marcinkiewicz 2016; Jedynak 2012; Laskowska 2018; Wiśniewski 2010), we focus on a short-term perspective, since we believe it is important to most investors, and crucial to traders. In doing so, we carried out a financial event study of how investors react to news about firms being added to and removed from the SRI indices listed on the WSE. In the context of past research on SRI in Poland, this scrutiny is novel in terms of the time span of observations (2009–2019),<sup>4</sup> and the examination of changes of composition, not only of the RESPECT Index but also its successor, the WIG-ESG Index. As for the applied methodology,<sup>5</sup> we use a well-established event study technique (e.g. Beneish, Whaley 2002; Chen, Noronha, Singal 2004; Docking, Downen 2006; McVerry, Vos 2009; Woolridge, Ghosh 1986) and the market model to analyse stock returns (Wilkins, Wimschulte 2005; Brown, Warner 1985).

### 3 Sustainability stock market indices in Poland

The SRI market in Poland remains in the early stage of development, though an upward trend is noticeable. Despite a wide-spread perception that the demand for SRI products is relatively low – mostly due to insufficient knowledge of SRI, in particular its performance compared with mainstream investment (Lulewicz-Sas, Kilon 2014) – investors increasingly take ESG risks into account. In addition, the reporting of ESG data following the issuance of the EU's Non-financial and Diversity Disclosure Directive is expected to lead to the greater use of ESG information by investors (Eurosif 2017). To date, there has been no specific SRI regulation in Poland; however, public companies are required by Polish law to include a detailed statement on corporate governance in their annual report (Eurosif 2017).

The WSE continues to be a financial centre of both European and international relevance in Poland. In Q4 2020, 433 companies with a combined market capitalisation of EUR 236,05 million were listed on the WSE (GPW 2020). WSE is a member of the Sustainable Stock Exchanges initiative.<sup>6</sup>

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<sup>4</sup> The period covers the lifetime of the RESPECT Index listings, which were published from 19 November 2009 to 31 December 2019.

<sup>5</sup> The up-to-date studies of the Polish SRI index mainly utilised the performance comparison method.

<sup>6</sup> The Sustainable Stock Exchanges (SSE) initiative is a peer-to-peer learning platform for exploring how exchanges, in collaboration with investors, regulators and companies, can enhance corporate transparency – and ultimately performance – on ESG (environmental, social and corporate governance) issues and encourage sustainable investment. The SSE is organised by the UN Conference on Trade and Development (UNCTAD), the UN Global Compact, the UN Environment Program Finance Initiative (UNEP FI) and the Principles for Responsible Investment (PRI) (<https://sseinitiative.org>).

In order to promote high ESG standards among its listed companies and investors, the WSE initiated the RESPECT Index in 2009, the first sustainability index in Central and Eastern Europe, and among the first SRI indices published by stock exchanges in emerging markets. In line with the WSE management board's intention, the purpose of the RESPECT Index was first of all education (exemplification of CSR standards and best practices) as well as the promotion of socially responsible behaviour (Osowski 2019).

The RESPECT Index was published until the end of 2019<sup>7</sup> (and has now been replaced by the WIG-ESG index). In all 12 editions of the RESPECT Index, the number of its components varied between 16 and 31. The index composition was updated on an annual basis, in the second half of the year. The index portfolio exclusively included companies listed on the WSE main market, positively screened in respect to the given environmental, as well as social and corporate governance standards. The portfolio selection was carried out by the WSE and the Association of Listed Companies, and audited by Deloitte, the project partner, within a three-stage process. The selection process required that the index constituents had already incorporated the CSR approach for a significant period of time, and their addition to the index proved that they had reached a certain level of maturity in this matter.

On 3 September 2019, the WSE commenced the publication of the WIG-ESG Index, the successor to the RESPECT Index. The WIG-ESG Index includes stocks constituting WIG20 and mWIG40, i.e. blue chips listed on the WSE. Selection of the constituents is based on the ESG risk ratings provided by Sustainalytics, a leading global company which is a ratings provider for the Financial Times Stock Exchange (FTSE) and STOXX, among others. Sustainalytics' ESG Risk Ratings measure a company's exposure to industry-specific material ESG risks, and how well the company manages those risks. The weighting of index constituents also depends on the degree of compliance with the corporate governance principles laid down in the Code of Best Practice for WSE Listed Companies.

The WSE management board justified its decision to launch the new sustainability index with the dynamically growing market for responsible investing (Osowski 2019). The first edition of the WIG-ESG Index comprised 60 companies, and primarily aimed to draw the attention of investors to ESG criteria in the investment decision-making process. The WSE believes that, in the coming years, environmental, social and governance scoring will have a greater impact on both the weighting of each company and the index's portfolio<sup>8</sup> (GPW 2019).

## **4 Data and methodology**

The data utilised in our research comprise the daily stock prices of Polish public companies listed on the WSE which have previously been included in the RESPECT Index. In the case of each company, we consider the longest available time series of prices, i.e. from the IPO date to 25 October 2019<sup>9</sup> (the date of completion of our database).

We examined all 12 editions of the RESPECT Index in the period 2009–2019. There were 54 inclusions in the index and 23 exclusions, which in total affected 45 companies. Our RESPECT

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<sup>7</sup> The first listing of the index took place on 19 November 2009, and the index value as of that date was 1665.07 points; the last listing as of 30 December 2019 equaled 2508.44 (GPW 2019).

<sup>8</sup> WIG-ESG is the underlying of a passive fund managed by NN Investment Partners TF.

<sup>9</sup> There were no changes to the index composition after this date.

Index sample covers businesses from 20 industries, and the WIG-ESG sample covers businesses from 24 industries, which are listed in Table 1.

Table 1

Industry breakdown of the study samples

RESPECT Index composition in 2009–2019			WIG-ESG composition in 2019		
Industry*	No. of companies	Percentage	Industry*	No. of companies	Percentage
Banks	9	20.0	Banks	10	16.7
Construction	7	15.6	Energy	4	6.7
Energy	4	8.9	Video games	4	6.7
Chemicals	3	6.7	Leisure facilities	3	5
Mining	3	6.7	IT	3	5
Oil & gas	3	6.7	Mining	3	5
Telecom	2	4.5	Metallurgy	3	5
Wood & paper	2	4.5	Construction	3	5
Machinery	1	2.2	Clothes & cosmetics	3	5
Media	1	2.2	Telecom	3	5
Capital markets	1	2.2	Real estate	3	5
Clothes & cosmetics	1	2.2	Oil & gas	3	5
Metallurgy	1	2.2	Chemicals	2	3.3
Consumer durables	1	2.2	Consumer durables	2	3.3
Food & drinks	1	2.2	General retailers	2	3.3
Leisure facilities	1	2.2	Machinery	1	1.7
Pharmaceuticals	1	2.2	Capital markets	1	1.7
Financial services	1	2.2	Automobiles	1	1.7
Automobiles	1	2.2	Food & drinks	1	1.7
Insurance	1	2.2	Mortgage	1	1.7
			Media	1	1.7
			Pharmaceuticals	1	1.7
			Transportation	1	1.7
			Insurance	1	1.7

\* According to the WSE industry classification.

Source: author's calculations.

We supplemented our study by adding in the same manner data pertaining to 60 public companies included in the newly published WIG-ESG Index, regarding the period from 3 September to 25 October 2019.<sup>10</sup>

Information about the Polish SRI indices' composition and changes thereto and inclusion/removal dates and announcement dates in regard to those indices' portfolios came from the official website of the WSE (gpw.pl) and the official website dedicated to the RESPECT Index project (respectindex.pl). The daily closing stock quotes of companies included in our research sample came from the EMIS database, an intelligence provider of news, research and analytical data for over 145 emerging markets (emis.com). Additionally, stock listings of two companies were taken from a Polish website containing financial market data, stooq.pl.

An event study methodology, which is well-suited to testing short-term stock market responses, is used to examine the price effects associated with changes to the composition of the RESPECT Index and the WIG-ESG Index. By mapping capital market reactions to news regarding CSR and using companies as their own matched controls, event studies offer a research design that potentially provides greater reliability (Hawn, Chatterji, Mitchell 2018) in comparison to the analysis of raw returns.

For calculation of abnormal returns, we have chosen the advanced market-model<sup>11</sup> (Wilkins, Wimschulte 2005; Brown, Warner 1985). Since the market portfolio is generally approximated by a broad and diversified market index, we use the WIG index<sup>12</sup> to obtain the market return as we consider it the best proxy for the Polish stock market portfolio. This let us control for risk by means of the market beta factor and the movement of the market during the event period. The WIG index is a total return index, as are both the RESPECT index and WIG-ESG.

Formally, abnormal return in the market model is

$$AR_{i,t} = r_{i,t} - (\hat{\alpha}_i - \hat{\beta}_i r_{M,t}) \quad (1)$$

where  $AR_{i,t}$  denotes the abnormal return for stock  $i$  over a one-day period.

Continuously compounded returns  $r_{i,t}$  and  $r_{M,t}$  measure the performance of stock  $i$  and the examined index (WIG), respectively. The size of the estimation window is equal to  $T$  days. The cumulative average abnormal return (CAAR) is calculated over various windows in the test period (i.e. -15, 15).  $t_1$  and  $t_2$  denote the beginning and the end day of an event window. Formally, the CAAR for  $N$  stocks is defined as

$$CAAR_{t_1, t_2} = \frac{1}{N} \sum_{t=t_1}^{t_2} \sum_{i=1}^N AR_{i,t} \quad (2)$$

The significance of abnormal returns is examined by using the t-test proposed by Brown and Warner (Brown, Warner 1980, 1985). The test statistic for the event window of  $W + 1$  days is defined as

<sup>10</sup> There were no changes to the index composition in 2019 after this date.

<sup>11</sup> Also known as the risk-adjusted market model or OLS market model.

<sup>12</sup> The WIG index comprises all companies listed on the WSE Main List that meet base eligibility criteria. The WIG index follows the diversification principle, aimed at limiting the share of a single company and a single exchange sector.

$$t_{AAR}^{B/W} = \frac{AAR_t}{\hat{\sigma}(AAR_t)} \quad (3)$$

where

$$\hat{\sigma}(AAR_t) = \sqrt{\frac{\sum_{j=-(T+W/2)}^{-(W/2+1)} \left( AAR_j - \frac{1}{T} \sum_{k=-(T+W/2)}^{-(W/2+1)} AAR_k \right)^2}{T-1}} \quad (4)$$

The significance of CAAR is tested using the following statistic

$$t_{CAAR_{t_1, t_2}}^{B/W} = \frac{CAAR_{t_1, t_2}}{\hat{\sigma}(AAR_t) \sqrt{t_2 - t_1}} \quad (5)$$

In addition to the t-test, we use Z scores to test the significance of our results as well.

## 5 Empirical results

In our analysis, we use two dates to calculate abnormal returns: (1) the effective announcement date, and (2) the effective change date.<sup>13</sup> In addition to the inclusion and exclusion of samples in the RESPECT Index, we also investigate new entrants to the newly launched WIG-ESG index.<sup>14</sup> All results reported below use the advanced market model as a benchmark. The applied estimation window is 250 days. In prior studies utilizing an event study methodology, a 250-day estimation window has been commonly used, as it corresponds to the number of trading days in a year (see MacKinlay1997; Park 2004). We consider numerous event windows, but report only those that contain statistically significant results.

### 5.1 Price effect: Inclusions in the RESPECT Index

Table 2, Panel A presents the CAAR of the inclusion sample for up to five windows around the event day. In our analysis, we consider the announcement and change days. The close proximity of announcement and change dates (often less than a week) impose a limitation on our analysis – the size of the windows. Therefore, we focus on reporting results for events which are more pronounced. Our initial analysis of the average abnormal return (AAR) for 54 cases of inclusion did not reveal any distinctive pattern, except the fact that the post-change date number of negative AAR substantially increased. Since the CAAR for the announcement sample is positive but not statistically significant, we focus further on change dates.

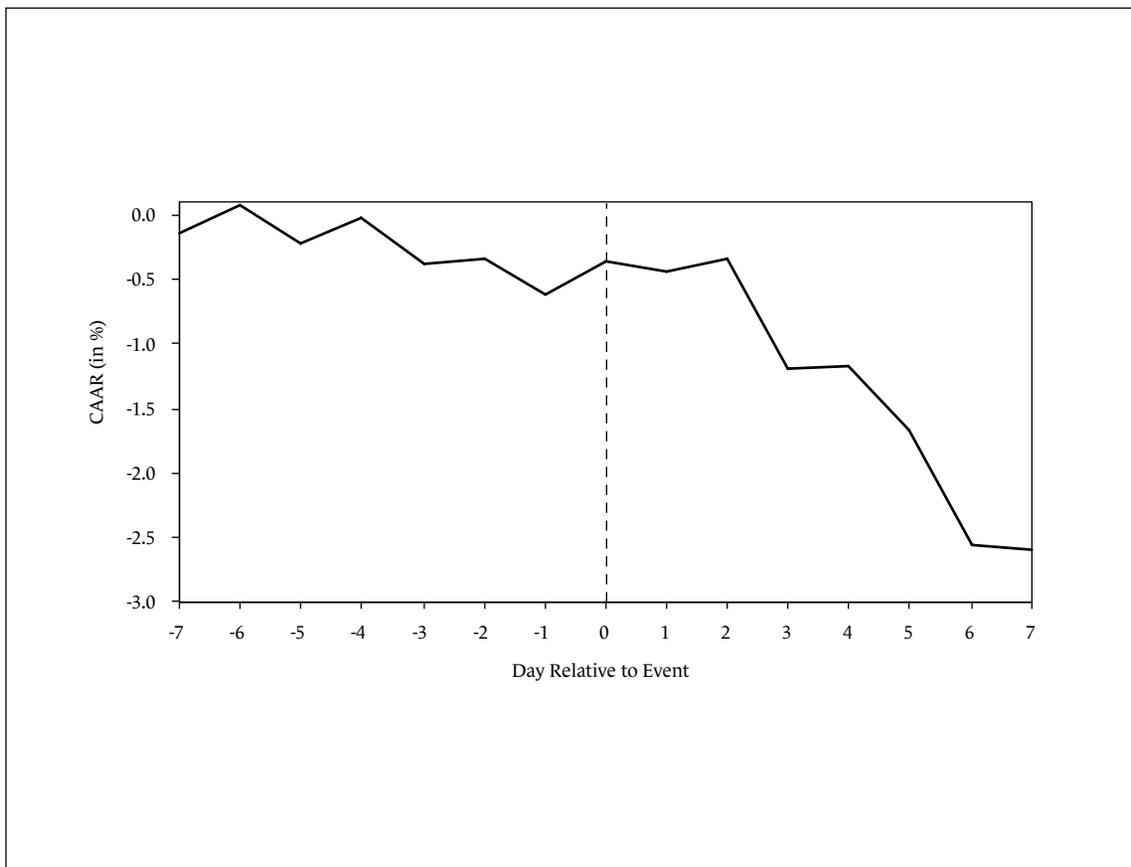
<sup>13</sup> We do not face problems with overlapping events, as neither key macroeconomic announcements nor earnings announcements coincide with the announcement or change dates of the analysed indices.

<sup>14</sup> Taking into account the overall number of events, splitting our samples (e.g. based on industry) is not recommended.

The CAAR for the change sample is negative for all but one window. Depending on the window, the CAAR range is from -2.63% to 0%. In the case of windows (-7,3) and (-7,7), the CAAR is negative and statistically significant at the 5% level. The analysis of Figure 1 reveals that the impact of inclusion in the RESPECT Index is reflected in returns within two weeks of changes in the composition of the index. It is worth noting that in the case of a long window (-15, 15), the negative impact of inclusion is reduced to less than -1% and is not statistically significant. The analysis of inclusions in the RESPECT Index shows that companies included in the first Polish SRI index on average experience a statistically significant drop of around -2.5% (after controlling for the performance of the main index, WIG) in the two weeks around a change in index composition. This might suggest that investors in the WSE, on average, do not positively evaluate firms being added to the RESPECT index.

Figure 1

Cumulative average return of inclusions in the RESPECT Index around event days



Note: the event is the effective change date of stock inclusion in the RESPECT Index.

Table 2

Cumulative average abnormal return of inclusions, exclusions, and new entrants

Announcement			Change	
<b>Panel A</b>		<b>Inclusion in the RESPECT Index</b>		
Windows	CAAR	T-statistic	CAAR	T-statistic
(-2, 2)	0.0018	0.2408	0.000	0.0008
(-5, 5)	0.0091	0.9865	-0.0174	-1.5968
(-7, 3)			-0.0263	-2.0832**
(-7, 7)			-0.0259	-1.8770**
(-15, 15)			-0.0094	-0.4504
<b>Panel B</b>		<b>Exclusion from the RESPECT Index</b>		
Windows	CAAR	T-statistic	CAAR	T-statistic
(-2, 2)	0.0047	0.4597	-0.0272	-1.8250*
(-5, 5)	0.0136	0.8793	-0.0003	-0.0014
(-15, 5)			-0.0791	-2.1702**
(-15, 15)			-0.0499	-1.1469
(-20, 2)			-0.1020	-2.5068***
<b>Panel C</b>		<b>New Entrants to WIG-ESG</b>		
Windows	CAAR	T-statistic	CAAR	T-statistic
(-2, 2)	-0.0051	-1.5146	0.0050	0.9225
(-5, 5)	-0.0098	-1.5926	-0.0088	-0.2743
(-5, 2)	-0.0114	-2.8626***	0.0089	1.5433
(-7, 2)	-0.0128	-2.4989***	0.0056	0.8055
(-15, 15)	-0.0099	-0.6884		

\*, \*\* and \*\*\* correspond to statistical significance at the 10%, 5% and 1% level, respectively.

## 5.2 Price effect: exclusions from the RESPECT Index

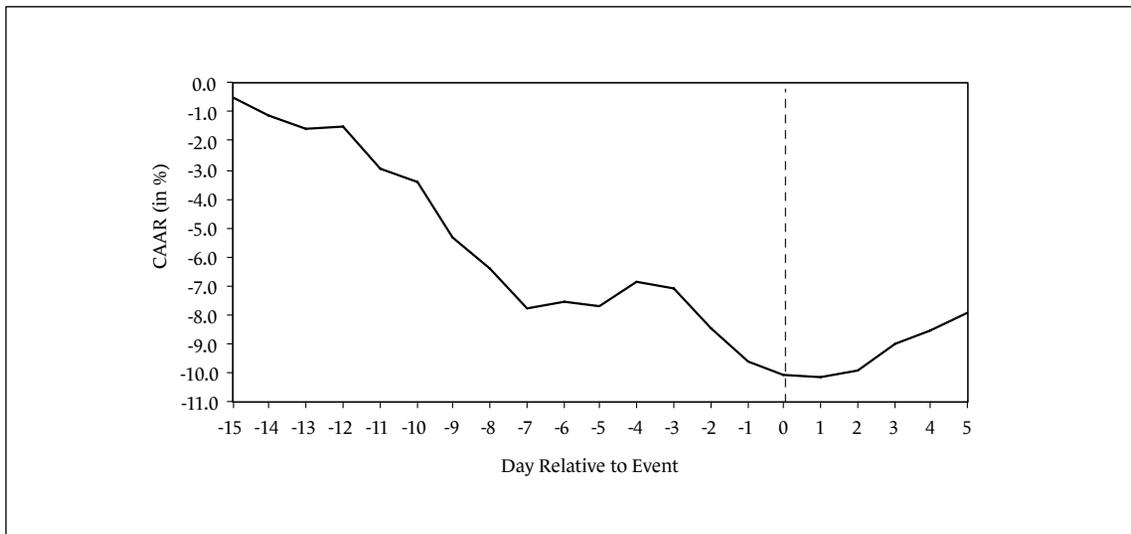
Panel B in Table 2 and Figure 2 present the exclusion sample's CAAR for the announcement and change days. The CAARs are all positive around the announcements and negative around the change date. In the case of the announcements, the results are not statistically significant, which is why we focus on the actual changes.

The CAARs for exclusion from the RESPECT Index are high in absolute terms and negative. In the case of windows such as (-15,5) and (-20,2), the drop in returns are 7.91% and 10.2%, respectively. Both results are highly statistically significant. In the case of longer and symmetrical windows, the effect of exclusion diminishes and remains statistically insignificant.

In contrast to inclusions in the RESPECT Index, we notice that the time series of CAAR goes down up to three weeks before an actual event. That suggests that market participants are able to anticipate which companies will be excluded from the RESPECT Index. In a number of cases, exclusion from the index was another indicator of problems faced by companies.

Figure 2

Cumulative average return of exclusions from the RESPECT Index on event days



Note: the event is the effective change date of exclusion from the RESPECT Index.

### 5.3 Price effect: first time entering the WIG-ESG Index

The AAR analysis of 60 new entrant firms around the announcement and change days are examined in the last part of our analysis. The individual abnormal returns before and after the change day do not convey much information. A much clearer pattern can be observed for the announcement sample.

Table 2, Panel C, presents the CAAR of new entrants for both announcement and change days for up to five different windows. In the case of announcements, all of the windows show negative returns. While none of the CAAR for the change date is statistically significant, we observe a noticeable drop in CAAR for the announcement sample, i.e. about 1.3% over the seven to nine days surrounding the event date, which is statistically significant at 1%.

Figure 3 illustrates the CAAR for the new entrants in the seven days before and two days after their inclusion. The CAAR for the announcement sample reacts somewhat negatively to the news – it initially decreases for about 1.5 weeks and then stabilises. In total, there is a decrease of about 1.28% over the nine days. The effect of the new index is only present for mid-size event windows and disappears for windows (-15, 15).

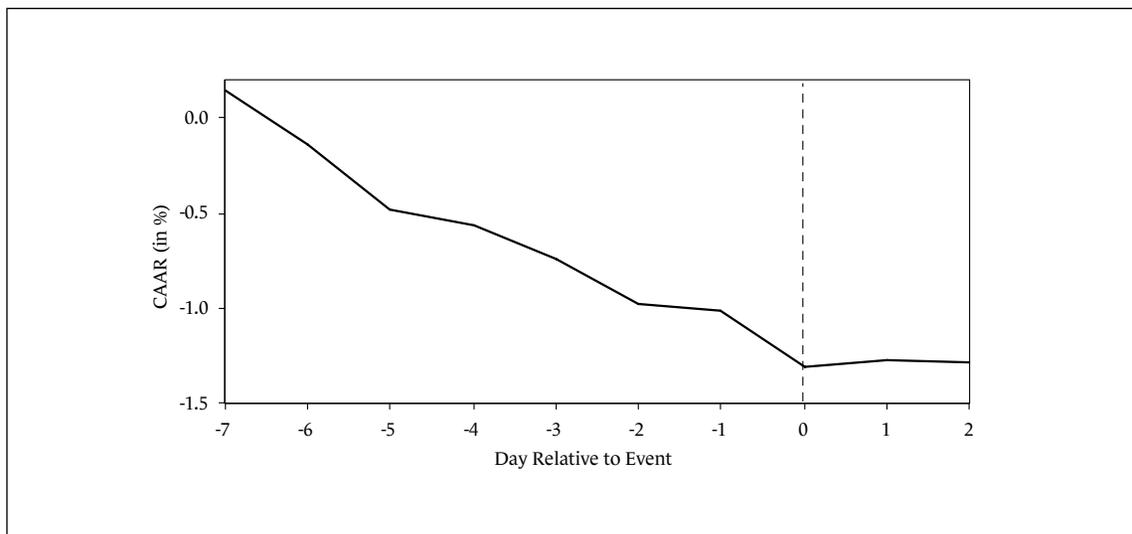
The overall result indicates that the price effects of the new entrants in the WIG-ESG Index run contrary to intuition, which suggests a significant positive abnormal return around events. The inconsistent result for the price effect can be explained by the fact that new entrants were easy for analysts to predict. It is further confirmed by the fact that CAAR drops 1.5 weeks before the actual change date.

Finally, it is worth highlighting some limitations of our analysis. One of the challenges related to research on emerging markets in general is their short history. As a result, scholars often examine fewer events and shorter time series than in the case of developed economies. Of course, it is compensated for by the fact that those markets offer unique opportunities to examine research questions which cannot be answered in the case of developed markets. The aim of our study was to assess short-term WSE investors' reactions to changes in the SRI indices composition. In order to achieve our goal, we selected an adequate methodology – an event study. Such a technique is particularly useful for examining short-term effects. Therefore, our study does not contribute to the discussion on aspects such as long-term index performance, financial and corporate performance of companies constituting an index or the role of SRI indices in Poland, in particular. Tackling those aspects would require a greater spectrum of factors and putting them into a much broader context. We stress that our analysis neither assesses nor explains the SRI and CSR phenomena in Poland. The examination of price effects alone cannot be the sole basis for an evaluation of investors' attitudes towards SRI or CSR on the Polish stock market.

In order to check if our reported results are robust, we changed the model for expected returns in the calculation of abnormal returns (see (1)). We consider a mean-adjusted, market-adjusted model in addition to market model, and our conclusions remain unchanged. The validity of our analysis was further confirmed by the fact that changing estimation windows does not impact our conclusions.

Figure 3

Cumulative average abnormal return of new entrants in the WIG-ESG around event days



Note: the event is the effective change date of inclusion in the new WIG-ESG Index. The announcement date corresponds to day -8; the effective change date corresponds to day 0.

## 6 Discussion and conclusions

Our study examines the price effects for firms included in and excluded from one of the first SRI indices in emerging economies – the RESPECT Index. In addition, we examine the impact of the first inclusion in the newly launched WIG-ESG Index (the successor to the RESPECT Index) on its constituents' stock prices.

The reported results do show significant effects for firms included or excluded around the effective change date. The cross-sectional means of returns are lower than normal around the event of inclusion and exclusion for the RESPECT Index, but this effect disappears within two to three weeks after the event. Both inclusion and exclusion with regard to the RESPECT Index result in a lower level of returns. In terms of magnitude, the exclusion effect is much stronger and is close to -8% [in the window (-15, 5)] versus -2.6% for inclusion [in the window (-7, 7)]. In the case of the recently introduced WIG-ESG, the companies added to the index experience a statistically significant loss of up to 1.5 % as examined in the event window (-7, 2). It is worth noting that market participants were able to predict exclusions from the RESPECT Index and inclusions in the WIG-ESG, as CAAR goes down before event days.

Our results are somewhat contrary to previous studies on the so-called index effect tested for conventional indices, which all reported a positive effect of inclusion in the index and a negative effect of deletion from the index (Breazeale, Cuny 2002; Chen, Noronha, Singal 2004; Wilkens, Wimschulte 2005). Interestingly, the magnitude of the effect reported in prior works varied between developed and emerging markets, with the impact being smaller in the case of the latter (see Afego 2017). When it comes to testing the SRI index effect, one of the latest event studies of DJSI by Hawn, Chatterji, Mitchell (2018) has reported that DJSI announcements about the addition/deletion of constituents generate only limited investor reaction.

An important contribution of this paper is the fact that it offers insights into the economic value of CSR on the emerging capital market. From investors' perspective, it provides arguments for discussion of the short-term impact of SRI indices on their constituents. First of all, it clearly indicates that events such as addition to and removal from an SRI index (as well as announcements thereof) create a trading opportunity. In contrast to some earlier studies, we show that in the short to medium term, both inclusion and exclusion have a negative impact on the performance of stocks. In the case of inclusion, investors seem to reduce their expectations pertaining to company performance. Their negative response suggests that this event might be a sign of extensive investment in sustainability initiatives, additional compliance costs of CSR and potential diversion of capital from more profitable projects.

On the other hand, exclusion from SRI indices is a strong indicator of potential problems in corporate governance and inadequate management of operational risk, and both may result in the future underperformance of a company. The fact that investors penalise (even more) firms removed from the SRI index indicates that perceptions of social irresponsibility are likely to generate even stronger reactions than perceptions of social responsibility. Taking the cost disadvantage of being socially responsible into account, it is possible that investors believe that the removed companies still maintain relevant investments in CSR.

The implications of our results are tangible but limited due to the design of the study. Our focal point was an investors' behaviour assessment in relation to particular events, which could have been subjected to various factors shaping that behaviour. In addition, our study focused on the short-term investors' reaction. Other works on the long-term impact of sustainable investing in Poland clearly

indicate that the first Polish SRI index used to outperform the conventional indices published by WSE (e.g. Janik, Bartkowiak 2015; Jedynek 2012). In particular, the RESPECT Index was characterized by above-average profitability and relatively low investment risk until 2012 (Czerwińska 2012; Laskowska 2018). However, post 2015, the outperformance of the RESPECT Index vanished, and the risk associated with it was either comparable or higher than the risk of investing in most of the other index portfolios (Golaszewska-Kaczan, Kilon, Marcinkiewicz 2016). It is also argued that companies comprising the RESPECT Index were more attractive as an investment than companies from portfolios of the conventional indices (Wiśniewski 2010). Zieliński (2015) concludes that in most sectors, the companies from the RESPECT Index portfolio reached a higher valuation than other companies, but the differences were too small to consider CSR as an impact factor in a company's valuation. To draw a more comprehensive picture, one should plot those results into the even broader academic discourse about CSR among Polish companies in general.

To conclude, while the findings of this event study are intriguing, they offer only limited insights about how capital markets perceive the economic value of sustainability.<sup>15</sup> Future research should also use qualitative data, for instance by conducting a survey of market participants, to understand whether or not the market reaction we report is a result of investor clientele effects or whether it is an actual validation of what investors believe CSR can or cannot contribute to firm value.

From a managerial perspective, our study brings only limited evidence to the discourse on whether creating sustainable value in business can affect the migration of values to capital markets. Can one fear that the obtained results question a company's CSR effort in terms of its value perception by the emerging capital market? All in all, our study might suggest that the capital market participants in Poland – at least in the short run – tend to sell stocks of businesses formally recognised as socially responsible. This means that CSR activities are viewed by investors as at least not enhancing corporate value. If investors remain reluctant or indifferent to responsible businesses, such a price of recognition could be a serious obstacle to disseminating the idea of accountability and sustainability in management, economy and society. We are far from formulating implications for the management yet, as short-term stock price fluctuation probably does not impact managerial decisions.

On the other hand, as argued by Clacher and Hagendorff (2012), in order to capture the capital market's perception of CSR value, an event is required that provides an external, market-based classification of a company as socially responsible. This supports the argument that short-term outlook in this matter should also be relevant for management. Moreover, as the long-term stock performance of socially responsible companies may be in part a function of demand for such stocks by groups of investors<sup>16</sup> (Clacher, Hagendorff 2012) pursuing a given portfolio management strategy, not always does it or can it reflect the real perception and valuation of CSR by the capital market. If this is the case, testing the issue in the short run contributes even more to management practice. To sum up, any recommendations to managers in this matter should be combined with research results corresponding with mid- and long-term stock behaviour, as well as embedded in a broader micro- and macroeconomic context of CSR implications, which should be the subject of further investigation.

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<sup>15</sup> The limitations of our study relate to the modest number of events and the short period of WIG-ESG analysis. Both are unavoidable in the case of an analysis of emerging markets.

<sup>16</sup> E.g. fund managers that positively screen their investments based on socially responsible criteria.

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## Czy inwestorzy reagują na zmiany w składzie zrównoważonych indeksów giełdowych?

### Streszczenie

Celem artykułu jest zbadanie efektów cenowych związanych ze zmianami w składzie zrównoważonych indeksów giełdowych (*SRI indices*) na rynku wschodzącym. Badanie przeprowadzono w Polsce na przykładzie pierwszego indeksu odpowiedzialnego społecznie w Europie Środkowo-Wschodniej – RESPECT Index, w całym okresie jego istnienia (tj. 2009–2019), a także na przykładzie nowo opublikowanego wówczas indeksu WIG-ESG. Postawione pytania badawcze dotyczą tego, czy wejście spółki do indeksów SRI lub wyjście z nich ma pozytywny, negatywny czy neutralny wpływ na cenę jej akcji w krótkim okresie. Innymi słowy, czy i jak inwestorzy Giełdy Papierów Wartościowych w Warszawie reagują na taką informację. Wcześniejsze badania nad tzw. efektem indeksu, w szczególności odnoszące się jednak do tradycyjnych indeksów giełdowych (np. Breazeale, Cuny 2002; Chen, Noronha, Singal 2004; Wilkens, Wimschulte 2005), pokazują pozytywny efekt cenowy wejścia do indeksu oraz negatywny efekt cenowy wyjścia z indeksu.

Zastosowana metodyka badania obejmuje analizę zdarzenia (*event study*) z zastosowaniem miary skumulowanej średniej dodatkowej stopy zwrotu (*CAAR*) oraz model rynkowy (*market model*) do szacowania oczekiwanej stopy zwrotu z akcji. Dzięki wzięciu pod uwagę reakcji rynku kapitałowego na informacje dotyczące społecznej odpowiedzialności biznesu (CSR) i wykorzystaniu wahań cen akcji spółek jako benchmarków analiza zdarzenia pozwala na większą rzetelność badania w porównaniu z analizą nominalnej stopy zwrotu. W badaniu przeanalizowano wszystkie 12 edycji RESPECT Index w latach 2009–2019. W tym okresie zaobserwowano 54 wejścia do indeksu oraz 23 wyjścia z indeksu, które w sumie dotyczyły 45 spółek z 20 branż. Analizę uzupełniono o 60 spółek, które w 2019 r. weszły do nowego indeksu WIG-ESG.

Wyniki badania pokazują silną negatywną zmianę cen akcji spółek zarówno wchodzących do indeksu SRI, jak i wychodzących z niego. Efekt cenowy jest krótkotrwały, lecz istotny statystycznie w wybranych asymetrycznych oknach zdarzenia. W szczególności analiza wskazuje na istotne efekty cenowe akcji spółek wchodzących i wychodzących z indeksu w okolicy daty zdarzenia (dnia odniesienia). Średnia stopa zwrotu dla próby badawczej jest niższa niż normalna blisko dnia odniesienia dla spółek wchodzących i wychodzących do/z RESPECT Index, jednak efekt ten zanika w ciągu 2–3 tygodni po zdarzeniu. Zarówno wejście do RESPECT Index, jak i wyjście z niego powoduje obniżenie stopy zwrotu. Efekt cenowy związany z wyjściem z indeksu jest znacznie silniejszy i bliski -8% (dla okna zdarzenia (-15,5)), podczas gdy efekt związany z wejściem wynosi -2,6% (dla okna zdarzenia (-7,2)). W przypadku WIG-ESG spółki wchodzące do indeksu zanotowały istotny statystycznie spadek cen akcji – do 1,5% w oknie zdarzenia (-7,2). Należy przy tym zaznaczyć, że uczestnicy rynku byli w stanie przewidzieć wyjścia z RESPECT Index oraz wejścia do indeksu WIG-ESG, ponieważ CAAR spada przed datą zdarzenia (dniem odniesienia).

Artykuł przyczynia się do dyskusji na temat tego, jak wschodzące rynki kapitałowe postrzegają wartość działań z zakresu CSR podejmowanych przez spółki. Przeprowadzone badanie wskazuje, że zdarzenia takie jak wejście spółki do indeksu SRI lub wyjście z niego (a także samo ogłoszenie zdarzenia) stwarzają możliwość obrotu walorami. Nasze wyniki sugerują, że inwestorzy na GPW –

przynajmniej w krótkim okresie – mają tendencję do pozbywania się akcji spółek formalnie uznanych za biznesy odpowiedzialne społecznie.

Podsumowując, wyniki naszego badania, choć intrygujące, oferują jedynie ograniczone spostrzeżenia dotyczące percepcji ekonomicznej wartości zrównoważonego i odpowiedzialnego biznesu przez rynek kapitałowy. Zastosowana analiza zdarzenia jest bowiem techniką odpowiednią głównie do badania efektów krótkoterminowych. Dlatego uzyskane rezultaty nie mogą stanowić przyczynku do dyskusji na temat długoterminowych wyników zrównoważonych indeksów giełdowych, wyników finansowych spółek należących do tych indeksów czy też roli indeksów SRI w Polsce w ogóle. W szczególności samo badanie efektów cenowych nie może stanowić podstawy do oceny postaw inwestorów wobec zrównoważonego i odpowiedzialnego inwestowania (SRI) bądź CSR na polskim rynku kapitałowym.

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**Słowa kluczowe:** efekt indeksu, rynki wschodzące, zrównoważone finanse, zrównoważone i odpowiedzialne inwestowanie (SRI), zrównoważone indeksy giełdowe