

## ENVIRONMENTAL ASPECTS OF INVESTING IN THE POLISH STOCK EXCHANGE MARKET ACCORDING TO INDIVIDUAL INVESTORS

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### Abstract

The aim of the article is to present and analyse the attitudes of Polish society and individual investors towards challenges of environmental protection. For the purposes of the study, the following hypothesis was formulated: environmental aspects are an important factor in making investment decisions by individual investors on the Polish capital market. In the article, various research methods were applied, with particular emphasis on empirical research, both external and own. The own research was carried out on a representative sample of the Polish society, as well as on a targeted sample of individual investors who invest in the Warsaw Stock Exchange. Unfortunately, on the basis of results from conducted research, it was found that environmental aspects are not an important factor in making investment decisions by individual investors on the Polish capital market.

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**Keywords:** corporate social responsibility, ESG, sustainable development, individual investors

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## INTRODUCTION

Environmental evolution is a fact. Protection of the natural environment is becoming a significant challenge for the modern economy and society. Harmony between society, economy and ecology is the foundation for the development of our civilization. The concept of Corporate Social Responsibility (CSR) is broad. This article focuses on the protection of the natural environment, which is an essential component of CSR.

The aim of the article is to present and analyze the attitudes of Polish society and individual investors on the Polish stock market towards the challenges of environmental protection in business. It should be noted that transactions made by individual investors account for approx. 25% of overall transactions made on the Warsaw Stock Exchange. The hypothesis was formulated as follows: environmental aspects are an important factor in making investment decisions by individual investors on the Polish capital market.

In the article, significance of environmental aspects on both international and Polish markets was analysed, as well as results of external and own research on social attitudes along with individual investors attitudes in the field of environmental protection were presented. While providing the scope of the research, it should be noted that in the first stage, social attitudes towards environmental protection were considered (results of external research). Then, opinions of a representative sample of Polish society were confronted with the opinion of a targeted sample of individual investors. The next stage of the research process was to ask additional questions to respondents from the sample of individual investors.

Both studies on a representative sample of the society and a sample of individual investors were carried out in 2020 as part of the own research. Conclusions and applications from the research are presented in the end.

## BRIEF LITERATURE REVIEW

Undoubtedly, the international financial market is subject to "ecological" pressure in the positive sense of the word. It seems that, currently, a process of adaptation of companies to the operating in the society which values the requirements of natural environment protection is taking place. Numerous symptoms of a positive influence of environmental protection on the functioning of financial institutions have already been observed in many countries (L. Dziawgo & D. Dziawgo, 2003).

As a result, investing in the capital market and considering ecological aspects, has been a subject of both

business and scientific considerations for many years (Deml et al., 1994; Sharma & Starik, 2004). Socially Responsible Investment (SRI) is an inspirational idea for development of both economy and modern society (Gabriel, 2007). Furthermore, CSR is relevant for organizations not only because of the profitability and development that it can bring within a company, but also because of the interests of society itself and its impact on the environment (Eding & Scholtens, 2017).

Dziawgo (2019) emphasizes overlapping processes on the financial markets between general investment based on financial efficiency and investment concerning social responsibility. The current process of optionally including ESG criteria (environmental-social-governance) during investment decisions is being substituted by obligatory requirements in legal acts. As a result, sustainable finance is no longer a peripheral phenomenon thanks to investor demand, legislative changes and high expectations about the correlations between ESG preferences, investment risk and financial performance. Therefore, she expects that sustainable investment, from being a subsidiary trend, will become a dominating one, and ESG factors will be implemented to the traditionally analysed investment criteria. This will cause a revolution in the investment process through developing the new standard of financial investment analysis. However it should be mentioned, that ESG inclusion in the investment process was due to legal regulations. Hence it cannot be concluded that it will be efficient. In the long term, investors and asset managers will be the ones to ultimately decide.

Selected publications linking environmental protection issues with the capital market as well as social attitudes are presented below. These publications are part of a much wider trend, which is the topic of financing environmental protection in every social and economic scope. Due to the dynamics and role of the capital market, it remains an important subject of analysis in the context of environmental protection in society and economy.

Widyastuti et al., (2019) studied the public awareness on the consumption of green products. They concluded that society increased interest in the environment, arising from their desire to help in reduction of the impact of environmental damage by becoming an "intelligent consumer".

Suto and Takehara (2020) study examines whether and how corporate social responsibility intensity affects investment performance directly, as a signal of investor trust, and indirectly, by impacting management earnings forecasts accuracy. They find that investors benefit from high CSR firms as they avoid unexpected stock

volatility while, at the same time, paying the cost of CSR by lowering returns. The results suggest that CSR intensity stabilizes stock returns in the long run and moderates management disclosure bias in the short run. They concluded that CSR activities based on stakeholder relationships would help signal firm-level trust and restrain short-sightedness investment in the capital market.

Rezec and Scholtens (2017) analyze how equity indices, which aim to reflect renewable energy investments, perform compared to conventional benchmark indices. However, they find that renewable energy indices' risk-adjusted return is very poor. Accordingly they concluded that renewables is not a financially attractive portfolio investment yet.

In different study, Shaydurova et al., (2018) pointed out that the concept of sustainable development not only considers climate risks but also creates new factor of investment attractiveness. Also, it can make the investment process more conscious and less speculative. Their analysis of the green indices and green bonds showed that such instruments are less vulnerable to overall recessions on the financial markets. This means that investors tend to hold sustainable assets in their portfolio rather than classical securities. Their study demonstrate that green investments can be used by conservative investors interested in relatively high dividend yield and stable performance. In other words, green investments can be classified as relatively defensive investments which can provide investor with the additional value in terms of ESG principles.

Also, Duanmu et al., (2021) study suggested that hedge funds are able to derive benefits by using CSR considerations as a form of risk mitigation in their investment policies.

Soelton et al., (2020) analyzed the effect and implementing corporate governance to engage and perform a proper CSR which will impact the social community and finally improve the financial performance of the company. Based on the obtained results, size of board of commissioners, size of the board of directors, audit committees and net profit margin do not have significant effect on the firm value while on the other hand, board of commissioners and return on equity do.

Walczak et al. (2021) analyzes the declared attitudes of individuals (representative sample) when it comes to taking into consideration pro-environmental factors, including energy, consumption, and waste. They have also studied the social awareness of the socially responsible investment idea, as well as pro-ecological individual behaviors related to private finance on the Polish market. They concluded that Poles consider themselves as individuals guided by pro-environmental concerns while making everyday deci-

sions (mainly energy, consumption, and waste). They are also familiar with the idea of SRI. However, in reality, they engage in almost no pro-ecological actions concerning private finance. The results of that study differ considerably from those obtained in other countries. The differences most probably stem from the fact that the Polish ecological market is still in early growth. That is, while Poles already realize the importance of environment protection, they do not individually engage in pro-environmental actions concerning their private finance. Poland is no longer a low income country; however, the reminiscences of the poverty era before 1989 and the 2007 crisis still play an important role in making financial decisions. Additionally it was observed that the impact of education on pro-ecological behaviors seems to be quite limited. It may result from the fact that environmental issues are still somewhat neglected in the education process, which is another proof of the early growth of the pro-ecological market in Poland. The behaviors of Polish consumers still do not allow for defining them as active consumers in making decisions about pro-ecological activities, primarily in the fields of energy and waste. At the same time, it is worth to quote the results of Marks-Bielska et al. (2020) research showing that the households in spite of understanding the benefits of renewable energy, would rather not be willing to pay higher cost of using renewable energy (only 43% respondents were ready to pay a higher price for the services relying on renewable energy).

Dziawgo (2021) analyzed the perception of the usefulness of different elements of the financial statements by Polish individual investors. The results indicate that investors have very rarely found the financial statements very useful. Indications of 1-20% of the information usefulness of individual parts of the financial statements are dominant (in 100% scale). The profit & loss account (16% of responses) and the balance sheet (12% of responses) are still very useful (usability at the level of 91-100%). It is important to highlight the result that investors considered the information on CSR as lowest informative usefulness. As many as 21% of respondents found them completely useless (0% useful) and 43% as very unhelpful (1-10% information usefulness).

The research results presented above, clearly indicate the need to conduct continuous, broad research in the field of investing in the capital market, while taking into account environmental protection criteria.

Also it cannot be overlooked that Corporate Social Responsibility and natural environment protection, although increasingly more popular in everyday business activity, are also to some extent controversial issues. Among those issues are not only some minor

doubts but serious and robust critical voices. In many cases this criticism is considerably well-founded and challenges both areas of CSR concept functioning as theoretical and practical. In both above-mentioned areas of CSR concept including ecology, criticism concerns the following aspects:

- A) real motives of CSR principles implementation;
- B) scale of CSR activities;
- C) way of putting CSR principles into practice and
- D) effectiveness of CSR activities (Dziawgo, 2014).

## DATA AND METHODOLOGY

The following research methods were applied in the study: the analysis of the literature of the subject, analysis of legal acts, analysis of reports of banks, listed companies and investment funds and desk research, as well as questionnaire methods.

While writing this article, the results of external research and own research were used. External studies concerned a representative sample of Polish society. On the other hand, own research was carried out on a representative sample of Polish society and a targeted sample of individual investors. The indicated own research was carried out in 2020. The PS IMAGO PRO software was used for data analysis.

The survey on representative sample was conducted by a professional opinion polling entity, in July and August of 2020. The omnibus survey was conducted using CATI (Computer-Assisted Telephone Interviewing) methods on a representative sample of 1030 people, including variables such as gender, age, education, and place of residence.

The survey on individual investors was conducted on the basis of the author's project and requested by Polish Individual Investors Association on the sample of 306 individual investors between December 2019 - January 2020. A research tool in the form of an electronic questionnaire posted on the association's website was used.

As mentioned above, it should be noted that transactions made by individual investors account for approx. 25% of overall transactions made on the Warsaw Stock Exchange (WSE) – therefore this group has to be considered as essential in terms of liquidity ([www.gpw.pl](http://www.gpw.pl)).

## ENVIRONMENTAL ASPECT IN THE FUNCTIONING OF THE STOCK MARKET

The ecological evolution on the international financial market has been going on for decades. Ecological social pressure has a growing impact on the economy,

finance and capital markets, including, as mentioned, the stock market. Positive ecological changes are already common in banking, insurance, investment funds and other financial institutions.

As a result, social responsibility indices of listed companies were created on the international stock market. Dow Jones Sustainability Index listed on the New York Stock Exchange and FTES4Good listed on the London Stock Exchange are among the pioneering ones. These indices have been used for approx. ten years and have several varieties, however the overall ecological direction of the modern economy development was indicated. There are many similar indices internationally.

The activity of financial institutions and listed companies in the field of environmental protection concerns:

- A) activities for the protection of the environment,
- B) informing about the above-mentioned activities.

These are both actions resulting from legal regulations, and accordingly obligatory, as well as voluntary actions. Therefore, in terms of activity related to environmental protection, the following levels can be indicated:

- a) compliance with environmental protection regulations;
- b) applying the principles of own eco-economy - saving natural resources (heating, electricity, paper, carbon footprint in business trips);
- c) offering financial products and services related to environmental protection.

Moreover, data on activities for the protection of the natural environment are provided by companies and are, to increasingly greater extent, based on the GRI standard.

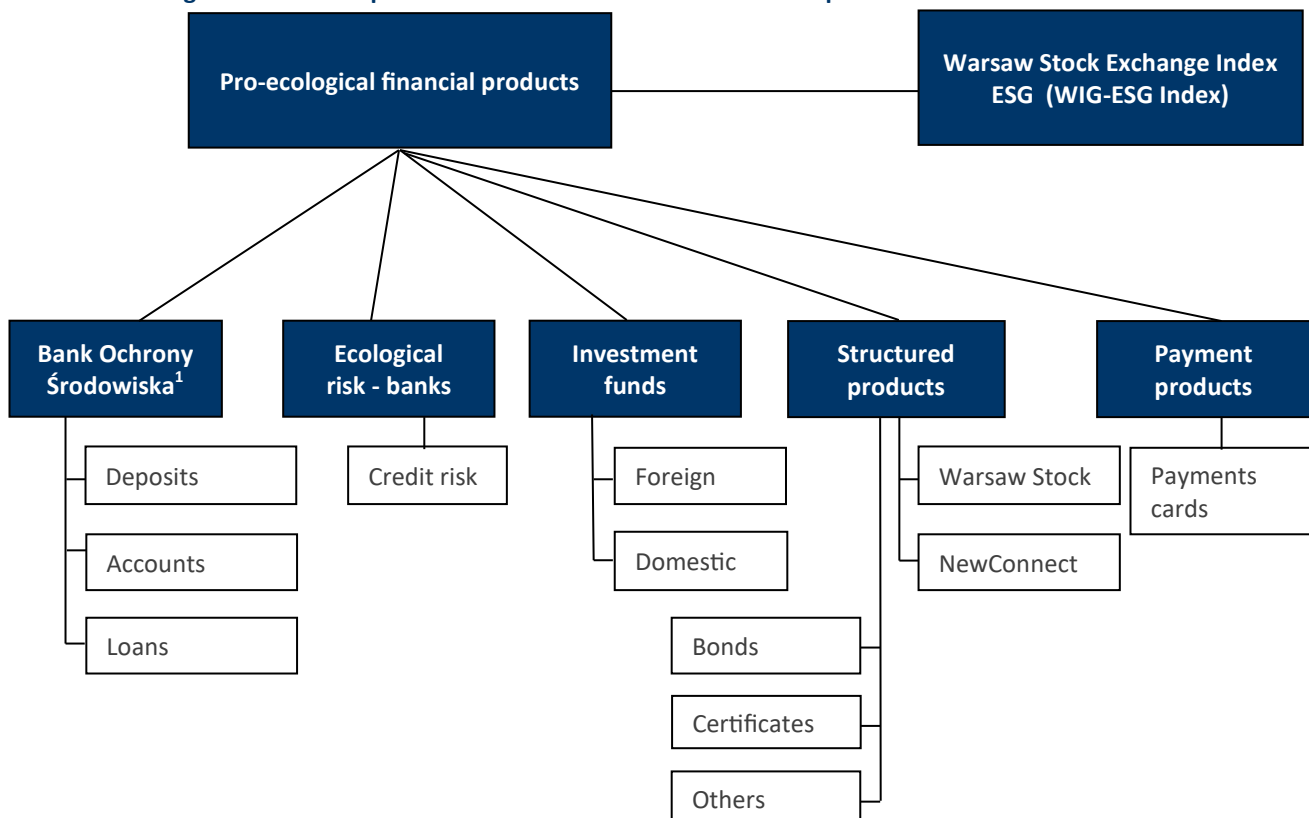
Significant progress is an effect of environmental changes on the financial market, including the stock market. Not only recognized financial institutions and listed companies take into account the requirements of environmental protection and implement them into modern operating principles. Specialized stock market entities have been operating for years. They only finance entities that support environmental protection in their economic activity. German market can serve as an example - already several hundreds of foreign and German investment funds has clearly declared the use of environmental criteria in the investment process (Oeko-Invest, 2022). It is important to highlight "Green Bonds" market, through which funds for investments related to environmental protection are raised. These instruments are becoming increasingly more popular.

## ENVIRONMENTAL ASPECT ON POLISH STOCK MARKET

The Polish financial market, including the stock market, is also undergoing environmental evolution. Similarly to developed financial markets, the operating principles in compliance with environmental protection are being implemented. Environmental aspects also

apply to financial transactions. On the market, there are ecological investment funds, listed companies - leaders in environmental protection, as well as Bank Ochrony Środowiska (public listed company) - specializing in financing ecological projects. In banking, environmental risk is commonly included in credit risk. In addition, environmental motives are also used in the case of payment cards (Fig. 1).

Figure 1: Financial products related to natural environment protection. Poland 2008-2022



Source: Own elaboration based on Dziawgo, 2014.

It is important to note that an index that includes Corporate Social Responsibility of listed companies was introduced on the Polish stock market. In 2009, it was the RESPECT Index - covering over a dozen listed companies. Respect is an acronym for Responsibility - Ecology - Sustainability - Participation - Environment - Community - Transparency. In 2019, the RESPECT Index was replaced by the Warsaw Stock Exchange ESG Index (Environment - Social - Governance), and the number of companies included in this index significantly increased to several dozen ([www.gpw.pl](http://www.gpw.pl)). This is certainly a progress in the recognition of CSR in the Polish economy, but research should also be carried out with caution towards companies included in this index.

It should also be emphasized that the activity of leading listed companies for environmental protection is reported in accordance with the international GRI - Global Reporting Initiative standards. An example of such involvement in the field of ESG is Bank Millennium, which shares are included in the ESG-Index ([www.bankmillennium.pl](http://www.bankmillennium.pl); <https://gpwbenchmark.pl>).

Moreover, another sign of the ecological evolution on the Polish capital market are the so-called "Green Bonds". It is not an equity market, but it confirms the transformation towards CSR-compliant investing. These are both government issues as well as financial institutions and listed companies issues (Laskowska, 2019).

<sup>1</sup>The Bank's own name does not have an English, formal translation.

## SOCIAL ATTITUDES TOWARDS ENVIRONMENTAL PROTECTION – EXTERNAL RESEARCH

Individual stock investors are a part of society. Therefore, before presenting the attitudes of individual investors towards environmental protection in investing in the stock market, it is necessary to get acquainted with the attitudes of the society in this respect. For many years, research results have shown that environmental protection has a significant importance for society. Below, as an example, the results of the latest research by renowned public opinion research institutions PBS and CBOS are presented.

In October 2020, a study was carried out on a representative sample of the society (sample of 1015 respondents) on the topic: "Researching the awareness and ecological behavior of the inhabitants of Poland".

The research was financed by the National Fund for Environmental Protection and Water Management, and carried out by PBS. The issue of environmental protection was considered most often - as many as 52% of respondents perceive the importance of environmental protection. However, in analytical terms, broken down into individual issues related to environmental protection, the following have been specified:

- a) 59% air quality,
- b) 50% waste management,
- c) 34% protection of water quality ([www.gov.pl/web/klimat/badania-swiadomosci-ekologiczne](http://www.gov.pl/web/klimat/badania-swiadomosci-ekologiczne)).

Moreover, in Table 1, the results of research carried out by CBOS, also on the public opinion on environmental protection, on a representative sample (1004 respondents) was presented.

**Table 1: Public opinion on the issue of environmental protection 2020**

Specification	To what extent is the state of the natural environment on Earth, throughout the world, cause of your fear and anxiety?	To what extent is the state of the natural environment in our country cause for your fear and anxiety?
Very significant or significant	70	53
Not significant	18	35
None	4	7
Difficult to say	8	5

Source: *Ekologia i energetyka w działaniach i opiniach. (2021). Opinie i Diagnozy 47, Warsaw: CBOS.*

It should be noted that in the CBOS research in 2018, the following answers were given to the first question indicated in Table 1: 79% and 68%. It can be assumed that Covid-19 crisis had an impact on the attitudes of respondents with regard to the priorities in functioning of the society.

There are numerous results of research regarding public opinion on environmental protection. The results of research on representative samples of Polish society are presented above. There is no doubt that environmental protection is of interest to society, although the level of this interest should be significantly higher. It is certainly another research challenge, along with taking into account environmental, social and economic issues.

## ATTITUDES TOWARDS ENVIRONMENTAL PROTECTION-OWN RESEARCH

### REPRESENTATIVE SAMPLE VS. INDIVIDUAL INVESTORS SAMPLE

The next stage of the research concerned the comparison of a representative sample of Polish society with the targeted sample of individual investors. Common social attitudes towards environmental protection can be considered as the basis for the behavior of individual investors. The results of three questions (Tables 2-4), which were identical for both groups, are presented below (Dziawgo, 2021).

**Table 2: Range of answers to the question: Have you heard of Corporate Social Responsibility (CSR)?**

Specification	Representative sample	Individual investors sample
Yes	48%	86%
No	52%	14%

Source: Own surveys.

Differences in answers in both groups are significant. They may result from different interest of both groups in the field of economy and environmental pro-

tection. Another point is that the concept of CSR may be ineffectively promoted across society.

**Table 3: Range of answers to the question: What is your opinion on the involvement of banks, financial institutions or listed companies in environmental protection? [Multiple choice]**

Specification	Representative sample	Individual investors sample
Needed	43%	48%
Not needed	3%	8%
Reliable	11%	8%
Non-reliable	10%	22%
Serious	12%	8%
Superficial	18%	35%
Notable	14%	14%
To show off	15%	48%
Difficult to say	14%	10%

Source: Own surveys.

While analysing results, it should be stated that nearly half of the respondents in both samples confirm the need for environmental protection measures in financial institutions and listed companies. Such indications can be assessed moderately positively, as perhaps it could have been assumed the score to be higher. On the other hand, the significant differences between

both samples concern the issues of: non-reliable, superficial and to show off. The distrust of individual investors regarding the ecological activity of financial institutions of listed companies is definitely more clear compared to the representative sample. Perhaps the experience of investing in the stock market would explain such distrust.

**Table 4: Range of answers to the question: Indicate the most important activities that you expect from the financial market in the field of environmental protection**

Specification	Representative sample	Individual investors sample
Waste segregation	68.8%	17.9%
Reducing use of paper	52.3%	17.6%
Reducing energy usage	69.9%	12.7%
Offering financial products with an embedded environmental component	31.0%	68.3%
Sponsoring environmental events	26.7%	9.8%
Other	0.4%	18.6%
Difficult to say	4.5%	26.4%
It does not matter to me	1.9%	7.8%

Source: Own surveys.

When analysing the results of both respondent groups (representative and individual investors), significant differences can be found again. Among the respondents of the representative sample, the most important activities of financial market institutions in the field of environmental protection were: reduction of energy usage, waste segregation, reduction of use of paper. Then, it was indicated to offer financial products with an embedded environmental component and sponsorship of ecological activities.

On the other hand, in the sample of individual investors, offering financial products with an embedded environmental component was selected most often. It can be argued that experience in investing in the capital market influences such responses that are specific to financial issues. In this group, the following indica-

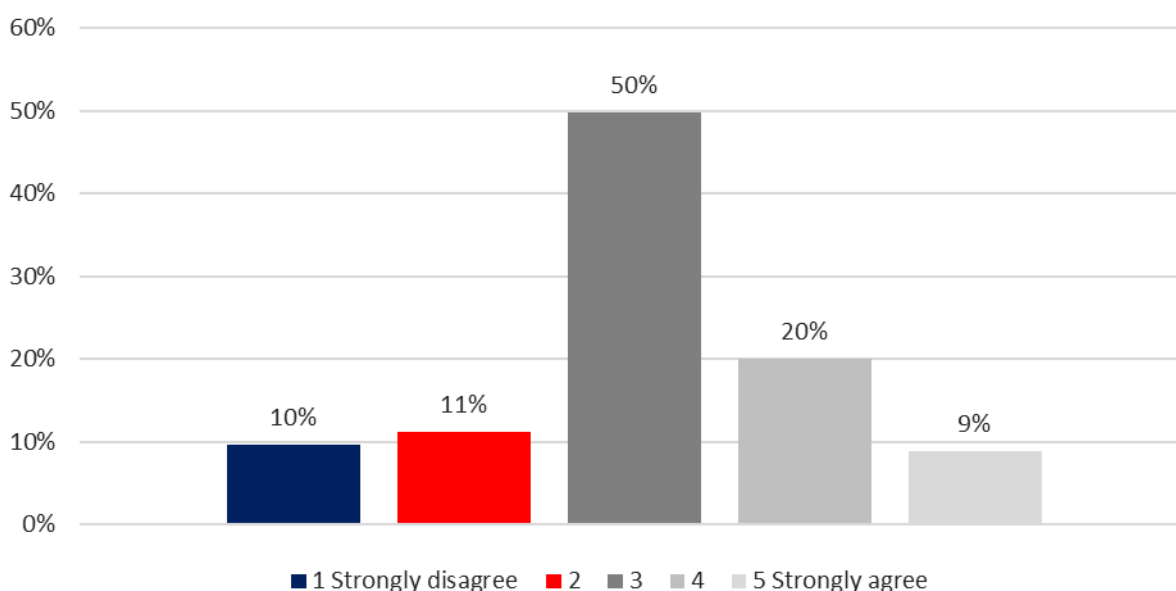
tions are also noticeable: it is difficult to say and other actions. Selecting segregating waste and reduction of use of paper should also be appreciated.

Summarizing the research on the representative sample and the targeted sample of individual stock exchange investors, the significant differences of views presented above should be emphasized. On the other hand, similar opinions on the commitment to environmental protection by financial institutions and listed companies should be considered positive (Table 3).

#### RESEARCH ON INDIVIDUAL INVESTORS SAMPLE

In the next step of the own research, additional questions concerning the issue of environmental protection on the stock market with regard to the sample of individual investors were formulated (Charts 1-3).

**Chart 1: Range of answers to the question: Do you agree that RESPECT-Index and similar indices are a useful tool for Socially Responsible Investment?**



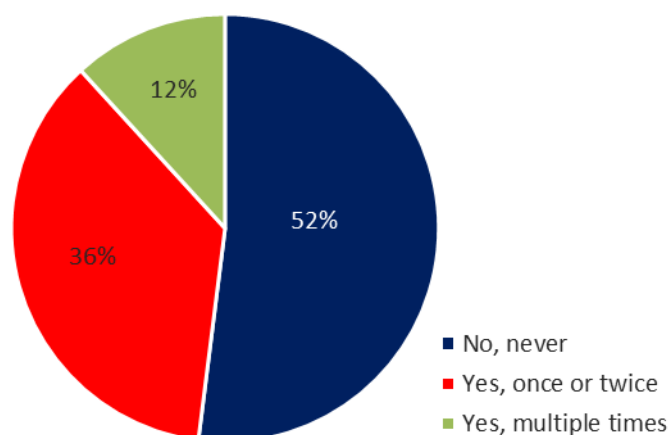
Source: Own surveys.

The research results do not confirm the universal usefulness of CSR indices in socially responsible investing on the Polish capital market. Just over 29% of the respondents expressed a positive opinion about this type of index. Most of the respondents are either against or indifferent.

The obtained results do not allow for an optimistic assessment of the environmental attitudes of individual investors. More than half of the respondents do not take into account the unethical and non-ecological attitudes of issuers.

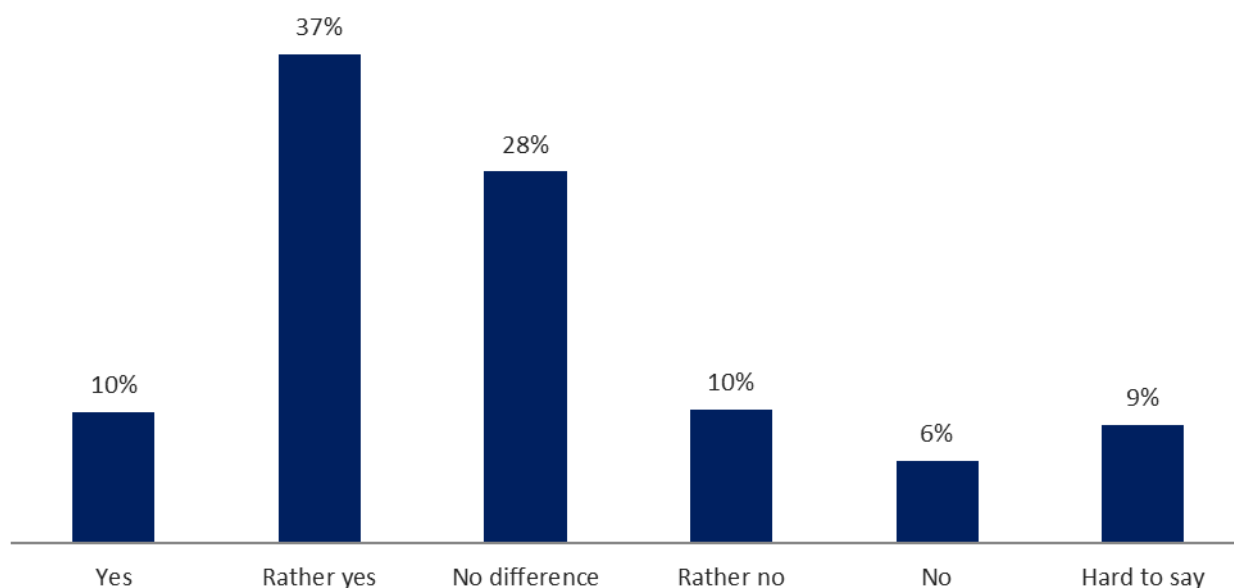


**Chart 2: Range of answers to the question: Have you ever given up an investment due to unethical / non-ecological practices of issuers?**



Source: Own surveys.

**Chart 3: Range of answers to the question: Does the issuer's compliance to CSR have a positive impact on your investment decisions?**



Source: Own surveys.

These results are also not optimistic. Although almost 47% of respondents confirm that the use of CSR principles by issuers is important for them in the investment process, only 10% indicate such an argument without hesitation. Most of the remaining respondents do not show environmental activity in the investment process.

Considering the results of answers on additional questions that were addressed to individual investors, it should be stated that environmental aspects of investing in the capital market are not perceived by them as important.

## CONCLUSIONS

It should be noted that the results should be treated with scientific caution. There is certainly an awareness regarding the importance of environmental protection measures both in the Polish society and among individual investors on the WSE. However, this is not yet a satisfactory level. The activity of the financial sector and listed companies for the protection of the natural environment is treated with great distrust by both groups of respondents. There are also significant differences in the assessment of the ecological activity of listed companies. Comparing the answers of both

The activity of the financial sector and listed companies for the protection of the natural environment is treated with great distrust by both groups of respondents. There are also significant differences in the assessment of the ecological activity of listed companies. Comparing the answers of both groups of respondents and additional questions, it should be stated that individual investors have much greater doubts regarding the environmental aspects of the capital market. It can be considered as important since these respondents actually invest in the capital market.

Therefore the hypothesis "environmental aspects are an important factor in making investment decisions by individual investors on the Polish capital market" has not been verified positively. Of course, the results cannot be generalized to the entire population of individual investors. However, it should be emphasized that active individual investors are involved in the Association of Individual Investors.

Unfortunately, moreover, no improvement in the environmental situation is to be expected. The reasons are: the economic crisis, energy crisis, currency crisis, high inflation, Covid-19 and the war in Ukraine.

Both society and the economy will have to face these challenges. Environmental protection is likely to

become less important. The first symptoms of such attitudes are already clear.

A separate issue is the "European Green Deal" and Polish Green Deal related to it. These projects are too radical, too expensive and have too short deadline (2050). They will raise the cost of citizens' everyday life. It can therefore be expected that this will cause growing social aversion towards environmental protection.

Considering the data presented in the article, three conclusions can be formulated:

- 1) social attitudes and costs in the process of ecological transformation of society and economy must not be underestimated;
- 2) the effects of the above-mentioned crisis risk factors should be mitigated as much as possible in order to maintain public support for environmental protection;
- 3) the promotion of environmental protection should be continued.

This study may be useful in further research on the causes and effects of the attitudes of society and individual investors towards environmental protection in the modern economy. It can be considered that research to a similar extent should be continued in the following years.

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