

GREEN INVESTMENTS AS A WAY TO SUPPORT SUSTAINABLE DEVELOPMENT OR TO EARN?

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Purpose: This paper is aimed at analyzing development trends of green investments and identifying determinants of increased interest in investments related to sustainable development.

Design / methodology / approach: In this paper, an attempt was made to answer the following question: how are green investments identified and what the drivers behind the investors' selection of investment in sustainable products are? The following research methods were employed: literature review, secondary source analysis and deductive reasoning.

Findings: The green investment market has been developing dynamically and exponentially. At present, the European market is the most active one. When investing in sustainable entities' instruments, investors consider information concerning fund allocation directions. 72% of respondents verify if investment strategies related to their funds are consistent with the sustainable development goals. Moreover, they equate them with satisfactory profits. 60% of survey respondents earned profits on green investments more than on investments in products not connected with ESG.

Social implications: This article presents the essence and benefits of green investments. Increased social awareness allows to understand and identify products to which the investors may allocate their funds to ensure harmony with eco-friendly, pro-social, and ethical attitudes and values.

Originality / value: This paper has cognitive values as it extends the existing knowledge with the aspect of green investment identification and the drivers behind the choice of that investment direction by investors.

Keywords: green investments, investors, ESG funds.

Category of the paper: conceptual paper.

1. Introduction

Environmental protection and sustainable development are ones of the most important challenges today. Slowing down climate changes and their effects has become a priority for politicians, scientists and the entire society. The Paris Agreement, or the United Nations

Framework Convention on Climate Change, selected as its major objective reduction of the global temperature rise by the end of this century below two degrees Celsius when compared to the level before the industrial era and effort to keep temperature rise below 1.5 degrees (https://unfccc.int/sites/default/files/english_paris_agreement.pdf). However, those activities require much investment. Consequently, an important task for financial systems emerged, relating to the transformation of cash flows from investors towards the sustainable development. This transformation takes place using financial instruments within the so-called green (sustainable) investments.

For five years, there has been noticeably increased interest in green investments. Sustainable instruments have no longer been a niche market, but have become a more and more attractive fund allocation target. According to the report published by PwC in 2022, the value of ESG funds reached USD 18.4 tn, i.e. 14.4% of all assets. It is expected that the upward trend will be maintained and that the ESG share in the total funds will reach 21.5% in 2026 (Exponential Expectations for ESG, 2022).

As the knowledge of climate threats grows, more and more investors become aware of their investments' impact on the environment and the society. Moreover, there is a growing group of investors who perceive long-term benefits of investment in business entities which consider sustainable development to be a priority in their strategy. Such an approach is good not only for the environment and the society, but also may result in high financial profits long-term.

The objective of this paper to analyze development trends of green investments and identify determinants of increased interest in investments related to sustainable development. Consequently, in this paper, an attempt was made to answer the following question: how are green investments identified and what the drivers behind the investors' selection of investment in sustainable products are?

The following research methods were employed: literature review, secondary source analysis (Exponential Expectations for ESG, Asset and Wealth Potential Management, PWC Report, 2022) and deductive reasoning.

2. Sustainable development essence

It is not easy to define sustainable investments. Reference works do not offer any clear definition of that term. The difficulty of defining green investments results from the ambiguity of their constituents. Neither the term "investments", nor "green" have clear definitions.

The investments are most often defined as involvement of money or capital into an enterprise (business, project, real property etc.) with an expectation to earn extra income or profit. The term "green" is a bit more complex. In the most general terms, this is associated with activities aimed at minimizing adverse climate changes. However, in practice and science,

green investments may be a subset of a broader area which is why they are also termed as follows:

- ESG investments (aimed at environmental, social and governance-related goals);
- SRI investments (socially responsible investments or sustainable investments);
- environmentally-friendly investments (eco-friendly ones);
- investments in the so-called green sectors, including water, agriculture etc.

The definitions of “greenness” may refer to *ex ante* activities (e.g. any enterprises related to sustainable energy, energy efficiency or water management) or *ex post* activities, based most often on specific outcomes of eco-friendly activities. Moreover, there are some qualitative and quantitative definitions which attempt to measure different “greenness” levels. The latter require an index or measure concerning e.g. greenhouse gas emissions, energy efficiency, recycling and waste management.

Table 1.

Green fund definition examples

Author	Green investment definition
Eyraud et al., 2013	investments required to reduce greenhouse gas emissions and air pollution with no significant reduction of production and consumption of non-energy goods
Utz, 2015	eco-friendly investments referring to social investments aimed to improve the natural environment condition
Escrig-Olmedo, Rivera-Lirio, Munoz-Torres, 2017	environmental, social, and governance investing, responsible investments, and socially responsible investments
Yen, 2018	investments aimed primarily at contributing to the improved environment
Du, H.S. et al., 2019	environmental investments referring to social investments aimed to improve the environment condition

Source: own compilation based on Eyraud et al., 2013; Utz, 2015; Escrig-Olmedo et al., 2017; Yen, 2018; Du, H.S. et al., 2019.

The analysis of the green fund definition presented in Table 1 reveals that although they differ, they share the same investment goal, i.e. the favorable impact on the environmental protection and sustainable development promotion.

The terminological problems relating to green investments result in difficulties identifying instrument connected with the environmental protection and sustainable development. This is why financial institutions and some regulatory bodies have developed solutions which help them define green investments. They use the term “green” when the investment meets specific criteria. Generally speaking, there are three criteria most often used to classify instruments as eco-friendly: negative screening, best in class and impact investment. Due to the absence of generally applicable regulations, the applicability of criteria and approach differs slightly depending on the business entity (Inderst et al., 2021).

The first criterion used to identify green investments is negative screening. Those criteria are identifiable determinants used to eliminate selected sectors, companies or states from the so-called sustainable investment directions. The negative screening is most often based on standards. Those criteria eliminate entities which do not follow international treaties,

i.e. violating human rights, regulations prohibiting child labor, concerning production and supply of controversial weapons (included e.g. in the Convention on Cluster Munitions, Chemical Weapons Convention). They may also refer to negative screening based on values. They cover institutions that derive more than 5% of their revenue from conventional weapons and firearms, tobacco production, gambling, or adult entertainment. Furthermore, companies that derive more than 20% of their revenue from tobacco distribution or conventional weapons support systems and services will be excluded. In addition, a revenue limit of 20% is usually applied to investments in coal (coal mining and coal-based electricity generation), a revenue limit of 5% in arctic oil and gas as well as a revenue limit of 10% in oil sands (CSSP and Southpole, 2016).

Another criterion of considering investments green is the “best in class approach”. This approach entails identification of instruments characterized with the highest ESG standards in the sector or industry. Relating to investment in entities’ securities, this criterion enables to isolate the entities whose strategies and ongoing decisions consider environmental, social, and governance aspects. The notion of “best in class” is connected with the belief that companies with robust ESG practices stand better chance of achieving long-term financial success and stability when compared to those with less robust ones (Zhang, Yousaf, 2020; Wang et al., 2018). Their level may shape the ability to finance new investments from funds provided by investors for whom the sustainable development policy is important. However, any activities non-compliant with the ESG idea, including workplace discrimination, emission of environmentally harmful gases or funding political campaigns may compromise the company reputation in the stakeholders’ eyes. In this way, environmental marking ensures certain confidence relating to the wallet and funded projects.

For investors, adoption of the “best in class approach” is related to prioritizing their investments, i.e. sustainable development goals and social responsibility, striving to obtain financial profits at the same time. This allows to adapt the investment wallet to their own values and preferences. When selecting instruments, investors often use ESG evaluations and rankings provided by such organizations as MSCI, Sustainalytics and S&P Global.

Impact investing is a green investment type referring to investing in business entities which work towards generating measurable, positive social and environmental impact with the suitable rate of return. Generally speaking, this refers to companies, organizations and funds which solve important problems, including poverty, climate changes and access to healthcare. As impact investing is quite difficult to achieve through simply selecting publicly listed companies, impact investing strategies are usually closely tied to private equity-, infrastructure- or venture capital funds. Examples of sectors where entities are benefiting from impact investing are renewable energy, clean technologies. Investing in companies working to reduce dependence on fossil fuels and increase the use of renewable energy sources may help minimize the risk of climate changes (Costa, 2021).

To sum up, despite the absence of unequivocal definitions of green investments, you can find a common denominator shared by all of them. This is spending funds towards sustainable development (Han et al., 2020). In this paper, a broad approach to the definition is adopted, considering that the “green” investments are the environmental, social and corporate governance-related ones (ESG) (Utz, 2015; Escrig-Olmedo et al., 2017).

The green investment definition specifies drivers prompting investors to select those instruments. The first driver is the objective relating to funding activities connected with environmental protection and sustainable development promotion. In recent years, the increased awareness and concerns concerning climate changes and their potential impact on economic and social welfare result in growing interest in sustainable funds. Eco-friendly and socially responsible investors want to participate in funding enterprises reducing and/or slowing down adverse effects of climate changes (Dutta et al., 2020). By allocating their funds to assets marked sustainable, they intend to support business entities in the so-called green transformation. Funding environmentally friendly investments, including e.g. reduced carbon dioxide emission, green energy and green technology, requires high expenditure and their rate of return is long-term. However, the funds flow through green instruments from investors to entities requiring capital to fund such activities. This means that green investments which are a key factor of business entities’ sustainable development attract trust of investors who want to support enterprises in line with environmental ethics (Chen, Ma, 2021; Eyraud et al., 2013, Mangla et al., 2014; Zhu et al., 2016).

Green investments are a way to earn as well. This is consistent with the concept of investments in finance which are considered a way to allocate in order to generate profit. Hence, investments in projects and business models relating to environment protection and sustainable development are more and more often perceived as an opportunity to earn income in line with one’s eco-friendly, pro-social and ethical values. It is disputable, however, if investment in financial instruments which are climate- and society-friendly entails lower effectiveness (rate of return).

3. Research methodology

A review of the literature to date indicates that studies treating green investment as physical investment dominate. These studies analyze them in the context of foreign direct investment, financial development, and green technology innovation (Kharb et al., 2024; Wang, Yu, Zhang, 2025; Liu, Fang, 2024; Casciello et al., 2024; Zhang, Sun, 2024). Another category of research that has been undertaken in quite large numbers is the treatment of investment as the placement of money in financial instruments. In this regard, research focuses on analyses of financial instrument prices in the context of climate risk (Dutta et al., 2023), volatility of financial

instrument prices (Doğan, et al., 2025), impact on stock market development (Bouteska et al., 2025), among others. These analyses use secondary data from the securities price market and are based on the use of quantitative methods. The same type of methods are also used in bibliometric studies (Mudalige, 2023). Few studies address the issue of green investments from the point of view of investors, specifically analyzing the benefits in green ventures. These are studies using statistical analyses of listed companies' data (Morgan Stanley, 2019; CSSP& Southpole, 2016). According to what we were able to find, there are no studies referring to the problem of sustainable investments from the side of investors using primary data.

Therefore, the aim of this article was to analyze the development trends of green investments and identify the determinants of the growth of interest in sustainability-related investments using survey data. For this purpose, data from the PWC Report: Exponential expectations for ESG was used. This report was produced in 2022 as the result of a global survey of 250 institutional investors and 250 asset managers, representing nearly half of global assets under management (AuM). The value of this data is that it is international in nature and was obtained through a questionnaire, so it was primary data.

The following research methodology was adopted in this study. Literature review allowed to learn the key theoretical problems and present the essence of topics related to green investments. In this paper, a cause and effect analysis was used to present the determinants of the ESG instrument market development from the investors' perspective and a logical analysis consisting in the search for logical relations between the causes and effects of those changes. Moreover, based on data in PWC Report, an analysis was carried out of statistical data concerning the green investment development and drivers encouraging investors to select that financial instrument type.

4. Analysis of the development and determinants of green investment instruments — study results

The analysis concerning green investment development reveals that they grow dynamically. According to data presented in figure 1, ESG-oriented funds increase much faster than the market as a whole. The global value of ESG funds grew from USD 2,2 tn in 2015 to USD 18.4 tn in 2021. Their value is expected to reach USD 33.9 tn in 2026. To compare, the total value of AuM in 2015 was USD 76.3 tn, in 2021 USD 127.5 tn, and in 2026 it is anticipated to reach USD 157.2 tn.

The share of ESG assets in total assets grew from 2.9% in 2015 to 14.4% in 2021. It is anticipated that it will have grown to 21.5% of all AuM (Assets under Management) by 2026. The percentage growth expressed by CAGR (compound annual growth rate) in 2015-2021 reached 8,9% for AuM, and in 2021-2026, it is forecast to reach 4.3%. However, for ESG, it reached 42.7% and is forecast to grow by 12.9% respectively.

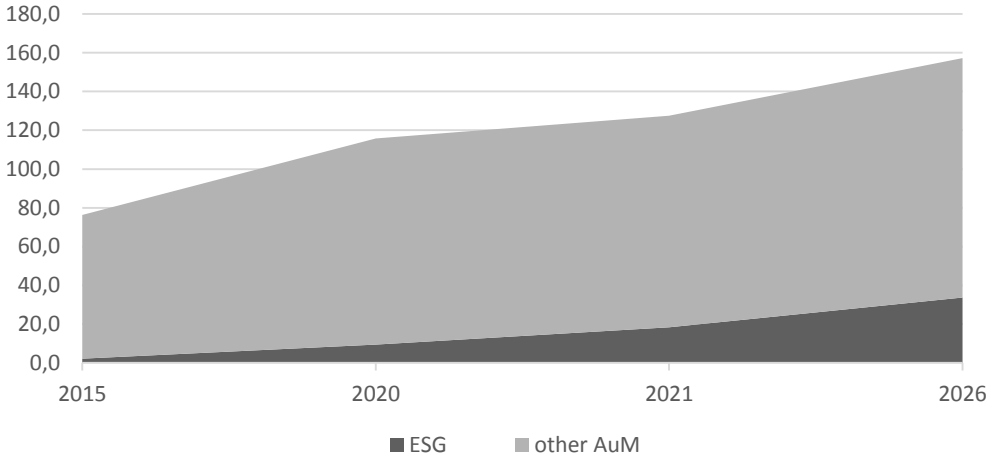


Figure 1. Growth dynamics of ESG and other AuM funds.

Source: own compilation based on PWC Global ESG and AWM Market Research Centre analyses, ESG Global 2022.

When it comes to geographical distribution, the most important market for global ESG as assets under management is the European one. In 2020, it held 50% of all ESG funds, with as much as 70% in 2021. This is interesting as the largest market for total AuM funds is U.S. (67 trillion USD).

According to studies, the ESG instrument market will also grow dynamically outside Europe. 81% of institutional investors in U.S. plan to increase their allocations to ESG products in two years which is forecast to increase their share to 31% in 2026 (North America). Other regions of the world also plan green investment development. Asia and Pacific are expected to increase their share to 10%. However, the green investment share in Middle America and Middle East and Africa will grow to 1% of the global ESG market.

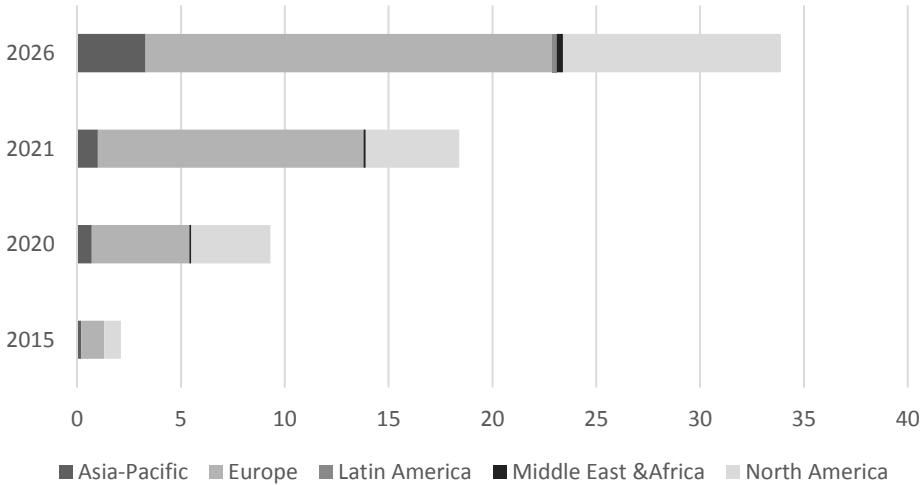


Figure 2. ESG funds by geographical distribution.

Source: own compilation based on PWC Global ESG and AWM Market Research Centre analyses, ESG Global 2022.

Trying to find an answer to the question concerning the drivers behind the dynamic development of ESG funds, we look at the study results which indicate that nine out of ten respondents managing assets believe that the inclusion of ESG in their investment strategy will improve overall profits. Moreover, most institutional investors (60%) declare that ESG investments have already brought them higher profits than their non-ESG counterparts (figure 3). However, just 14.4% of respondents claim that green investments contributed to lower profits when compared to non-ESG investments.

■ net positive ■ similar ■ net negative

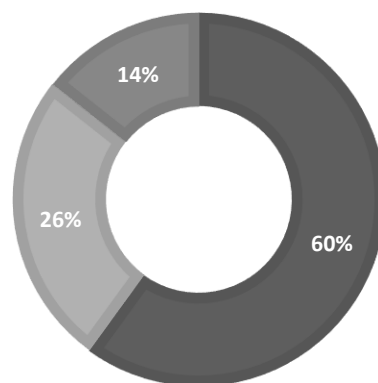
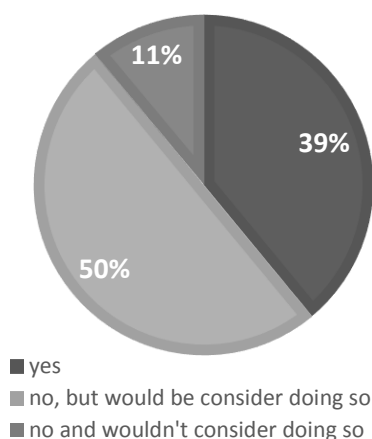


Figure 3. Yields on ESG products in comparison to their non-ESG equivalents.

Source: own compilation based on PWC Global ESG and AWM Market Research Centre analyses, ESG Global 2022.

ESG INVESTMENTS STRATEGIES



CORPORATE ESG EFFORTS

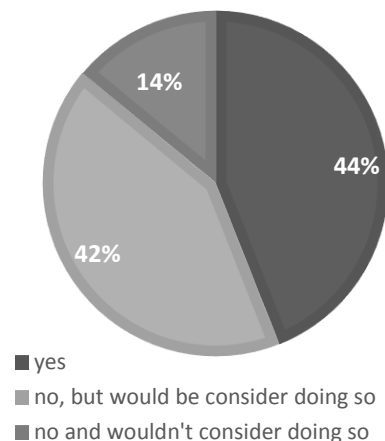


Figure 4. Would investors refuse to cooperate with the asset manager due to shortcoming in their ESG investments strategies or ESG investments?

Source: own compilation based on PWC Global ESG and AWM Market Research Centre analyses, ESG Global 2022.

When we analyze the objectives which the green investment funds are spent on, the studies indicate that more than seven out of ten institutional investors (72%) verify ESG investment strategy of asset managers. However, when answering the question whether investors would

refuse to cooperate with the asset manager due to shortcoming in their ESG investment strategies, 39% has already refused or stopped, and 50% said “no, but would be consider doing so” (figure 4). When asked about the refusal to cooperate or stopping cooperation due to shortcoming in their corporate ESG efforts, 44% said that they have already done that and 42% said “no, but would consider doing so”.

Therefore, considering the sustainable development goals is an important determinant for investors. As more and more entities are interested in green investments, the priority for asset managers (76%) is the opportunity to transform the existing products to make it possible to mark them as ESG-oriented. The conversion may refer to compliance with the Sustainable Finance Disclosure Regulation (SFDR), Article 8 and 9 ED or the actual alignment with the stakeholders’ expectations in other areas. However, transformation entails extra costs. 78% of responding investors indicated that they are willing to pay more for ESG funds. 57% would accept payment increase by 0.2 to 0.4%. The studies reveal also that investors would accept ESG inclusion in performance-related fees. More than one half (52%) of investors would be willing to link remuneration with ESG performance. Two third (67%) of them would accept ESG premium of 3% to 5%, and 25% a premium lower than 3%. Only few (8%) of them would be willing to pay 5% and more which are charged by some asset managers.

5. Discussion and conclusions

According to the presented survey results, the green investment market has been developing dynamically and exponentially. At present, the European market is the most active one. It is forecast that the increased activity of ESG funds in subsequent years will be more and more noticeable in the United States and Asia-Pacific.

A characteristic feature of green investments is their objective, i.e. funding activities relating to sustainable development. The surveys show that when investing in sustainable entities’ instruments, investors consider information concerning fund allocation directions. According to the results, close to 90% of respondents have already rejected or would reject cooperation with the asset manager due to shortcoming in their ESG investments strategies or ESG investments. The results are consistent with earlier publications which claimed that one fourth of people born in 1981–1996 perceive sustainable investing as the most important factor when selecting investment products (https://www.ey.com/en_gl/sustainability-financial-services). Promoting sustainable development and eco-friendly activities brings about changes in investors’ decisions as more and more people choose eco-friendly instruments and not traditional ones (Xing, Xia, Guo, 2019).

When choosing to invest in ESG, investors are led by the willingness to earn. The major property of all investments is the aim to obtain a satisfactory rate of return. According to the presented results, 60% of survey respondents earned profits on green investments more than on investments in products not connected with ESG. Moreover, most respondents identify their future investments in ESG instruments with higher profits. This indicates a growing interest of investors in green products because of economic results. This is further confirmed by data showing that investors are even willing to pay higher premiums. This is a new trend as earlier studies indicated ambiguous approach to ESG instrument profitability. According to the studies by the Federal Office for the Environment (FOEN), investment in environmentally-friendly financial instruments did not bring any inferior profits. On the contrary, at least one half of respondents declared that they were higher (CSSP & Southpole, 2016). Other analyses (Morgan Stanley, 2019) indicated that the profits from the so-called green investments do not differ significantly from the traditional ones but they are exposed to fewer fluctuations than the instruments valued based on the prices of crude oil or other fossil fuels (Rydzewska, 2023). Recent studies indicate that the impact of climate risk is positive on the returns of green energy assets, but negative on their volatility (Dutta et al., 2023).

To sum up, from the investors' perspective, investments in projects and business models relating to climate protection and sustainable development are becoming more and more attractive investment direction. They are considered an earning opportunity compliant with ethical rules and standards.

It should be stressed, however, that there are some obstacles to the green investments despite their growing popularity. Complex and discrepant regulations concerning the product classification as ESG hamper green instrument identification. The need for reliable, transparent data presented in reports by entities identifying themselves with activities towards sustainable development is also mentioned more and more often. Due to the growing demand for ESG investment products, investors complain about difficulties finding attractive and relevant investment opportunities. They claim that assets managers should be more proactive when developing new ESG products.

The considerations conducted in the paper and the conclusions formulated:

- contribute to the development of theory on instruments supporting climate protection actions, including but not limited to financial instruments included in the so-called green investments,
- in the management aspect, they indicate the need to improve the processes related to the development of legal frameworks, education and development of financial instruments for activities related to sustainable development,
- from the social point of view, they indicate the need for further support for activities, including those of a financial nature, in the field of pro-ecological activity, due to their social importance.

A limitation of this paper is the use of secondary data which reduce the statistical data analysis opportunities to the ones presented in the report. They include information on ESG funds without identifying individual products and their benefits. They fail to present sectors where the green instruments are used most often.

It should be emphasized, however, that the green fund notion is a developing topic both in the theoretical and in the practical aspect. The paper may therefore serve as a basis for further analysis relating to the development of instruments used to finance pro-ecological and pro-community investments.

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