

Strong ESG Risk Management as a Way to Improve Organisational Resilience in Times of Crisis: An Analysis of WIG-ESG Index Constituents

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Abstract: During the last decade sustainable investment practices have evolved significantly. ESG reporting is moving seamlessly from voluntary to mandatory. By investing in companies that score high in ESG rankings, investors hope for the organisation's resilience to the crisis and higher returns. Due to the dynamic development of socially responsible investing both in Poland and worldwide, new indices using ESG screening criteria are being designed, which in turn are the underlying instrument for structured products. The aim of the study was to analyse the constituents of the newly created WIG-ESG index and to discuss its performance and organisational resilience in relation to ESG risk exposure and management. The research showed that the criteria for inclusion in the WIG-ESG index should be amended to recognise companies that care about strong ESG risk management and exclude those with negligible ESG efforts. The second important issue is eligibility for inclusion. If all companies are eligible to be included in the index (ESG testing as a condition for inclusion), this will reduce the rotation of the index's constituents and allow the relation between a company's ESG score after each update and its long-term performance to be explored.

Keywords: ESG risk ratings, organisational resilience, sustainable investing, ESG equity indices, WIG-ESG.

1. Introduction

The precursor to ESG was CSR (Corporate Social Responsibility). Although the terms ESG and CSR are related and even sometimes used interchangeably, they have their own specific purposes and characteristics. "While CSR aims to make a business accountable, ESG criteria make such business' efforts measurable" (Lexology, 2021). According to Bloomberg Intelligence, it is estimated that global ESG assets may surpass \$41 trillion by 2022 and \$50 trillion by 2025 (Bloomberg, 2022). Entering the term ESG into the Scopus database, it can be noticed that there has been an increase in interest in this topic in recent years. The number of publications in 2021 is almost triple compared to 2018 (613 and

169, respectively). Already in the middle of 2022 there are 483 publications in the database – which confirms the growing trend.

The literature review revealed that researchers are particularly interested in studying the impact of implementing ESG criteria on the financial performance and market value of listed companies (Fafalilou et al., 2022; Folger-Laronde et al., 2020; Khan, 2022; Torre, 2020). Research confirms that ESG performance generally has a positive impact on returns, but this varies by company. Investing in ESG yielded higher returns for a specific group of companies, particularly those operating in the energy and utilities sectors where ESG exposure is relatively high (La Torre et al., 2020, p. 10). ESG reputational risks amplify capital constraints (difficulty in obtaining external financing), reduce firms' growth opportunities and has a negative and statistically significant impact on the longevity of firms in the market (Fafalilou et al., 2022, p. 13). The bibliometric research on scientific articles relating to ESG in the banking industry conducted by Galetta et al. (2022, p. 9) revealed that researchers focused on CSR and the social dimension of ESG. The keyword co-occurrence network analysis shows that the term 'ESG' is not present among the top ten keywords. The most frequently occurring keywords are CSR, sustainability and corporate governance.

Companies are increasingly disclosing ESG-related information as both EU and national regulations force them to do so and stakeholders increasingly demand more information. Investors are keen to know the financial materiality of ESG issues before making investment decisions, as socially responsible investing is deeply rooted in the financial logic of profit maximisation (Madison and Schiehl, 2021, p. 19). In 2018, Polish companies were required to disclose such information for the first time as a result of EU Directive 2014/95/EU on Non-Financial Reporting (NFRD) and the amendment of the domestic Accounting Act. These extended reporting obligations covered the largest WSE entities, those with either more than 500 employees or net revenues exceeding PLN 170 million per year. Currently, only large Polish listed companies are required to publish ESG data in their non-financial reports, but soon medium-sized and smaller entities will also have to pay more attention to this aspect.

The above is influenced by the EU taxonomy regulation, which establishes a clear framework for the concept of sustainability, defining precisely when a company is operating in a sustainable or environmentally friendly manner. Regulation (EU) 2020/852 on the establishment of a framework to facilitate sustainable investment (Taxonomy Regulation) was supplemented by Commission Delegated Regulation (EU) 2021/2139 and Commission Delegated Regulation (EU) 2021/2178, which in turn were amended by Commission Delegated Regulation (EU) 2022/1214 of 9 March 2022. This "EU Taxonomy Climate Complementary Delegated Act" applies from 1 January 2023 and extends the EU Taxonomy Framework by recognising fossil gas and nuclear energy activities as environmentally sustainable economic activities that can contribute to the decarbonisation of the EU economy.

Additionally, in January 2023, the provisions of the Corporate Sustainability Reporting Directive (CSRD) entered into force. The directive updates and strengthens the rules on social and environmental information that companies are obliged to report. Information should be reported in accordance with the European Sustainability Reporting Standards (ESRS). The first set of standards is expected to be adopted by the Commission in 2023, based on a draft published by EFRAG in November 2022. The CSRD also makes it mandatory for companies to audit the sustainability information they report. New rules should be applied by all large and listed EU companies (except micro enterprises) in 2024 for reports published in 2025. Small listed companies will have more time to prepare to meet the directive's requirements, publishing their first report for 2026 (Grant Thornton, 2022). According to the European Parliament press release, the number of entities covered by the CSRD is expected to be four times larger in comparison to NFRD (2022).

The purpose of the study was to analyse the components of the WIG-ESG index recently launched by the Warsaw Stock Exchange. The article attempts to answer the question of whether it is justified to include all large companies in an ESG index, regardless of whether and to what extent they operate in accordance with ESG guidelines.

1.1. From the RESPECT Index to the WIG-ESG index

The RESPECT Index was the first index of responsible companies in Central and Eastern Europe. It included companies that were most compliant with corporate governance, information governance and investor relations requirements, and above all with ESG factor requirements. Initially the index comprised 16 companies and was reviewed once every six months. Companies representing one of the three stock market indices (WIG20, mWIG40, sWIG80) were eligible to apply for inclusion. The assessment of companies’ corporate governance practices was carried out by the Warsaw Stock Exchange in cooperation with the Polish Association of Listed Companies, while the assessment of companies’ maturity in terms of social responsibility (ESG factors) was carried out by Deloitte on the basis of questionnaires completed by companies. Over the years, the questionnaire of the survey completed by the companies has evolved. In the first edition the survey contained 58 questions, which were divided into three categories: CSR policy – 22 questions, Economic – 12, Environmental – 24. In 2013, the number of questions decreased to 48 and the name of the three question categories were changed to ESG (Environmental – 14 questions, Social – 18, Governance – 16). For the first three years, only domestic companies could participate in the index and for the following years also foreign companies. Returns on the index after five years on the market were impressive, reaching over 70%, when the return on the WIG (WSE all-share index) was around 30%. As Ceglinski (2015, p. 243) noted, such high returns were the result of spectacular increases in the value of the shares of the two index constituents: KGHM (Diversified metals) and PKN Orlen (Refiners & Pipelines), in the first year after the launch of RESPECT. Adopting Ceglinski’s assumptions, the 9-year performance of the index was analysed against other indices, setting the base date at 11 August 2011 (Figure 1). The analysis showed that investment in RESPECT was not more profitable than investment in WIG, mWIG40 or sWIG80. However, higher returns were recorded compared to the WIG20 index, as the shares of the largest companies in the index are limited to 10% when the index has more than 20 participants.



Fig. 1. Comparison of returns from RESPECT, WIG, WIG20, mWIG40 and sWIG80 (11.08.2011-31.12.2019) Source: own elaboration using software available at <https://www.money.pl/analytics/> (15.06.2022).

Table 1. Composition of the RESPECT index throughout its presence on the market

| No | Company name | RESPECT index revisions (2010-2018) | | | | | | | | | | | | WIGESG | |
|----|----------------------------------|-------------------------------------|----|----|----|----|----|----|----|----|----|----|----|--------|----|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | | |
| 1 | Aparator SA | x | | x | x | x | x | x | x | x | x | x | x | x | x |
| 2 | Bank BPH SA | x | | | x | x | x | x | x | x | | | | | |
| 3 | Barlinek SA | x | x | x | | | | | | | | | | | |
| 4 | Bank Handlowy SA | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| 5 | Bank Millennium SA | | x | x | x | x | x | x | x | x | x | x | x | x | x |
| 6 | Elektrobudowa SA | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| 7 | Ciech SA | x | | | x | | | | | | | | | | |
| 8 | Grupa Lotos SA | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| 9 | Żywiec SA | x | | | | | | | | | | | | | |
| 10 | ING Bank Śląski SA | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| 11 | KGHM Polska Miedź SA | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| 12 | Mondi Świecie SA | x | x | x | x | | | | | | | | | | |
| 13 | PGNiG SA | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| 14 | PKN Orlen SA | x | x | x | x | x | x | x | x | x | x | | x | x | x |
| 15 | Orange Polska SA (TP SA) | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| 16 | Grupa Azoty SA (Zakłady Azotowe) | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| 17 | ZM „Ropczyce” SA | x | | | | | | | | | | | | | |
| 18 | mBank SA (BRE Bank) | | x | x | | | | | | | | x | x | x | x |
| 19 | Budimex SA | | x | x | x | x | x | x | x | x | x | x | x | x | x |
| 20 | Santander BP SA (Kredyt Bank) | | x | x | x | x | | x | x | x | x | x | x | x | x |
| 21 | LW Bogdanka SA | | x | x | x | x | x | x | x | x | x | x | x | x | x |
| 22 | DM IDM SA | | | x | x | | | | | | | | | | |
| 23 | Fabryka Farb i Lak. Śnieżka SA | | | x | | | | | | | | | | | |
| 24 | Netia SA | | | x | x | x | x | x | x | | | | | | |
| 25 | PBG SA | | | x | x | | | | | | | | | | |
| 26 | PGE SA | | | x | x | x | x | x | x | x | x | x | x | x | x |
| 27 | PZU SA | | | | x | x | x | x | x | x | x | x | x | x | x |
| 28 | ZEW Kogeneracja SA | | | | x | x | x | x | x | x | x | x | x | x | x |
| 29 | JSW SA | | | | | x | x | x | x | | | x | x | x | x |
| 30 | Pelion SA | | | | | | x | x | x | x | x | | | | |
| 31 | GPW SA | | | | | | | x | x | x | x | x | x | x | x |
| 32 | RAFAKO SA | | | | | | | x | x | | | | | | |
| 33 | TAURON PE SA | | | | | | | x | x | x | x | x | x | x | x |
| 34 | ENERGA S.A. | | | | | | | | x | x | x | x | x | x | x |
| 35 | RAWLPLUG SA | | | | | | | | x | | | | | | |
| 36 | Bank Ochrony Środowiska | | | | | | | | | x | | x | x | x | x |
| 37 | Fabryki Mebli Forte SA | | | | | | | | | | x | x | x | x | x |
| 38 | PCC Rokita SA | | | | | | | | | | x | x | x | x | x |
| 39 | Bank Pekao SA | | | | | | | | | | x | x | x | x | x |
| 40 | Trakcja PRKiL SA | | | | | | | | | | x | x | x | x | x |
| 41 | Agora SA | | | | | | | | | | | x | x | x | x |
| 42 | Inter Cars SA | | | | | | | | | | | x | x | x | x |
| 43 | Amrest Holding SA | | | | | | | | | | | | x | x | x |
| 44 | CCC SA | | | | | | | | | | | | x | x | x |
| | Total | 16 | 16 | 22 | 23 | 20 | 20 | 23 | 26 | 23 | 25 | 28 | 31 | 31 | 23 |

■ (B) Bankruptcy proceedings, (D) Delisted, R (Restructuring proceedings); ■ WIG-ESG constituents;
□ ESG well-managed but not included in the WIG-ESG index (sWIG80 constituents)

Source: own elaboration based on (<http://respectindex.pl/>; 19.05.2022).

The RESPECT Index has existed in the market for ten years and the number of participants has doubled during this period from initially 16 to 31 (see Table 1). Only eight companies were part of the index during its entire existence; some companies such as PKN Orlen, Apator, Santander BP SA, Bank Ochrony Środowiska, were not included in single periods. The dynamic growth of the index participant occurred in the last three years of its existence. Due to the rapidly developing market of socially responsible investing, the RESPECT Index was replaced by the WIG-ESG index in January 2020. As a result, the 23 constituents of the RESPECT Index became a component of the WIG-ESG. It is worth mentioning that seven companies with good ESG risk management (long-term components of the RESPECT Index), i.e. Apator, ZEW Kogeneracja, Bank Ochrony Środowiska, Fabryka Mebli Forte, Trakcja PRKił, PCC Rokita, were not included in the WIG-ESG index, as they are not components of the WIG20 or mWIG40. Three of the above-mentioned companies could contribute to the increase in the value of the WIG-ESG index, i.e. PCC Rokita (+80%)¹, Fabryka Mebli Forte (+9%), Bank Ochrony Środowiska (+20%), one neutral – Trakcja SA (+0.12%) while the remaining three were characterised by share price declines, i.e.: Agora (–42%), Apator (–29%), ZEW Kogeneracja (–16%). The main differences in the methodology of the two indices are shown in Table 2.

Table 2. Comparison of the RESPECT and WIG-ESG indices

| Area | RESPECT Index | WIG-ESG |
|--|---|---|
| Publication date | November 19, 2009 | September 3, 2019 |
| Companies evaluation criteria | Companies with highest liquidity (WIG20, mWIG40, sWIG80) managed in a sustainable manner. The three-step assessment is made on the basis of questionnaires completed by companies and available public information. | All companies included in WIG20 (twenty largest companies) and mWIG40 (40 mid-cap companies listed on the Warsaw Stock Exchange). No exclusions related to sector specificity or low ESG rating. |
| Companies' weights in the index | Depend on number of free float shares. The weights of the largest companies being capped at 25% when the number of constituents is less than 20, or at 10% otherwise. | Depend on number of free float shares adjusted by the results of the ESG ranking provided by Sustainalytics and compliance with corporate governance principles contained in the WSE Best Practices for WSE-listed Companies. |
| Index base value | 1000 | 10000 |
| Products | No products | NN Responsible Investment Index FIO Fund |

Source: own elaboration based on (respectindex.pl; www.gpwbenchmark.pl; 15.06.2020).

The WIG-ESG index is an income index (both transaction prices and dividend income are taken into account). The share of one company in the index is limited to 10%, while the total share of companies, each of which exceeds 5%, is limited to 40% (WSE, 2022). As the WIG-ESG index comprises all the largest companies with the highest liquidity listed on the WSE (WIG20) and 40 medium-sized companies (mWIG40), the portfolio is strongly diversified. There are also some limitations in the construction of the above-mentioned price indices, e.g. no more than five companies from one stock exchange sector may participate in the WIG20 index, and the number of free float shares for both indices must be greater than 10% (free float not less than EUR 1 million). It should be noted that the composition of these indices may change after each quarterly adjustment resulting in a change to the composition of the WIG-ESG index.

From the launch of the WIG-ESG index until the last revision conducted in March 2022, as many as 15 companies have been replaced in the index portfolio, i.e. Communications SA, Orbis SA, Getin Noble Bank SA, Boryszew, CI Games S.A., Forte SA, Stalprodukt SA, Getin Holding SA, Biomed Lublin SA, Amica SA, BNP Paribas Bank Polska SA, VRG SA, Echo Investment SA, GTC SA, Energa SA.

¹ The period selected for comparison is: 2.01.2020-12.08.2022.

Table 3. Composition of the WIG-ESG index: overview of companies in terms of ESG performance

| No. | Instrument | Free float (%) | ESG Risk Rating | Risk exposure | Risk management | Last update | Industry |
|-----|------------|----------------|-----------------|---------------|-----------------|--------------|----------------------|
| 1 | LPP | 54.3 | 13.9 | Low | Average | Mar 8, 2022 | Retailing |
| 2 | CCC | 52.8 | 13.9 | Low | Strong | May 20, 2022 | Textiles & Apparel |
| 3 | CDPROJEKT | 70.1 | 14.1 | Low | Average | Mar 30, 2022 | Software & Services |
| 4 | MBANK | 30.8 | 14.8 | Medium | Strong | May 2, 2022 | Banks |
| 5 | GPW | 65.0 | 14.8 | Low | Average | Aug 3, 2021 | Divers. Financials |
| 6 | NEUCA | 41.9 | 17.1 | Low | Average | Mar 9, 2022 | Healthcare |
| 7 | PEPCO | 21.1 | 17.5 | Low | Average | Jan 25, 2022 | Retailing |
| 8 | PZU | 60.0 | 18.6 | Medium | Strong | Feb 11, 2022 | Insurance |
| 9 | CYFRPLSAT | 31.5 | 20.4 | Low | Average | Jan 24, 2022 | Media |
| 10 | PKOBP | 54.5 | 20.7 | Medium | Strong | Jan 24, 2022 | Banks |
| 11 | LIVECHAT | 36.5 | 21.1 | Low | Weak | Dec 24, 2021 | Software & Services |
| 12 | TSGAMES | 52.8 | 21.8 | Low | Weak | Jul 30, 2021 | Software & Services |
| 13 | SANPL | 27.3 | 22.3 | Medium | Average | Dec 17, 2021 | Banks |
| 14 | ALLEGRO | 39.7 | 22.5 | Low | Average | Oct 7, 2021 | Software & Services |
| 15 | INGBSK | 16.4 | 22.5 | Medium | Strong | May 16, 2022 | Banks |
| 16 | HUUUGE | 45.2 | 23.0 | Low | Weak | Sep 9, 2021 | Software & Services |
| 17 | PLAYWAY | 18.2 | 23.6 | Low | Weak | Jul 30, 2021 | Software & Services |
| 18 | ORANGEPL | 38.8 | 23.9 | Medium | Average | Dec 17, 2021 | Telecommunication |
| 19 | HANDLOWY | 25.0 | 24.2 | Medium | Average | Jul 3, 2021 | Banks |
| 20 | PKNORLEN | 58.5 | 25.0 | Medium | Strong | Dec 27, 2021 | Refiners & Pipelines |
| 21 | EUROCASH | 56.4 | 25.4 | Medium | Average | Mar 9, 2022 | Food Retailers |
| 22 | DINOPL | 49.0 | 25.8 | Medium | Average | May 24, 2022 | Food Retailers |
| 23 | KRUK | 52.8 | 25.9 | Low | Average | May 18, 2022 | Divers. Financials |
| 24 | PEKAO | 55.7 | 26.9 | Medium | Average | May 27, 2022 | Banks |
| 25 | LOTOS | 40.5 | 27.0 | Medium | Strong | Jul 3, 2021 | Refiners & Pipelines |
| 26 | ASSECOPOL | 49.8 | 27.3 | Low | Weak | Feb 25, 2021 | Software & Services |
| 27 | MILLENNIUM | 28.3 | 27.4 | Medium | Average | Jun 18, 2021 | Banks |
| 28 | AMREST | 27.5 | 28.3 | Medium | Average | Nov 8, 2021 | Consumer Services |
| 29 | XTB | 33.0 | 29.1 | Medium | Average | May 24, 2022 | Divers. Financials |
| 30 | KETY | 43.9 | 30.6 | Medium | Average | Dec 22, 2021 | Diversified Metals |
| 31 | BOGDANKA | 35.0 | 32.7 | Medium | Average | Apr 14, 2021 | Oil & Gas Producers |
| 32 | BUDIMEX | 30.6 | 34.7 | Medium | Average | Dec 13, 2021 | Construction & Eng. |
| 33 | CIECH | 35.6 | 35.0 | Medium | Average | Jan 7, 2022 | Chemicals |
| 34 | KGHM | 55.6 | 36.4 | High | Average | Nov 12, 2021 | Diversified Metals |
| 35 | ALIOR | 51.4 | 37.6 | Medium | Average | Nov 11, 2021 | Banks |
| 36 | MERCATOR | 36.5 | 40.1 | n.a. | n.a. | n.a. | Medical Instruments |
| 37 | KERNEL | 55.7 | 40.4 | High | Average | May 9, 2022 | Food Products |
| 38 | JSW | 44.8 | 40.6 | High | Average | May 11, 2022 | Diversified Metals |
| 39 | PGNIG | 28.1 | 42.3 | High | Average | May 21, 2022 | Oil & Gas Producers |
| 40 | CLNPHARMA | 41.2 | 42.3 | Medium | Weak | Sep 6, 2021 | Pharmaceuticals |
| 41 | TAURONPE | 53.9 | 45.2 | High | Average | Jan 24, 2022 | Utilities |
| 42 | ENEA | 47.7 | 47.3 | High | Average | Jul 30, 2021 | Utilities |

| | | | | | | | |
|----|------------|------|------|------|---------|--------------|----------------------|
| 43 | PGE | 39.1 | 49.0 | High | Average | May 28, 2022 | Utilities |
| 44 | GRUPAAZOTY | 32.4 | 52.7 | High | Average | Nov 27, 2021 | Chemicals |
| 45 | INTERCARS | 37.4 | n.a. | n.a. | n.a. | n.a. | Auto parts |
| 46 | WIRTUALNA | 51.9 | n.a. | n.a. | n.a. | n.a. | Software & Services |
| 47 | PEP | 6.3 | n.a. | n.a. | n.a. | n.a. | Utilities |
| 48 | 11BIT | 74.2 | n.a. | n.a. | n.a. | n.a. | Electronic Gaming |
| 49 | COMARCH | 44.2 | n.a. | n.a. | n.a. | n.a. | Inform. Technology |
| 50 | ASSECOSEE | 30.6 | n.a. | n.a. | n.a. | n.a. | Software & Services |
| 51 | DEVELIA | 34.6 | n.a. | n.a. | n.a. | n.a. | Real estate services |
| 52 | DOMDEV | 26.4 | n.a. | n.a. | n.a. | n.a. | Real estate services |
| 53 | MOBRUK | 51.2 | n.a. | n.a. | n.a. | n.a. | Waste Management |
| 54 | FAMUR | 29.8 | n.a. | n.a. | n.a. | n.a. | Sp. Ind. Machinery |
| 55 | BENEFIT | 27.4 | n.a. | n.a. | n.a. | n.a. | Leisure |
| 56 | SELVITA | 57.0 | n.a. | n.a. | n.a. | n.a. | Diagn.s & Research |
| 57 | ASBIS | 63.2 | n.a. | n.a. | n.a. | n.a. | Electronics |
| 58 | DATAWALK | 58.2 | n.a. | n.a. | n.a. | n.a. | Software & Services |
| 59 | PKPCARGO | 46.9 | n.a. | n.a. | n.a. | n.a. | Logistic |
| 60 | MABION | 55.9 | n.a. | n.a. | n.a. | n.a. | Biotechnology |

Source: own elaboration based on data from WSE Benchmark, Stooq and Sustainalytics (24.06.2022).

The first two companies have been delisted, while the majority of the remaining companies currently belong to the sWIG80 index portfolio, which includes 80 small companies listed on the WSE. After each revision of the composition of the indices, a reserve list of five companies is created. This list is important because companies that change their status from small to medium and are added to the sWIG40 index portfolio are subject to ESG risk assessment. Proper preparation and transparency in ESG risk management will result in stronger ESG scoring and may help attract investors making sustainable choices. Moreover, according to Olszewska (2019), an appointed WSE Management Board Member, small companies may also be included in the WIG-ESG index in the future. The initial inclusion in the WIG-ESG index of the largest and most liquid companies was intended to attract the top foreign investors who invest huge assets in sustainably managed companies.

The weighting of WIG-ESG constituents is based on free-float shares adjusted for ESG ratings provided by Sustainalytics, and an assessment of compliance with GPW's corporate governance principles. One third of WIG-ESG index constituents have more than 50% of their shares in free float. Only 5% of companies have less than 20% of shares in public trading, including one company – Polenergia SA, which has a ratio below 10% and therefore does not meet the base criterion required to be in the sWIG40 index. Although there are more than 600 ESG ratings published worldwide, investors treat both Sustainalytics and MSCI ratings as valuable (SustainAbility, 2020). Sustainalytics' ESG risk assessments are designed to help investors identify and understand the financially material ESG risks in their investment portfolio and how these risks may impact performance. The Sustainalytics database contains nearly 150,000 entities from around the world assigned to one of 138 sub-industry classifications, for which a team of analysts selected ten material ESG issues (MEIs). The ESG risk assessment takes into account the issuer's exposure to industry-specific ESG risks and the extent to which these risks are managed. The highest rating scores are given to companies with the highest exposure to ESG risk and the weakest management in this area. The final exposure assessment also includes firm-specific adjustments. It should be noted that companies may be exposed to manageable ESG risk and unmanageable risk, the proportion of which is defined at the subindustry level (e.g. mining companies cannot fully eliminate its environmental impact through policies or programmes). According to ESG Risk Rating methodology, the assigned to company score is the sum of unmanageable risk score and unmanaged manageable risk

score. In summary, the fewer unmanageable ESG risks a company faces and the better the company manages these manageable risks, the lower the score and the better the company's ranking.

The companies currently included in the WIG-ESG index represent the following sectors: Software & Services (9), Banks (8), Diversified Financials (6), Utilities (4) Food retailers and food products (3), Chemicals (2), Construction & Engineering (2), Oil & Gas (2), Pharmaceuticals (2), Real Estate Services (2), Refiners & Pipelines (2), Retailing (2), Telecommunication Services (1), Textiles & Apparel (1), Consumer Services (1), Healthcare (1), Insurance (1), Auto Components (1), Web portals (1), Games (1), Recreation and leisure (1), Mechanical equipment (1), Transportation (1), Biotechnology (1), Recycling (1), Medical equipment (1), Computers and electronics (1), Media (1). The weights of the companies in the WIG-ESG are dependent on the number of shares in free float (liquidity as a main criterion), adjusted by the ESG Risk Rating and finally adjusted by the assessment of compliance with the Best Practice for GPW Listed Companies 2016. None of the companies were eliminated with this approach (e.g. due to the type of business activity).

The study covered all 60 companies included in the WIG-ESG index but data were only available for 43 of them (Table 2). The missing data can be partly explained by the fact that some of the companies have been included in the mWIG40 index in recent years. The lack of ESG Risk Rating also applies to companies that have been part of the WIG-ESG index since its launch, which may be due to the analytical team's work on updating the scoring. Sustainalytics identify five categories of ESG risk severity that could impact a company's enterprise value, namely: negligible (score below 10), low (10-20), medium (20-30), high (30-40) and severe (score over 40). There is no company in the WIG-ESG index for which the risk would be defined as negligible. Only 8 out of 44 companies have a low ESG risk rating. These are companies whose exposure to ESG factors is also low, or companies with medium exposure but strong management of ESG issues. For almost half of the companies (21), the ESG risk index is in the range 20-30 (medium), while 15 companies have an ESG Risk Rating of high (6 companies) or serious (9 companies). The companies that have a high rating are mostly characterised by an average exposure to ESG risks and also an average level of management. Companies in the severe risk group typically have high exposure to ESG risks and a medium level of management. The index includes only one company (CCC SA) that, despite its low exposure to ESG risks, is distinguished by its strong management. Very high ESG scoring concerned companies whose exposure to ESG risks was high while the degree of governance was mostly medium. The following three companies are the largest generators, distributors and sellers of electricity in Poland: ENEA, TAURON Polska Energia and PGE. The highest ESG rating was achieved by Grupa Azoty – the EU's number two manufacturer of nitrogen and compound fertilizers. In the group of companies representing the chemical industry (Sustainalytics), the company reached 456th place out of 462 companies. Kernel Holding (a Ukrainian company based in Luxemburg) is the world's leading and Ukraine's largest producer and exporter of sunflower oil. Companies such as KGHM (world leader in mining and smelting and leading producer of copper and refined silver) Celon Pharma (producer of modern medicines), PGNiG (exploration and production of natural gas and crude oil) and JSW (largest producer of high quality hard coking coal) should also pay attention to improving the area of ESG risk management. Companies putting great effort into ESG risk management include the oil and energy conglomerate PKN Orlen and the fuel company Lotos, which was merged with PKN Orlen on 1 August 2022. Companies striving at better ESG risk management include the largest footwear manufacturer CCC, three banks: PKO Bank Polski, mBank and ING Bank Śląski, the insurance company PZU, the fuel and energy conglomerate PKN Orlen and the fuel company Lotos, which was merged with PKN Orlen on 1 August 2022. According to Khan (2022, p. 16), ESG risk is influenced by market capitalisation. Larger firms have usually maintained higher ESG performance due to higher social pressure.

In conclusion, it should be noted that large and medium-sized companies are automatically included in the index, regardless of their ESG risk management efforts. On the one hand, according to the index creators, if only ESG risk exposure was taken into account, mining companies would not have to do anything, as they would have no chance of being included in the index anyway (Olszewska, 2019). On the other hand, global practice in the construction of ESG indices is different.

2. ESG indices in European stock markets

As of June 2022, the largest stock exchange in Europe was Euronext, formed twenty two years ago by merging the stock exchanges of Paris, Brussels, and Amsterdam. In 2002, Euronext merged with the Portuguese stock exchange and the London International Financial Futures Exchange, while in 2018 it completed the acquisition of the Irish Stock Exchange to create Euronext Dublin and in 2021 the Italian stock exchange to create Euronext Milan. Euronext is also one of the leading index providers in Europe, with over 900 indices of all profiles, including over 100 ESG indices (Euronext.com, 15.05.2022). The ESG assessment is provided by different partners such as Vigeo Eiris (part of Moody's ESG Solutions), Sustainalytics, Institutional Shareholder Services, and as Erhart (2022, p. 9) pointed out, the choice of ESG data provider has a large impact on the overall ESG assessment of a stock as the ratings of different rating agencies are often not directly comparable. Dimson et al. (2020) stated that ESG ratings, used in isolation, are unlikely to make a material contribution to portfolio returns. Correlation between ESG ratings from alternative agencies is minimal. An explanation of why the assessments of different evaluators differ was undertaken by, among others, Dimson et al. (2020), and Kotsantonis & Serafeim (2019). As the authors pointed out, the factors causing discrepancies in rankings relate to: estimation of missing metrics, benchmark choice or weighting scheme for ESG scores. Sustainalytics tends to give roughly equal weight to each of the three ESG pillars compared to the MSCI data provider, which gives 5% weight to the environment, 74% to society and 21% to governance.

Table 4. ESG indices in largest European stock exchanges

| Index name | Date of launch | Index Description |
|---|---------------------------------------|---|
| Euronext Group | | |
| Eurozone ESG Large 80 | 7.04.2020 Euronext Paris | 80 Eurozone Large Cap companies selected for their higher score in energy transition and ESG performance. ESG assessment: Vigeo-Eiris (Moody's). Exclusion criteria: 20% lowest ranking companies in social and 20% in governance assessment, sin stocks* |
| CAC 40 ESG | 22.03.2021 Euronext Paris | 40 companies within the CAC Large 60 Index that demonstrate the best ESG practices excluding sin stocks. ESG assessment: Vigeo Eiris. |
| MIB® ESG | 18.10.2021 Borsa Italiana | 40 companies based on best ESG criteria out of the 60 most liquid Italian companies excluding sin stocks. ESG assessment: Vigeo Eiris. |
| OBX® ESG | 6.05.2022 Oslo Børs | 40 best scoring companies on ESG Risk rating out of the 60 largest companies listed on Oslo Børs. ESG assessment: Sustainalytics. |
| AEX® ESG | 12.05.2022 Euronext Amsterdam | 25 best scoring companies on ESG Risk rating out of 50 companies that make up of the AEX® and AMX® indices. ESG assessment: Sustainalytics (Morningstar). |
| Nasdaq Nordic (Nasdaq OMX Group) | | |
| OMX Stockholm 30 ESG Resp. Index | July 9, 2018 Nasdaq Stockholm | Index includes 28 constituents out of 30 most traded stocks as of July 2022. ESG assessment: ISS Ethixs (Institutional Shareholder Services). |
| OMX Copenhagen 25 ESG Resp. Index | June 22, 2022 Nasdaq Copenhagen | 25 most traded ESG compliant securities out of all 128 companies listed on Nasdaq Copenhagen. Exclusion criteria: Sustainalytics Controversy Rating of five, Non-compliance with the principles of the United Nations Global Compact, sin stocks. ESG assessment: Sustainalytics. |
| OMX Helsinki 25 ESG Resp. Index | 22.06.2022 Nasdaq Helsinki | 25 most traded ESG compliant securities out of all 141 companies listed on Nasdaq Helsinki. Exclusion criteria are the same as OMX Copenhagen 25 ESG. ESG assessment: Sustainalytics. |
| Six Group | | |
| SPI ESG | 1.02.2021 Six Swiss Exchange | The index consists of those (currently 131) components of the Swiss Performance Index (SPI) that have a rating of at least C+ on a scale of A+ to D– and less than 5% turnover in “controversial” sectors (sin stocks). ESG assessment: Inrate (Swiss sustainability rating agency). |

| | | |
|---|--|---|
| FTSE4Good IBEX Index | April 9, 2008 Bolsa de Madrid | The index comprises companies in the BME's IBEX 35 Index and the FTSE Spain All Cap Index that demonstrate good ESG ratings. Inclusion: free float (above 5%), ESG rating of 3.1 out of 5. Sin stocks excluded. Current number of components 25. ESG assessment: FTSE Russell |
| Deutsche Börse | | |
| EURO STOXX 50® ESG Index | May 2019 Börse Frankfurt | The methodology was significantly updated in April 2021. The index excludes the least sustainable companies as well as sin stocks from the benchmark EURO STOXX 50 Index. ESG assessment: Sustainalytics. |
| DAX® 50 ESG | March 4, 2020 Börse Frankfurt | Includes 50 largest, most liquid German market stocks and is based on all equities that belong to either the DAX®, MDAX® or TecDAX® indices. ESG assessment: Sustainalytics. |
| LSE Group: FTSE Russell Environmental Social and Governance indices | | |
| FTSE4Good Europe | 30.07.2001 London Stock Exchange | Number of constituents 402 out of 588 (Index universe: FTSE Developed Europe). Inclusion: ESG Rating of 3.3 for developed markets and 2.9 for emerging markets. Sin stocks excluded. ESG assessment: FTSE Russell |
| FTSE4Good United Kingdom | 30.07.2001 London Stock Exchange | Number of constituents 222 out of 600 (Index universe: FTSE All-share index). Constituent selection the same as FTSE4Good Europe. ESG assessment: FTSE Russell |
| Morgan Stanley Capital International indices | | |
| MSCI Europe ESG Leaders Index | 1.10.2007 | Consists of large and mid-cap companies in 15 developed* markets countries. Number of constituents 208 out of 429 eligible (MSCI Europe). Inclusion: companies with the highest ESG ratings representing 50% of the market cap in each sector and region of the parent Index, MSCI ESG Rating of 'BB' or above and the MSCI ESG Controversies Score of at least 3. Sin stocks excluded. ESG assessment: MSCI |

* Companies involved in activities that are considered unethical (alcohol, tobacco, gambling, adult entertainment and weapons).

Source: own elaboration based on information from stock exchange websites.

Euronext's first national ESG index derived from the CAC 40® index family was launched in March 2021. Half a year later, in October 2021, Euronext announced the launch of the first Italian blue-chip ESG index – MIB® ESG. In May 2022, Euronext launched a new OBX® ESG, and few days later, AEX® ESG indices which identifies 40 blue-chip companies listed in Norway and 25 companies that demonstrate the best ESG practices from the 50 constituents of the AEX® and AMX® indices. All of the abovementioned indices incorporate norm-based exclusion filters applied in accordance with the UN Global Compact Principles and activity exclusions (tobacco production, thermal coal mining, controversial weapons, civilian firearms, tar sand and oil shale extraction). Companies with active critical controversies related to UNGC as determined by Vigeo-Eiris are not eligible for the index (Euronext, 30.06.2022).

The second largest exchange in Europe by domestic market capitalisation is the London Stock Exchange (Statista, 15.07.2022). ESG Ratings FTSE Russell has been at the forefront of innovation in ESG indexing, since the creation of the FTSE4Good Index Series in 2001, one of the world's first global ESG index families. In order to be included in the FTSE4Good Index Series companies must have an overall ESG Rating of 3.3 (developed markets) or 2.9 (emerging markets) out of 5. Companies with exposure to "significant controversies" are not eligible for addition to the Index Series (manufacturers of tobacco, coal, weapons systems). Companies are removed from the index series when the ESG score is lower than 2.9 or 2.4, respectively (FTSE Russell, 15.07.2022). The third largest exchange in Europe is the SIX Swiss Exchange. On 1 February 2021, Six Swiss launched its first ESG Equity Index and ESG Bond Index, which are based on the Swiss Performance Index (Switzerland's general stock market index) and the Swiss Bond Index (tracks fixed-rate and investment-grade obligations issued in Swiss francs), respectively. Index inclusion criteria are as follows: ESG Impact Rating of at least C+ (Inrate ranking), company must not generate more than 5 percent of its sales in a critical sector (adult entertainment, alcohol, armaments, betting, genetic engineering, nuclear energy, coal, oil sands, and tobacco). Moreover, the company must not be on the exclusion list of the Swiss Association for Responsible Investments (Six, 2022). Two other major stock exchanges in Europe with similar market capitalisation are Deutsche Börse and OMX Nordic

Exchanges, which refers to Nasdaq Nordic. The Deutsche Börse Group supplies well over 10,000 indices including the STOXX® and DAX® index families. In May 2019, EURO STOXX 50® ESG Index was introduced by Qontigo, a part of Deutsche Börse Group. The index is based on the EURO STOXX 50® Index, one of Europe's flagship benchmarks. A year later, Qontigo created the DAX® 50 ESG index, the universe of which is defined by all the stocks included in the HDAX (the German stock market index, which consists of 110 components of indices such as the DAX, MDAX and TecDAX). The methodology for calculating both indices is similar and includes ESG score screening and business type exclusions. Nasdaq Nordic operates the exchanges in the Nordic market (Sweden, Denmark, Finland and Iceland) and the Baltic market (Estonia, Latvia, Lithuania). The first ESG-responsible version of the OMX Stockholm 30 Index was launched on the Nasdaq Stockholm exchange in 2018. The OMX Stockholm 30 ESG Responsible Index is based on the OMXS30 Index, which consists of the 30 most actively traded stocks on the Stockholm Stock Exchange. Securities that fail to meet the criteria during the systematic criteria-based ESG screening, were excluded. The name of the index due to the underlying instrument indicates that it contains 30 companies, but its content is variable – securities that do not pass a systematic criteria-based ESG screening are excluded. In June 2022, two additional ESG indices were launched - on the Helsinki and Copenhagen Stock Exchanges. The OMX Copenhagen 25 ESG Responsible Index (OMXC25ESG) consists of a selection of securities from the OMX All-Share Index, where 25 securities are selected for index inclusion using an ordered ranking-based selection process (Nasdaq 1, 14.06.2022). In turn, the OMX Helsinki 25 ESG Responsible Index (OMXH25ESG) is based on OMX Helsinki All-Share Index. Companies that are not eligible for inclusion are characterised by a Sustainalytics Controversy Rating of five, involvement of certain degrees in gambling, military contracting, oil & gas, adult entertainment, alcoholic beverages, recreational cannabis, controversial weapons, and small arms, thermal coal and tobacco products (Nasdaq 2, 14.06.2022).

In summary, stock exchanges around the world are currently introducing indices that bring together best-in-class companies in terms of meeting ESG criteria. Often, the methodology of pre-existing SRI indices is also modified to take ESG ratings into account when selecting companies for the index (e.g. STOXX® Europe 600 SRI, FTSE4Good series, OMX GES Sustainability Nordic Index etc.). In most cases, the criterion for including companies in ESG indices is the so-called positive screening, i.e. the process of selecting companies on the basis of their best ESG performance and their non-association with so-called critical sectors. ESG indices are often based on constituents of all-stock indices or indices covering the most liquid stocks.

3. ESG efforts and enterprise resilience

In times of market crisis, investors look for evidence of companies' resilience. The concept of resilience has often been discussed as an important strategy for success as well as survival in today's highly unpredictable business environment. Gallopín (2006) described enterprise resilience as the ability of a company to cope with, adapt to and recover from disruption. Sabatino (2016) proposed a list of determinants that define a company as resilient and able to cope with economic and social shocks, such as: product and focalization, quickness in the decision; organizing structure based on the clan model; strong national imprinting–business values; customer centricity; an efficient system of incentives for strategic aims. According to Weber et al. (2010), a company's engagement in sustainable activities increases its creditworthiness. Empirical research conducted by Srivastava et al. (2022), revealed that increased engagement in CSR activities enable companies to access debt capital during the COVID-19-induced crisis. Cheema-Fox et al. (2021, p. 32) investigating companies' resilience and response to the COVID-19 pandemic, indicated that a two-standard deviation increase in the ESG rating by MSCI was associated with about 1.2% higher stock returns (by contrast, the ESG rating from Sustainalytics was not significant). A positive correlation between ESG metric performance and financial performance of companies was also suggested by Wong et al. (2021), who revealed that on average a firm's cost of capital is reduced by 1.2%, while Tobin's Q increases by 31.9% upon receiving an ESG rating. Good ESG performance results in lower costs of capital and higher valuations (Giese et al., 2019).

Table 5. Debt levels of WIG-ESG components in 2019 and 2020 versus sales and market returns

| No. | Company | ESG Rating | DR | | DR mod* | | ROS | | Share % change** | |
|-----|------------|------------|-------|-------|---------|-------|------|-------|------------------|--------|
| | | | 2019 | 2020 | 2019 | 2020 | 2019 | 2020 | 2019 | 2020 |
| 1 | LPP | 13.9 | 66.2 | 70.4 | 36.7 | 37.6 | 4.3 | -2.4 | 12.4 | -6.1 |
| 2 | CCC | 13.9 | 86.5 | 97.3 | 50.4 | 53.2 | -0.5 | -22.7 | -43.1 | -20.4 |
| 3 | CDPROJEKT | 14.1 | 21.3 | 24.4 | 1.4 | 0.7 | 33.6 | 54.0 | 92.0 | -1.7 |
| 4 | GPW | 14.8 | 30.5 | 32.2 | 21.3 | 19.3 | 35.5 | 37.5 | 7.2 | 16.3 |
| 5 | NEUCA | 17.1 | 81.4 | 78.8 | 13.2 | 8.9 | 1.4 | 1.5 | 54.6 | 72.2 |
| 6 | PEPCO | 17.5 | 61.7 | 75.5 | 33.2 | 53.1 | 0.0 | 3.8 | n.a. | n.a |
| 7 | CYFRPLSAT | 20.4 | 57.6 | 56.4 | 39.7 | 39.9 | 9.4 | 9.5 | 23.9 | 8.4 |
| 8 | LIVECHAT | 21.1 | 10.2 | 12.2 | 0.9 | 0.1 | 0.1 | 0.1 | 70.8 | 142.5 |
| 9 | TSGAMES | 21.8 | 13.1 | 26.5 | 0.0 | 2.5 | 31.7 | 26.2 | 147.5 | 178.3 |
| 10 | ALLEGRO | 22.5 | 53.3 | 46.6 | 45.3 | 37.0 | 15.1 | 10.5 | n.a. | n.a |
| 11 | HUUUGE | 23.0 | 137.3 | 167.7 | 96.4 | 130.9 | 1.6 | -24.8 | n.a. | n.a |
| 12 | PLAYWAY | 23.6 | 17.4 | 22.3 | 0.0 | 0.0 | 66.4 | 110.5 | 77.0 | 164.9 |
| 13 | ORANGEPL | 23.9 | 57.6 | 56.4 | 36.4 | 35.9 | 0.7 | 0.4 | 48.6 | -7.4 |
| 14 | PKNORLEN | 25.0 | 45.8 | 50.4 | 17.7 | 23.4 | 3.9 | 3.2 | -20.7 | -32.7 |
| 15 | EUROCASH | 25.4 | 88.6 | 88.4 | 31.6 | 33.9 | 0.3 | 0.2 | 24.1 | -35.7 |
| 16 | DINOPL | 25.8 | 62.7 | 59.3 | 26.3 | 26.5 | 5.4 | 6.4 | 50.2 | 101.0 |
| 17 | KRUK | 25.9 | 59.5 | 56.0 | 55.9 | 47.9 | 24.2 | 7.0 | 6.9 | -15.2 |
| 18 | LOTOS | 27.0 | 465 | 56.0 | 18.7 | 18.6 | 3.9 | -5.5 | -5.6 | -50.4 |
| 19 | ASSECOPOL | 27.3 | 60.5 | 63.8 | 22.2 | 20.9 | 3.0 | 3.3 | 38.0 | 7.0 |
| 20 | AMREST | 28.3 | 80.8 | 87.8 | 65.1 | 72.5 | 3.3 | -12.0 | 8.3 | -36.0 |
| 21 | XTB | 29.1 | 56.9 | 61.1 | 3.0 | 4.6 | 24.2 | 50.4 | -10.2 | 353.2 |
| 22 | KETY | 30.6 | 46.3 | 47.0 | 29.1 | 24.7 | 9.3 | 12.1 | 5.2 | 42.1 |
| 23 | BOGDANKA | 32.7 | 24.3 | 24.8 | 0.8 | 0.8 | 14.3 | 4.0 | -32.1 | -44.9 |
| 24 | BUDIMEX | 34.7 | 87.9 | 84.6 | 7.1 | 6.4 | 3.0 | 5.5 | 51.4 | 78.8 |
| 25 | CIECH | 35.0 | 60.8 | 62.8 | 35.5 | 35.8 | 3.4 | 4.3 | -10.4 | -18.9 |
| 26 | KGHM | 36.4 | 49.0 | 50.9 | 20.0 | 17.1 | 6.3 | 7.6 | 7.5 | 91.5 |
| 27 | MERCATOR | 40.1 | 65.6 | 19.3 | 38.3 | 0.3 | -0.4 | 50.7 | -7.9 | 4141.2 |
| 28 | KERNEL | 40.4 | 52.8 | 51.3 | 47.0 | 38.9 | 2.9 | 9.1 | -7.6 | 9.0 |
| 29 | JSW | 40.6 | 43.3 | 54.0 | 6.5 | 17.6 | 7.3 | -22.1 | -68.2 | 21.4 |
| 30 | CLNPHARMA | 42.3 | 17.9 | 35.2 | 1.0 | 4.8 | -9.0 | -0.6 | 27.0 | 2.1 |
| 31 | PGNIG | 42.3 | 35.6 | 29.8 | 11.4 | 6.7 | 3.3 | 18.7 | -37.4 | 28.1 |
| 32 | TAURONPE | 45.2 | 56.6 | 60.6 | 35.7 | 38.8 | -0.1 | -12.2 | -25.1 | 66.0 |
| 33 | ENEA | 47.3 | 56.0 | 59.7 | 32.0 | 28.5 | 2.7 | -12.5 | -20.1 | -17.4 |
| 34 | PGE | 49.0 | 45.5 | 47.9 | 16.5 | 14.5 | 10.5 | 0.2 | -20.4 | -18.3 |
| 35 | GRUPAAZOTY | 52.7 | 54.5 | 59.7 | 24.2 | 28.5 | 3.3 | 3.0 | 6.1 | -6.3 |

* Share of interest-bearing debt (loans and borrowings, leases, bonds) in asset financing; ** Annual % change of shares.

Source: own elaboration based on company's financial statements and money.pl/analytics.

The WIG-ESG constituents with available ESG score (excluding banks) were subject to analysis. Trends in indebtedness, profit generation and share price change in 2019-2020 were verified. As shown in Table 5, the majority of companies (22 out of 35) were characterised by debt levels above 50% in 2019 and the situation did not change significantly in the next year (number increased to 23). In addition, an increase in debt levels was also recorded for 22 companies. Allegro, HUUUGE and Pepco were listed

for a short time (debut date 10.2020, 2.2021, 5.2021). Analysing only interest-bearing debt (loans and borrowings, lease obligations, bonds), the number of companies with a total debt ratio above 50% was only 5 in 2019, and 4 in 2020. Only 34% of companies increased the level of interest-bearing liabilities in 2020. The number of companies that ended 2020 with a net loss increased by only four, compared to 2019. Despite the pandemic, half of the companies analysed (18 out of 35) improved their return on sales in 2020 compared to the previous year.

When analysing the percentage change of share prices on an annual basis, it can be seen that the number of companies characterised by dynamic growth in 2020 far outweighed the number of companies experiencing declines in share price. However, due to restrictions on the share of individual companies in the index portfolio, its value at the end of 2020 was below the base value set at 10,000 points. By contrast, at the end of 2021, the index value had increased by 19%. Given the short time the index has been on the market, the lack of data on ESG ratings and the index methodology currently used, it would be difficult to study the impact of ESG ratings on companies' financial performance and resilience to crises. Nevertheless, such an impact can be estimated by monitoring changes in ESG scoring in the context of performance over the years.

4. Discussion and conclusions

In response to growing demand, the financial industry is developing more products and services related to ESG ratings, indices and funds. Some companies put great effort into managing ESG factors because of the desire to increase ratings, while others know that ESG considerations are likely to be at the heart of mainstream investing, and make long-term decisions with those in mind.

Most ESG indexes are designed to promote companies that have high ESG ratings relative to their sector peers. As global practices indicate, ESG ratings are always taken into account as a criterion for inclusion in the index, and companies whose ratings deteriorate are excluded. For the newly created WIG-ESG index in Poland, ESG criteria are taken into account when estimating a company's share in the index portfolio, but do not disqualify it from membership. The idea behind the creation of the index was not to identify 'best in class' companies in the area of ESG, but rather to motivate large liquid asset companies to take ESG factors into account in their investment decision-making process regardless of the type of business. The index is expected to attract foreign individual and institutional investors, for whom ESG factors are of increasing importance.

In the author's opinion, a modification of the WIG-ESG index methodology should be considered in the near future, not only by allowing smaller companies (sWIG80 constituents) to join the index, but also by introducing exemptions in terms of ESG scoring. Such an approach will enable the recognition of companies with strong ESG risk management efforts, and motivate other companies to make sustainability-oriented decisions. The risk of exclusion from the index of companies with low or deteriorating ESG ratings may be a better motivation for sustainability than simply taking the ratings into account to adjust the shares of companies in the index portfolio.

The proposed changes are also justified in the way index membership is used for marketing purposes. The following claims can be found on the websites of listed companies: "We are happy to inform you that from today ASBIS is a part of WIG-ESG ...and our efforts to build a transparent and responsible business have been appreciated" (Asbis, 2022). "Confirmation of the highest standards of social responsibility applied on a day-to-day basis at KGHM is provided by its participation in a WIG-ESG Index" (KGHM, 2022).

As highlighted in the literature, incorporating ESG factors into business decisions can increase creditworthiness and reduce the cost of capital, have a long-term impact on financial performance and increase an organisation's resilience to crises. Conducting reliable research on this aspect would require a relatively stable index portfolio over the years. Currently, companies that are not part of the

WIG20 or sWIG40 indices, after the quarterly revision automatically cease to be part of the WIG-ESG, and do not receive rating updates by Sustainalytics, making it impossible to monitor their progress. A major limitation in studying the impact of a company's membership in an ESG index, including the ESG rating achieved, on the financial health of companies was the short (two-year) period of the index's existence. There is a need for future research on identifying the impact of the improvement/deterioration of the ESG rating on a company's financial performance, with particular emphasis on changes in the capital structure and market value of companies. Coelho et al. (2023) revealed that the impact of CSR activities on companies' financial performance becomes more significant when ESG scores improve. Companies, including those not yet required to disclose ESG information, need to recognize that planning operational activities with ESG factors in mind opens up opportunities to reach new customers with strong social and environmental awareness, facilitates access to new financing for investment projects, as well as strengthens the organization's resilience to crises.

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Mocne zarządzanie ryzykiem ESG jako sposób na zwiększenie odporności organizacji w czasach kryzysu: analiza składników indeksu WIG-ESG

Streszczenie: W ciągu ostatniej dekady praktyki zrównoważonego inwestowania znacznie się rozwinęły. Raportowanie ESG płynnie przechodzi od dobrowolności do obowiązku. Inwestując w spółki, które osiągają wysokie wyniki w rankingach ESG, inwestorzy liczą na odporność organizacji na kryzysy i wyższe stopy zwrotu. W związku z dynamicznym rozwojem inwestowania społecznie odpowiedzialnego zarówno w Polsce, jak i na świecie tworzone są nowe indeksy wykorzystujące kryteria screeningu ESG, które z kolei stanowią instrument bazowy dla produktów strukturyzowanych. Celem pracy była analiza składników nowo utworzonego indeksu WIG-ESG oraz omówienie wyników i odporności organizacyjnej spółek w odniesieniu do ekspozycji i zarządzania ryzykiem ESG. Badania wykazały, że kryteria włączenia do indeksu WIG-ESG powinny zostać zmienione w taki sposób, aby wyróżnić spółki, które dbają o mocne zarządzanie ryzykiem ESG i wykluczyć te, których wysiłki w zakresie ESG są znikome. Drugą ważną kwestią jest kwalifikowalność do włączenia. Jeżeli wszystkie spółki będą kwalifikowały się do włączenia do indeksu (rating ESG jako warunek włączenia), ograniczy to rotację składników indeksu i pozwoli na zbadanie zależności pomiędzy ewaluacją oceny ESG spółki na przestrzeni lat a jej sytuacją finansową.

Słowa kluczowe: ratingi ESG, odporność organizacyjna, zrównoważone inwestowanie, giełdowe indeksy ESG.