

ADAPTING BUSINESSES FOR A SUSTAINABLE FUTURE – INTEGRATING ESG CRITERIA AND DIGITALIZING FINANCIAL FLOWS

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Abstract: This paper investigates the incorporation of Environmental, Social, and Governance (ESG) criteria into business practices alongside the digitalization of financial flows as essential strategies for achieving sustainable development. The study delves into the motivations driving ESG adoption, such as regulatory mandates,

stakeholder demands, and emerging market opportunities. It further examines the role of digital financial technologies in facilitating the effective implementation and continuous monitoring of ESG standards. By conducting a comparative analysis of organizations in Europe, USA, Moldova, China, the research identifies exemplary practices and common obstacles in harmonizing business strategies with ESG frameworks. The findings underscore the significance of digital tools in enhancing transparency, efficiency, and accountability within financial operations, thereby promoting the sustainable evolution of businesses. Additionally, the paper discusses policy implications and offers recommendations to cultivate an environment that supports ESG integration and fosters digital innovation in financial management. These insights provide a strategic roadmap for businesses aspiring to thrive sustainably in the future economy.

Keywords: ESG integration, climate change, sustainable development, transparency, financial accountability, green credit.

JEL Classification: G21, Q56, M14

1 Introduction

Climate change and environmental degradation are defining global challenges of our time, with long-lasting, devastating consequences and impacts on the economy and society as a whole. They require rapid and far-reaching changes, failure to address them will lead to irreversible consequences for ecosystems, agriculture, water resources, human health, and security. The states of the world are aware of the urgent need to address these challenges by upholding the provisions of the Paris Agreement (United Nations, 2015a) and the UN 2030 Agenda (United Nations, 2015c) for sustainable development, and are setting ambitious targets to do so. The UN General Assembly adopted the 2030 Agenda for Sustainable Development and the 17 Sustainable Development Goals (SDGs) in 2015, which gave new impetus to global efforts to achieve sustainable development (United Nations, 2015b).

ESG⁸⁸ has become central to discussions about sustainability and corporate responsibility in the global business environment. In this era of growing concerns about climate change, social justice, and good governance, integrating ESG into business strategies is crucial for a company's long-term success.

Digital transformation is one of the EU's priorities (€7.5 billion of funding for 2021-2027), as digitization will benefit society as a whole, providing new opportunities for businesses and putting people at the forefront (European Commission, 2024, European Commission, 2021a). The European Parliament is developing policies to strengthen Europe's capabilities in new digital technologies and open up new opportunities for business and consumers, as well as to support the green transition (European Parliament, 2024a) and help the EU achieve climate neutrality by 2050 as set out in the European Green Deal (European Commission, 2020, European Parliament, 2024b). The European Union (EU) has set itself an ambitious target to reduce greenhouse gas emissions by 55% by 2030. To achieve this goal, significant investment in the energy system is needed. This includes investment in renewable energy, energy infrastructure, energy efficiency, and clean technologies. The €350 billion per year is the additional amount of money that needs to be invested each year until 2030 to transform the energy system and meet the EU's climate targets (European Commission, 2021b).

The acquisition of digital skills (digital platforms, Internet of Things, cloud computing, blockchain, artificial intelligence, etc.) and professional training will help integrate ESG

⁸⁸ acronym for “Environment, Social, and Governance”

(Environmental, Social, Governance) criteria. Technologies drive production optimization, help reduce emissions and waste, increase competitive advantages, and ensure the competitiveness and sustainability of companies by bringing new services and products to the market (Mistrean, 2024a, 2024b, 2023a).

It is already well known that consumer preferences have changed drastically over the last decade and that consumers want the products and services they buy to come from companies that are ethical, do not exploit their employees and strive to reduce their negative impact on the environment (Mistrean, 2021e, 2021a, 2021b, 2021d). In this context, investing in sustainability not only helps a company to remain competitive in the marketplace, but also makes it attractive to potential investors. Another factor that puts ESG at the heart of a business's growth strategies is the constantly changing regulatory environment.

The integration of ESG (Environmental, Social, Governance) criteria and the digitalization of financial flows are two essential strategies for modern companies that want to remain competitive and sustainable (Mistrean, 2023b, 2024b). Investors are increasingly interested in companies that adopt sustainable practices, as the implementation of ESG criteria helps companies to identify and manage environmental, social, and governance risks, ensuring their long-term functional prosperity.

2 ESG

Climate change refers to long-term changes in weather conditions, including temperature, sea levels, precipitation amount and type, caused mainly by increases in the concentration of greenhouse gases in the atmosphere (due to the generation of carbon dioxide and nitrous oxide from fossil fuel burning, cutting down trees, methane (CH₄) generation as a result of livestock farming, etc.) and global warming.

The effects of climate change are already visible all over the world through the increase in the planet's global temperature, which has already risen by 1.2°C compared to the pre-industrial period (according to the World Meteorological Organization report) (Statista, 2024). Climate change is causing sea levels to rise, floods to occur, and extreme weather events (storms, droughts, heat waves, forest fires, etc.) are increasing in frequency and magnitude (International Energy Agency, 2023).

Climate change risks are already accelerating and materializing. The intensification of extreme weather events affecting the economy of the Republic of Moldova and in Europe in general has highlighted the increasing likelihood and severity of losses associated with physical risks. At the same time, the disruption of the energy market caused by the Russian-Ukrainian war has further emphasized the need for Europe to maintain its momentum in transitioning to renewable energy and reducing Europe's dependence on fossil fuels from Russia in the short term and accelerating the energy transition (resulting from the need to manage the climate crisis) (REPowerEU, 2022).

Governments around the world are making concerted efforts to mitigate the impacts of climate change, but development budgets for financing infrastructure changes are insufficient to ensure the economic transition to new low-carbon standards. Because of this, the focus is on private finance that needs to be mobilized and banks will be the key pillar that will facilitate and safeguard this transition (Mistrean, 2022, 2021c).

Investing is no longer limited to seeking a good return at an acceptable risk. It now includes a third concept: sustainable investment, which contributes to an environmental or social objective and requires the companies in which it invests to follow good governance practices (ESG - Environment, Social, and Governance).

Table 1 The most severe 10 risks on a global scale over the next 10 years

Risk categories			
	2022	2023	2024
1.	Climate action failure	Failure to mitigate climate change	Extreme weather events
2.	Extreme weather	Failure of climate-change adaptation	Critical change to Earth systems
3.	Biodiversity loss	Natural disasters and extreme weather events	Biodiversity loss and ecosystem collapse
4.	Social cohesion erosion	Biodiversity loss and ecosystem collapse	Natural resource shortages
5.	Livelihood crises	Large-scale involuntary migration	Misinformation and disinformation
6.	Infectious diseases	Natural resource crises	Adverse outcomes of AI technologies
7.	Human environmental damage	Erosion of social cohesion and societal polarization	Involuntary migration
8.	Natural resource crises	Widespread cybercrime and cyber insecurity	Cyber insecurity
9.	Debt crises	Geoeconomic confrontation	Societal polarization
10.	Geoeconomic confrontation	Large-scale environmental damage incidents	Pollution

Legend:

Risc categories:	Economic	Environmental	Geopolitical	Societal	Technological
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Source: World Economic Forum – The Global Risk Report 2022, 2023, 2024 24. <https://www3.weforum.org/> own work

The Global Risk Perceptions Survey (GRPS) highlights that long-term global risks are largely influenced by environmental factors (Global Risks Report, 2023). Among the greatest risks are those related to climate and nature, which are expected to become more severe over the next decade. The most critical risks identified are ‘Failure to mitigate climate change’ and ‘Failure to adapt to climate change,’ meaning that failing to take effective action to reduce greenhouse gas emissions and adapt to the effects of climate change will have serious consequences. Other major risks include “Natural disasters and extreme weather events” and “Biodiversity loss and ecosystem collapse,” which can have devastating effects on the environment and society. Environmental and social risks are a present and persistent reality in our lives. The World Economic Forum’s Global Risks Report for the past three years clearly outlines the realities we face as a society. Looking 10 years ahead, the top four risks in 2023 and 2024, and the top four in the top 10, are environmental risks. These are followed by two technological risks in 2024 and one social risk in 2023 (three social risks in 2022).

3 ESG investing

With the increasing demand for ethical and sustainable practices from investors, customers, and society at large, the need for improved and transparent ESG performance has also grown. The

global trend of targeting objectives beyond profit maximization and risk minimization involves integrating environmental, social, and governance (ESG) issues into business operations (Morgan Stanley, 2023). This trend is also evident in climate change investments, which have recently generated considerable asset flows into ESG funds. This investment process, characterized by the application of non-financial factors, is driven by climate change and existing societal inequalities, aiming to positively impact society as a whole. The race to decarbonize and achieve the key 2030 ESG headline targets has begun. Businesses are reorienting their models and practices, while long-term investors are considering how to invest capital to meet global climate goals. This is increasingly becoming a standard in the investment industry, particularly in Europe, where most sustainable fund assets are concentrated.

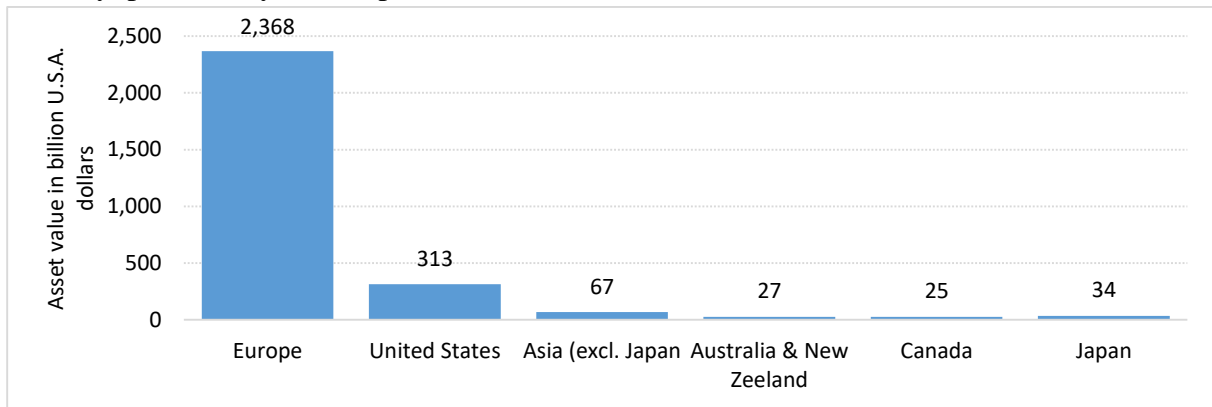


Figure 1 Asset size of sustainable funds worldwide as of the second quarter of 2023, by region, billion U.S.A. dollars

Source: authors own study or based on ESG Clarity (2024)

The data presented in Figure 1 reflect the geographical distribution of sustainable fund assets globally. Sustainable funds in Europe hold more than two trillion US dollars in assets at the end of Q2 2023, indicating a strong commitment to sustainable investing in this region. In contrast, sustainable fund assets in the US over the same period are more than seven times smaller than those in Europe, highlighting a significant difference in the adoption of sustainable investing between the two regions (Statista, 2024b). The third largest region for sustainable fund assets is Asia, excluding Japan, with assets exceeding USD 50 billion, indicating a growing interest in sustainable investing in this part of the world as well. The growth of sustainable assets in these regions demonstrates a growing awareness and commitment to responsible and sustainable investment practices.

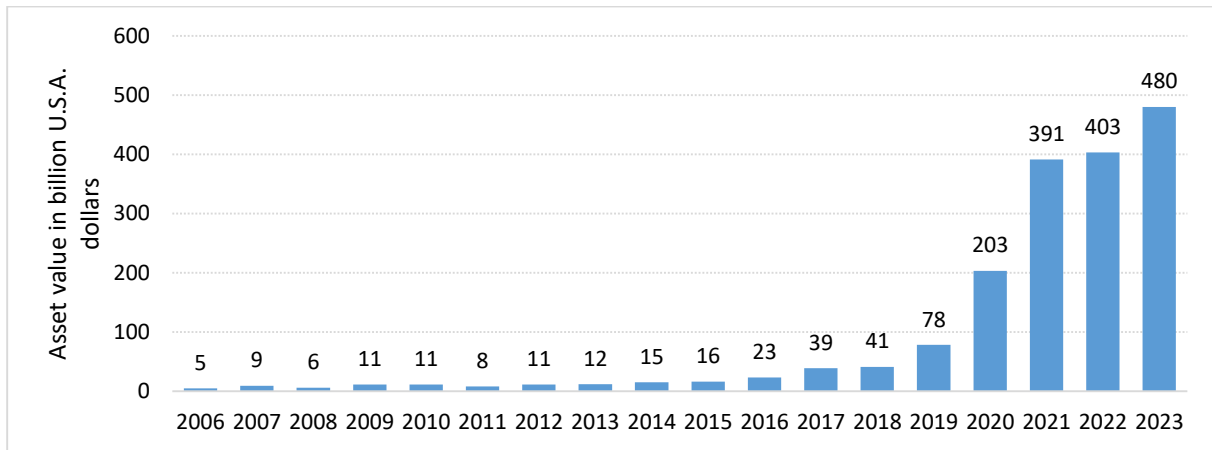


Figure 2 Global ESG ETF assets from 2006 to November 2023, billion U.S.A. dollars
 Source: authors own study or based on ESG ETF (2024)

Data in Figure 2 highlight the significant growth in assets invested in ETFs pursuing ESG objectives. In 2006, the value of these assets was only \$5 billion, but this grew to \$391 billion by 2021 and reached \$480 billion in November 2023, underlining the increasing importance of ESG (environmental, social, and governance) criteria in recent years. This rapid growth reflects a growing interest in sustainable investing, particularly in developed markets in Europe and the United States (Statista, 2024b). ESG funds are attractive to investors because they promote environmentally, socially, and governance-responsible practices while offering opportunities for competitive returns. ESG engagement has become a priority for senior management globally. Around half of senior management in countries such as France, Japan, Singapore, and Germany reported a commitment to ESG. ESG has also become increasingly important for investors (ETF, 2024). Around a third of investors are willing to exit a firm if they believe it has not taken sufficient steps to focus on ESG objectives. This reflects the global trend of increased attention to sustainable and responsible practices by both companies and investors.

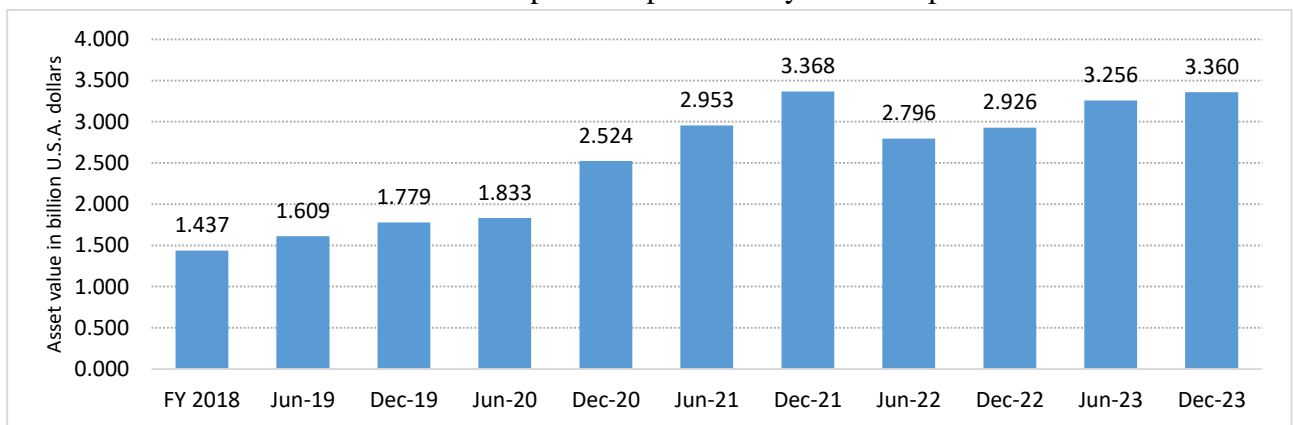


Figure 3 Assets under management of sustainable funds worldwide from 2018 to December 2023, billion U.S.A. dollars
 Source: authors own study or based on Morgan Stanley (2024)

Figure 3 shows the evolution of the assets under management (AUM) of sustainable funds globally. From 2018 to 2021, the AUM of sustainable funds steadily increased, reaching the

highest level in the analyzed period—USD 3.368 trillion—in December 2021, demonstrating growing interest and investment in sustainable funds. In June 2022, the value of AUM decreased to USD 2.8 trillion due to economic and market factors that negatively affected investment in sustainable funds. By 2023, the AUM increased again to USD 3.36 trillion, indicating a renewed interest and investment in sustainable funds and a continued commitment to responsible and sustainable investing (Morgan Stanley, 2024).

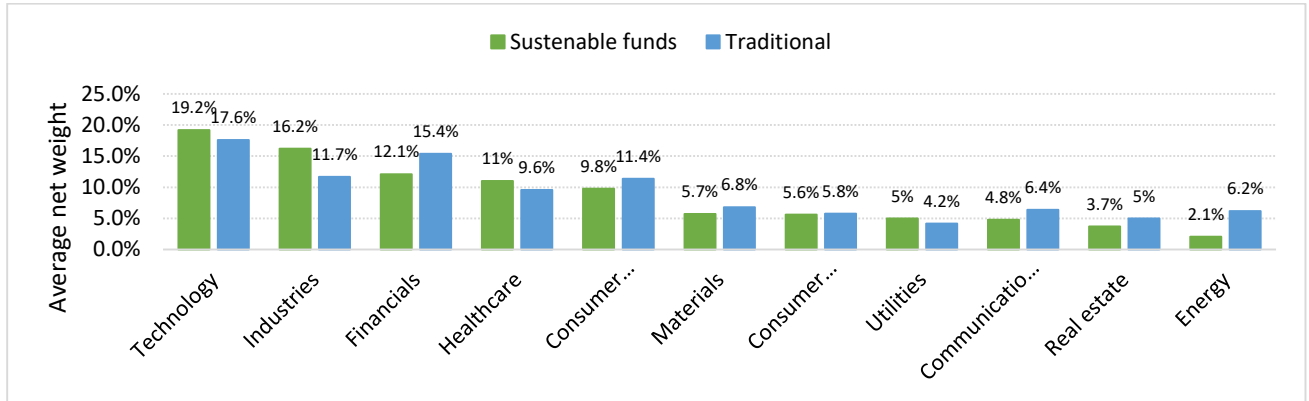


Figure 4 Average net weight of sustainable and traditional equity funds worldwide in 2023, by sector, %

Source: authors own study or based on Morgan Stanley Institute for Sustainable Investing analysis of Morningstar data as of February 9, 2024

Figure 4 highlights investment portfolio allocation preferences in 2023 for traditional and sustainable funds. The largest share of the traditional fund portfolio allocation was in the technology sector, at 17.6%, suggesting that investors saw great potential for growth and innovation in this sector. The second largest was the financial sector, accounting for 15.4% of the traditional equity funds’ portfolio allocation, indicating investor confidence in the stability and profitability of the financial sector. Investing in technology was prioritized among sustainable equity funds, with almost 20% of the total portfolio value. This demonstrates that the technology sector is seen as a leader in adopting and promoting sustainable practices, thus attracting significant investment from sustainable funds due to its potential for innovation and positive impact on sustainability (Morgan Stanley, 2024).

4 Banks

With growing pressure on companies to adopt practices that reduce carbon emissions, banks are aligning their lending activities and internal operations with sustainable and responsible principles to achieve significant financial benefits. This is because investors are increasingly mindful of environmental, social, and governance (ESG) risks when making investment decisions. Banks that promote sustainability therefore gain a competitive advantage by attracting more investors who value these principles.

A growing number of large banks in Europe and around the world now openly publish and report on their commitments and impacts on environmental, social, and governance issues to contribute to the goals of the Paris Agreement (United Nations, 2015a) and the UN Sustainable Development Goals (United Nations, 2015b).

In doing so, banks set clear targets to support sustainability, report and publicize their commitments and impacts on the environment, society, and governance, demonstrating transparency and accountability (Mistrean, 2021e, 2021c). This includes allocating large sums of money to green finance projects that support green initiatives, withdrawing investments from sectors such as coal, which are known for high greenhouse gas emissions, using renewable energy sources to run their operations, thus reducing dependence on fossil fuels, and implementing various measures to reduce carbon emissions from their operations (Statista, 2019).

Table 2 Global key figures on greenhouse gas and climate financing

Green house gas emissions (GHG)	Value	Glogal climate finance	Value
Number of countries worldwide with quantifiable Nationally Determined Contributions (NDC's) - intended reductions in greenhouse gas emissions in 2019	105	Total value of global climate finance flows 2018	546 billion U.S. dollars
Average annual decrease needed in GHG emissions to meet 1.5°C, or even 2°C, maximum temperature rise from 2020	7.6%	Total value of global climate finance flows from the private sector 2018	323 billion U.S. dollars
Estimated fall in greenhouse gases in 2020 due to the fall in human activity caused by COVID-19	6%	Total value of global climate finance flows from the public sector 2018	224 billion U.S. dollars
Total decrease in GHG Needed between 2010 and 2030 to meet 1.5°C goal	45%	Cumulative planned energy scenario investments between 2016 and 2030	38 trillion U.S. dollars
Decrease in GHG emissions by developed countries and economies in transition between 2000 and 2018	-6.5%	Cumulative transforming energy scenario investments between 2016 and 2030	60 trillion U.S. dollars
Increase in GHG emissions by developing countries between 2000 and 2013	43.2 %		

Source: authors own study or based on OECD, United Nations, Climate Policy Initiative, International Renewable Energy Agency (2019)

These actions reflect a growing global movement towards a more sustainable approach to finance, showing a strong global commitment to support the transition to a greener and more sustainable economy.

Climate change is significantly affecting the financial services sector, bringing increased financial risks but also opportunities for banks that manage to adapt. The financial risks associated with climate change are divided into two main categories, defined by the PRA (Prudential Regulation Authority) and the FCA (Financial Conduct Authority) as transition risks and physical risks. Transition risks are associated with the shift to a low-carbon economy and can include changes in regulation, technology, and consumer preferences, which can affect asset values and company profitability. Physical risks are related to the direct physical impacts of climate change, such as extreme weather events (floods, droughts, storms), which can cause damage to infrastructure and affect operations and supply chains.

By understanding and managing these risks, banks can not only protect themselves against financial losses but also identify new business opportunities in sustainable finance.

Table 3 Global key figures on greenhouse gas and climate financing

Transitional Risks	Physical Risks
Impact on banks' real estate lending portfolio through increased minimum energy efficiency standards	Increased business disruption and losses
Change in price of alternatives through excellent technological innovation	Impact on the availability of property and casualty insurance
Decreased value of investments that become valueless or uninsurable because of its climate change risk exposure	Impact on the cost of property and casualty insurance
Market value of companies is lowered through a company's inability to adapt or mitigate to new standards surrounding climate change	Higher insurance premiums
	Businesses choosing not to take out premiums resulting in higher exposure to future losses
	Increased credit risks via physical risks to assets held as collateral

Source: authors own study or based on OECD, United Nations, Climate Policy Initiative, International Renewable Energy Agency (2019)

Transition risks are financial risks that may arise as economies adapt to reach the net-zero carbon emissions target. These risks are associated with the changes and adjustments required to reduce greenhouse gas emissions to zero by 2050, in line with the targets set by the European Union and the UK Government under the Paris Agreement. Several adjustments are needed to achieve this goal, including:

- changes in climate-related policies and regulations, whereby governments will introduce new laws and regulations to reduce carbon emissions, which may affect companies' operations and costs;
- disruptive technologies, such as renewable energy sources and energy storage technologies, which will change the way companies operate and do business;
- changing business models, requiring companies to adapt their business models to comply with new regulations and take advantage of the opportunities offered by the transition to a green economy;

- changing societal behavior and sentiments to become more aware of the impacts of climate change. At the same time, consumer behaviors and preferences will change and influence demand for sustainable products and services;
- evolving scientific evidence, frameworks, and legal interpretations as the science and knowledge of climate change evolve to reflect new findings and understandings.

Physical risks are financial and operational risks resulting from extreme weather events and long-term climate change that can affect infrastructure, property, and business activities.

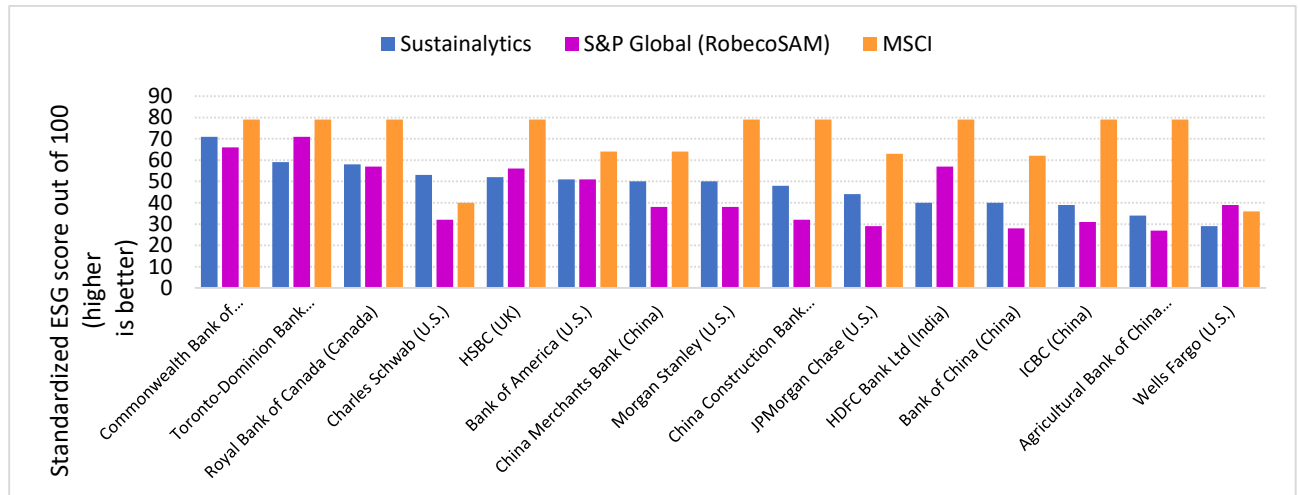


Figure 5 Average net weight of sustainable and traditional equity funds worldwide in 2023, by sector, %

Source: authors own study or based on Statista, 2024

Figure 5 highlights the significant variations in the ESG scores of the world’s largest banks by score provider. In 2024, scores on environmental, social, and governance (ESG) criteria, which assess companies’ performance in terms of environmental sustainability, social responsibility, and governance practices, varied significantly across different score providers for the world’s largest banks. JPMorgan Chase, as the largest bank by market capitalization, received very different ESG scores from different providers. Morgan Stanley Capital International (MSCI) gave it a score of 64.3, suggesting relatively good performance in the ESG criteria. In contrast, S&P Global (formerly known as RobecoSAM) gave it a much lower score of 29, indicating poorer performance. Sustainalytics gave an intermediate score of 45. These variations in ESG scores reflect differences in the methodologies and criteria used by the different scoring providers. They also underline the importance of green bond issuance as an indicator of a bank’s commitment to sustainable practices.

By 2023, the Industrial and Commercial Bank of China (ICBC) was the global leader in green bond issuance among large banks, totaling more than USD 31 billion. Green bonds are financial instruments designed to finance projects that benefit the environment. ICBC issued nine green bonds abroad and five in China (Statista, 2024).

Crédit Agricole, a French bank, took second place, issuing green bonds worth almost USD 10 billion (McKinsey & Company, 2022). Bank of China was in third place, with 15 outstanding green bonds worth just over USD 7 billion. This data demonstrates the commitment of large banks to support sustainable projects and help protect the environment by issuing green bonds.

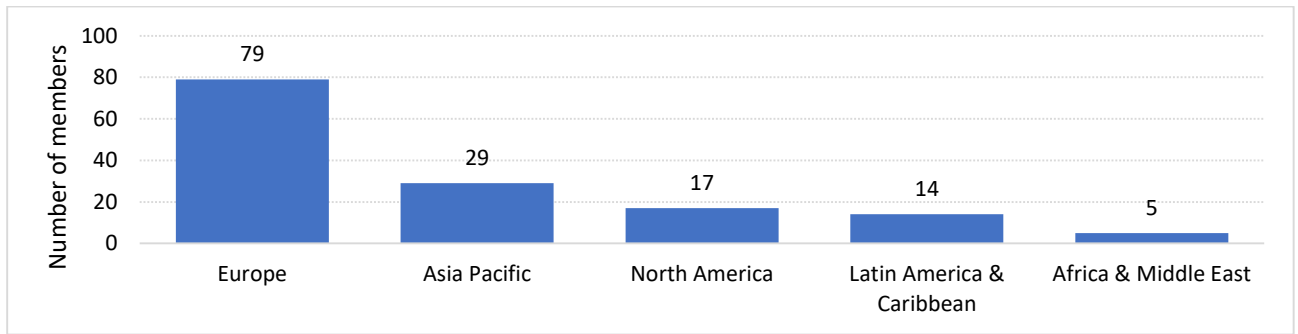


Figure 6 Number of Net-Zero Banking Alliance members worldwide 2024, by region

Source: authors own study or based on Statista, 2024

The Net-Zero Banking Alliance is a global initiative bringing together banks dedicated to reducing carbon emissions to zero by 2050. It was launched in April 2021 by 43 founding members and is convened by the United Nations. By September 2024, the alliance had grown to 144 members, the majority of which are from Europe and Asia-Pacific.

To become a member of the alliance, each bank must commit its CEO to sign a declaration of commitment, which includes clear targets, such as achieving net-zero emissions by 2050 and setting interim targets for 2030 and every five years thereafter. Banks must also publish information on their emissions annually and report on progress.

In doing so, banks around the world are implementing various sustainability initiatives to help protect the environment and promote social responsibility. The principles of responsible banking are promoted by the United Nations Environment Program Finance Initiative (UNEP FI) and are supported by banks globally by offering sustainable financial products, such as deposit accounts backed by sustainability-assessed investments and letters of credit for transactions that contribute to climate change mitigation efforts (Solis, 2024). The Net-Zero Banking Alliance reflects the banking sector’s concerted efforts to help combat climate change and promote sustainable practices.

For example, Bank of America has committed to achieving net-zero greenhouse gas emissions in its financing, operations, and supply chain activities by 2050. It has mobilized \$1 trillion by 2050 to accelerate the transition to a sustainable low-carbon economy (Bank of America, 2024). It has achieved carbon neutrality and has purchased 100% renewable electricity since 2019. U.S. Bank has reduced greenhouse gas emissions by 60% since 2014 and plans to use 100% renewable energy by 2025 (U.S. Bank, 2024).

The bank offers financial solutions aimed at creating lasting positive impacts for people and the planet, including special housing loan programs and social and racial equity bond structures. Crédit Agricole is a leader in issuing green bonds, using the funds to support renewable energy projects and other green initiatives (McKinsey & Company, 2022). Bank of China has issued numerous green bonds to finance environmental projects, contributing to sustainable development. India is launching green banks that focus on financing environmental projects and promoting online and card-based transactions to reduce environmental impact (Supreeth, 2022).

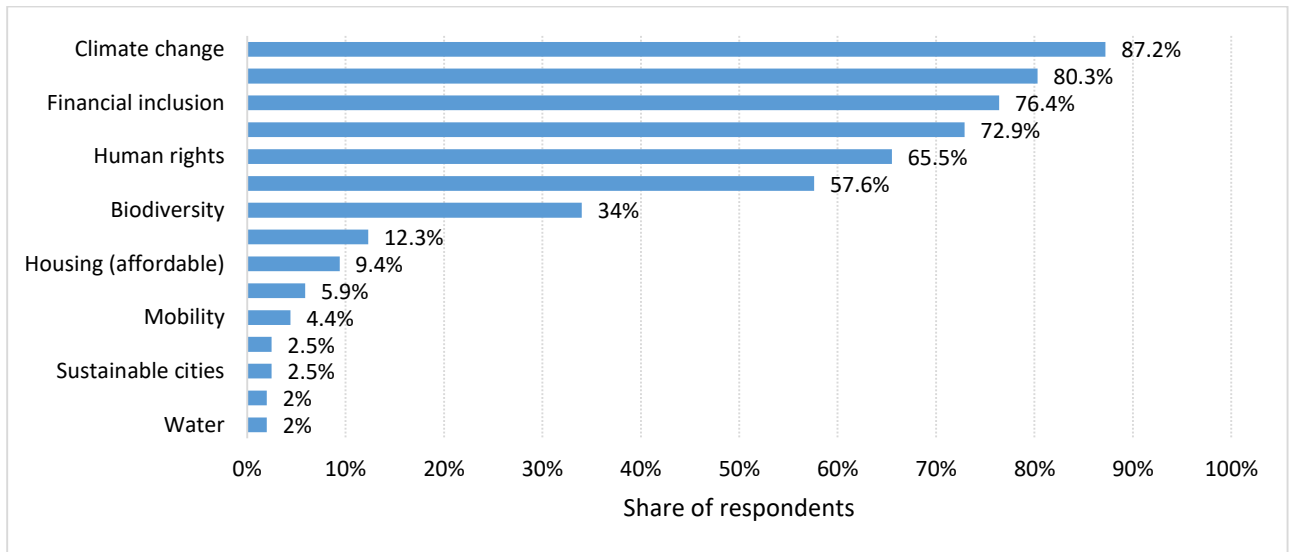


Figure 7 Number of Net-Zero Banking Alliance members worldwide 2024, by region

Source: authors own study or based on Statista, 2024

The data presented in Figure 7 demonstrate that by March 2021, banks that have signed the Principles for Responsible Banking (PRB), which commit to contributing to a fairer society and a healthier environment, have prioritized two major sustainability goals: climate change and gender equality. Addressing climate change was included in the sustainability strategy by 87.2% of PRB signatories globally and involves efforts to reduce greenhouse gas emissions, promote renewable energy, and support projects that combat climate change (Statista, 2024). Improving gender equality has been included in the sustainability strategy by 80.3% of the banks that have signed the Principles for Responsible Banking. This objective focuses on promoting equal opportunities between men and women, both within banking institutions and in the communities they serve. In addition to these two goals, financial inclusion was also an important issue for PRB signatory banks, included in the sustainability strategy by 76.4% of PRB signatories. Financial inclusion refers to ensuring access to financial services for all segments of the population, including those traditionally excluded from the financial system.

6 Moldova

The financial banking system functions as a relay in the orientation of funds in the economy. In the context of ESG (environmental, social, and corporate governance) priorities, it has an increasingly defined and regulated mission to monitor and direct capital towards sustainable development in line with the 2030 Agenda and the objectives of transitioning to a low-carbon economy.

With the rapid expansion of new technologies and changing market requirements, financial-banking institutions in the Republic of Moldova are promoting sustainable projects that contribute to the well-being of consumers and the development of the economy by increasing financial inclusion, enhancing financial intermediation on a sustainable basis, and reducing related risks (Mistrean, 2022). The banking system plays a key role in supporting companies in the transition to a green economy and supports the shift to climate finance through the

development of green products (Mistrean, 2021c, 2021e, 2023b). It is also considered that the implementation of the sustainable finance strategy should reflect developments in the real economy. BC “ProCredit Bank” S.A. is the first bank in the Republic of Moldova to set the goal of promoting economic development at the most sustainable level. In 2013, it launched the EcoCredit service for business customers, offering small and medium-sized enterprises “green” loans to finance various types of projects.

Table 4 Projects eligible for funding in the Republic of Moldova

Type	Purpose	Amount	Results	Term
Energy efficiency projects: furnace replacement	Replace the old equipment with a rotary oven with electric control panel and constant baking temperature to optimize production costs	160 000 MDL	Monthly energy savings (electricity consumption) around 25.5%. Increase productivity by 7%. Improved product quality / reduced number of defective products.	1,5 years
Renewable energy projects: installation of solar panels	Installation of panels with a total capacity of 30 kW; 125 polycrystalline silicon modules of 240Wp each	625 000 MDL	Renewable electricity generation 44,4 MWh/year. Cost of generated electricity 85 250 Lei/year. Increase in asset value.	7,3 years
Environment-friendly projects: mini-till and no-till technologies	Purchase of a seed drill for efficient tillage using mini-till and no-till technology.	500 000 MDL	Reduce fuel consumption by reducing the number of tillage operations. Stop soil deterioration and soil rehabilitation. Increase soil productivity and grain quality.	

Source: EcoCredit (2024) / own work

The “green” credit from BC “ProCredit Bank” S.A. is intended for very small, small, and medium-sized enterprises and is designed to offer a number of benefits to entrepreneurs, including competitive advantages, reduced operating expenses, increased productivity, more efficient technologies and processes, environmental protection, and responsible use of natural resources. In this respect, green loans aim to finance energy efficiency, renewable energy, and environmentally friendly projects. By promoting investments in energy efficiency and “green” energy, BC “ProCredit Bank” S.A. aims to raise awareness and facilitate access to financing for “green” projects for entrepreneurs in the Republic of Moldova (EcoCredit, 2024).

Table 5 Evolution of the value and structure of the green portfolio of BC "ProCredit Bank" S.A.

Year	Portfolio volume, mil, EUR	Portfolio structure, %		Share of total credit portfolio, %
		in energy efficiency	environment-friendly and renewable energy projects	
2023	25,9	72,6%	27,5%	14,7%
2022	29,3	79,5%	20,5%	16,6%
2021	28,8	83,1%	16,9%	16,8%
2020	26,5	82,8%	17,2%	17,2%
2019	20,3	-	-	15,6%
2018	20	-	-	18%

Source: EcoCredit (2024) / own work

At the end of 2023, the green loan portfolio constituted 14.7% of the bank’s total loan portfolio, with a value of EUR 25.6 million, decreasing by EUR 3.4 million or 11.6% compared to 2022. In 2022, the bank’s green loan portfolio reached the highest level in the analyzed period—EUR 29.3 million—and accounted for 16.6% of the bank’s total loan portfolio. However, the highest share of the green loan portfolio in the bank’s total loan portfolio was recorded in 2018 at 18%, marking the beginning of green lending by BC “ProCredit Bank” S.A. (EcoCredit, 2024).

The majority share of the “green” portfolio is represented by investments in energy efficiency at 72.6%, down by 10.5 percentage points compared to 2021, when investments in energy efficiency accounted for 83.1% of the “green” portfolio, the highest share in the analyzed period. At the same time, we observe an increase in the share of investments in environmentally friendly and renewable energy projects to 27.5% in 2023.

During these years, the bank has seen an increase and diversification in the number of projects financed in investments in photovoltaic installations with installed capacity up to 8.4 MWp, both for reducing own electricity consumption and for commercialization. These installations were placed both on the roofs of production and warehouse buildings and on the ground, benefiting from net metering, thus reducing the costs of electricity consumption from the grid. The share of the green portfolio with renewable energy projects increased to 16.9%.

In this regard, BC “ProCredit Bank” S.A. promotes investments in renewable energy, resource efficiency, and environmental protection measures (e.g., use of electric transportation, waste management, efficient use of water, organic production). The bank takes into account the environmental and social aspects of these projects, providing support to clients with intentions to produce “green” energy, contributing to improving air quality in our country and reducing dependence on fossil fuels.

In December 2018, the Maib Board approved the Sustainability Strategy and ESG Action Plan (developed with the help of GGF (Green for Growth Fund) and EU4Energy, who sponsored the “Greening maib” project), which set out the sustainability objectives and the activities needed to achieve them (maib, 2023). Maib’s ESG strategy covers all key areas, including:

- reducing greenhouse gas emissions from its own operations;
- reducing financed emissions (emissions from portfolio companies);

- introducing a comprehensive sustainability reporting system;
- achieving a 10% ratio of green loans to total loans in the SME/Corporate segments by 2025;
- developing and launching green products in line with market expectations and demand;
- assessing all Maib products against financial inclusion criteria;
- treating employees fairly and contributing to their growth and development;
- maintaining and promoting sound corporate governance standards.

Maib offers customers two types of green loans:

- Eu4Business - Business Modernization Credit Line from EBRD resources;
- GEF (Green Economy Financing).

Table 6 Line of credit for business modernization from EBRD resources from maib

Feature	Supports the business sector by stimulating investment in cutting-edge technologies, including energy efficiency, modernizing businesses and bringing them up to EU standards
The aim	<ul style="list-style-type: none"> - financing investments in business development/expansion, volume and production capacity, - financing energy efficiency projects, production and use of renewable energies, etc.
Advantages	<ul style="list-style-type: none"> - 10% or 15% grant component, - grace period, - flexibility for different investment needs.
Repayment deadline	<ul style="list-style-type: none"> - up to 72 months
Amount of credit	<ul style="list-style-type: none"> - up to 100% of the cost of the investment project, excluding VAT, up to EUR 3 million.

Source: maib (2024) / own work

GEFF (Green Economy Finance Facility) financing is provided under the EBRD's Green Economy Finance Facility (GEFF), in partnership with maib. The project is co-financed by the Green Climate Fund and the Turkish Ministry of Finance and Treasury.

Table 7 GEFF (Financing the green economy) from maib

Feature	It supports the reduction of energy consumption and related energy costs and ensures increased turnover thanks to equipment with higher productivity and reliability, contributing to improved product quality and competitiveness.
The aim	<ul style="list-style-type: none"> - renovation of windows, doors; - thermal insulation systems; - central heating and heat pumps; - electricity and cogeneration; - cooling systems; - motors and pumps; - process technologies; - transportation;

	<ul style="list-style-type: none"> - household appliances; - lighting; - irrigation; - land preparation and seeding; - cleaning and washing; - water reuse and reclamation.
Advantages	<ul style="list-style-type: none"> - interest can be subsidized; - no own contribution required; - technical assistance is available; - reduction of pollution and CO2 emissions.
Repayment deadline	<ul style="list-style-type: none"> - up to 48 months
Amount of credit	<ul style="list-style-type: none"> - up to EUR 5 million.

Source: maib (2024) / own work based on GEF

If the borrower selects a pre-approved technology from the EBRD's Green Technology Selector (windows and doors, thermal insulation systems, thermal power plants, heat pumps, electricity and cogeneration, cooling systems, motors and pumps, process technologies, transportation, household appliances, lighting, cleaning and washing, irrigation, land preparation and seeding, water reuse and recovery), it can be financed without further approval (Green Technology Selector, 2024).

In 2023, maib launched a special renewable electricity generation loan for SMEs. The loan takes the customer from plan to project in a fast and efficient way, requiring very little investment and effort from the customer. The favorable financing terms mean that up to 80% of the project can be covered by the loan without the need for additional collateral, which is particularly important for SMEs. In addition, maib has established a trusted network of partners who install solar panels, allowing customers to choose from a wide range of experienced installers. All this has increased the business unit's green loan portfolio to RON 418 million at the end of Q2 2024.

The other banks in the Republic of Moldova are taking the first steps towards the implementation of sustainable financing, which implies ensuring good governance and increasing social responsibility with a positive impact on local business and society in general.

8 Conclusion

In an ever-changing world with a growing awareness of the negative impact of economic activities on the environment and society, ESG is becoming increasingly relevant. It is more than just a trend; it is an imperative for companies of all sizes to integrate these principles into their DNA.

ESG alignment is not only a response to current investor and consumer expectations, but also an opportunity for companies to define and strengthen their position in a future where responsibility and sustainability will play a central role. Adopting and implementing ESG

practices not only contributes to good governance and social responsibility, but also to enhancing reputation, attracting sustainable investment and long-term sustainable growth. Research results demonstrate the trend of increasing product diversity and sustainable business investment strategies; the development of new technologies to facilitate the net-zero transition; increasing global government regulations that will influence business activity and data. In the coming decade, investors and companies will need to adapt to the increasingly complex field of sustainable finance in order to make informed decisions, mitigate risks and seize emerging investment opportunities.

Acknowledgment:



Co-funded by
the European Union

Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can

be held responsible for them.

This publication is part of the *JWCPW – Protecting working conditions in the platform economy: Moldavian-Lithuanian social dialogue*, which has received funding by the European Commission, DG Employment, Social Affairs and Inclusion, European Social Fund+ (ESF+), Social Prerogatives and Specific Competencies Lines (SocPL). **Project number: 101126470** The information and views set out in this document are those of the authors and do not necessarily reflect the views and official opinion of the European Union. Neither the European Union institutions and bodies nor any person acting on their behalf may be held responsible for the use which may be made of the information contained therein.

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