SJIF Impact Factor (2024): 8.282 Journal DOI: 10.36713/epra0003 ISSN: 2250 – 2017
International Journal of Global Economic Light (JGEL)
Volume: 10 | Issue: 6 |June 2024

SUSTAINABLE FINANCE: A PARADIGM SHIFT FROM CONVENTIONAL FINANCE TOWARDS SUSTAINABLE WORLD, ITS FRAMEWORK AND CHALLENGES

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Article DOI: https://doi.org/10.36713/epra17468
DOI No: 10.36713/epra17468

INTRODUCTION

Sustainability necessitates the adjustment of the current business model to the dynamic nature of digitalized environments. In other words, corporations must ensure that resources, particularly technology, are used responsibly and effectively to enhance the lives of present and future generations and to strengthen their ties to the environment. Prosperity in the form of economic and population growth can be attributed to the Industrial Revolution and the subsequent development of production processes reliant on fossil fuels. At the same time, the departure from a 'empty' world abundant in natural resources has aggravated social and environmental issues.Environmental challenges posed by rapid industrialization include rising pollution (Lee and Chang, 2008; Shahbaz et al., 2013) and resource depletion (Jayanthakumaran et al., 2012; Hanif, 2018). Environmental issues have emerged as significant threats to human health, survival, and development (Settele et al., 2020; Klenert et al., 2020; Sharma et al., 2021). Countries around the world are pursuing sustainable development and green recovery in an effort to reduce the tension between economic growth and environmental protection (Tian et al., 2022; Zhao et al., 2022). To address these environmental problems, almost everyone acknowledges that we need to move toward a low-carbon, circular economy. An early transition, with significant cuts in carbon emissions beginning in 2020, would allow for gradual adjustments to production and consumption patterns, while a late transition, beginning in 2030, is likely to cause sudden shocks and lead to the stranding of assets that have lost their productive value. Many businesses that deal with natural resources are still in denial and are naively banking on a slow and painless changeover. The United Nations (2015) has developed the 2030 Agenda for Sustainable Development to guide the transformation towards a sustainable and inclusive economy, which will require behavioural change. Agenda 2030 for Sustainable Development (Agenda 2030) includes 17 interconnected and interdependent Sustainable Development Goals (SDGs) (United Nations, 2015). Consequently, SDGs and the efficacy of policies implemented to achieve each goal are interdependent (Collste et al., 2017). SDGs generally refer to actions and policies that aim to mitigate the negative externalities of human activity, with particular reference to the scope of societal goals (SDGs 1,2, 3, 4, 5, 7, 11, 16,), economic goals (SDGs: 8, 9,10,12), envirnomental goals (SDGs: 6, 13, 14, 15,), and overall goal (SDGs: 17). Positive and negative interactions can occur between Sustainable Development Goals (SDGs), typically depending on key factors such as geographical context, resource endowments, time horizon, and governance (Nilsson et al., 2018). To achieve the SDGs, funding is required. To achieve these objectives by 2020, the United Nations estimates an investment of between $5 trillion and $7 trillion. The International Monetary Fund (IMF) published an analysis indicating that developing nations face an average annual funding gap of approximately $2.6 trillion for investments in health, education, roads, electricity, water, and sanitation. This results in additional annual expenditures for low-income developing countries that can amount to as much as 15% of their gross domestic product (GDP) (United Nations, 2019). The enormous and unmet needs of developing countries could lead to the conclusion that achieving the SDGs requires a funding increase from billions to trillions (International Monetary Fund [IMF], 2015). This means that we need a better understanding of how investors act and how their investments are used to solve problems like poverty, environmental degradation, pollution, and inequality that are related to sustainability. Extensive literature exists on the relationship between finance and sustainability (Aspinall et al., 2018; Ferreira et al., 2016). The overall conclusion of the research is that conventional finance is inadequate and inappropriate for financing the Sustainable Development Goals (SDGs) because the three-dimensional perspective of sustainable development is not considered, leaving no room for environmental and social issues (Pisano et al., 2012; Fullwiler, 2015). Some postulates have been formulated in the context of financing sustainable development that may improve financing, including: (1) incorporating non-financial (ESG) factors into the risk analysis of financial institutions (OECD, 2018); (2) developing sustainable finance roadmaps and increasing regional cooperation; and (3) developing typologies of sustainable assets and finance (Zorlu, 2018). Common to the proposed tenets is a focus on sustainable finance. Thus this paper will be discussing about sustainable finance, how it is defined and its framework. How it will helps us to create sustainable world. Challenges it faces, and future research agenda.

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Sustainable finance and its framework

Sustainable finance takes into account the interplay between financial (investing and lending) activities and broader societal, economic, and environmental concerns. Whereas the main emphasis in conventional finance is on financial return and risk. By focusing on lowering greenhouse gas emissions and other forms of pollution, as well as minimising waste and optimising the use of natural resources, sustainable finance helps the economy expand while protecting the planet and its inhabitants. Managing risks that could threaten the stability of the financial system is another component of sustainable finance, as is raising public awareness and transparency about these risks. In the current EU policy context, sustainable finance consists of five main components: (1) mobilising finance for investments that help address climate change, have a positive environmental impact, or support sustainable development; (2) establishing a framework for sustainable finance; and (3) promoting sustainable finance; (4) taking environmental and social factors and potential risks into account when making investment and finance decisions, and (5) considering longer time horizons and the impact of economic and financial market activity.

Need for sustainable finance to achieve SDGs

The goal of any financial system is to transfer savings from surplus to deficit economic sectors. The manner in which this transfer occurs varies according to the needs and objectives of those who provide and receive these savings (i.e. finance), as well as the context in which they operate. Green or sustainable investments will necessitate various types of finance provided by the financial sector, whether through banks or capital markets. Investment size, risk profiles, and finance duration, among other factors, will determine which type of finance may be available for green or sustainable investments.

- At COP21 in Paris on 12 December 2015, all 196 UNFCCC Parties adopted the Paris Agreement. In the agreement, all countries agreed to limit global temperature rise to well below 2 degrees Celsius and to strive for 1.5 degrees Celsius. Implementing the Paris Agreement is crucial for achieving the Sustainable Development Goals and provides a roadmap for reducing emissions and building climate resilience.
- By 2030, reduce pollution, eliminate dumping, minimise hazardous chemical and material releases, halve the proportion of untreated wastewater, and increase recycling and safe reuse globally. To achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, with a focus on women, girls, and those in vulnerable situations. Protect and restore water-related ecosystems like mountains, forests, wetlands, rivers, aquifers, and lakes.
- By 2030, ensure all girls and boys complete free, equitable, and quality primary and secondary education leading to Goal-4 learning outcomes. To provide all girls and boys with quality early childhood development, care, and preprimary education so they are ready for primary school. To ensure equal access to affordable, quality technical, vocational, and tertiary education, including university.
- By 2030, end extreme poverty, defined as living on less than $1.25 a day. To halve the proportion of men, women, and children living in poverty according to national definitions. Implement national social protection systems and measures for all, including floors, and cover the poor and vulnerable by 2030.
- By 2030, eradicate hunger and guarantee all people, especially the poor and vulnerable, can access safe, nutritious food year-round. To abolish all types of malnutrition, including attaining international objectives on stunting and wasting in children under 5 years old, and to address the nutritional requirements of teenage girls, pregnant and lactating mothers, and older adults. To double the agricultural productivity and incomes of small-scale food producers, especially women, indigenous peoples, family farmers, pastoralists, and fishers, through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets, and value-adding and non-farm employment.
- By 2030, raise the poorest 40%'s income above the national average. Promote the social, economic, and political inclusion of everyone, regardless of age, sex, handicap, colour, ethnicity, origin, religion, or economic condition. Reduce result inequalities through abolishing discriminatory laws, policies, and practises and encouraging acceptable legislation, policies, and action.

Framework for Sustainable Finance

Sustainable finance typology	Value created	Ranking of factors	Optimisation	Horizon
Finance-as-usual	Shareholder value	F	Max F	Short term
Sustainable finance 1.0	Refined shareholder value	F > S and E	Max F Subject to S and E	Short term
Sustainable finance 2.0	Stakeholder value	T = F + S+E	Optimise T	Medium term
Sustainable finance 3.0	Common good value	S and E > F	Optimise S and E subject to F	Long term

Source: Bruegel. Note: F = financial value; S = social impact; E = environmental impact; T = total value. At Sustainable Finance 1.0, the maximisation of F is subject to minor S and E constraints.

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SF 1.0: Profit maximisation, while avoiding 'sin' stocks.

One of the first steps toward achieving sustainable finance is for financial institutions to refrain from investing in or lending money to businesses that are often referred to as "sin" enterprises. These are organisations that have a significant detrimental effect. Companies that sell cigarettes, anti-personnel mines and cluster bombs, as well as those that engage in child labour, are examples of the types of businesses that fall under this category in the social sphere. The dumping of garbage and the hunting of whales are two well-known examples of activities that might have a detrimental effect on the environment. More recently, several financial institutions have begun to place coal and even the larger category of fossil fuels on the excluded list due to the impact that these fuels have on the environment in the form of carbon emissions. A slightly more optimistic variation of the refined shareholder value approach is for financial institutions and businesses to put systems in place for the management of energy and emissions, sustainable purchasing, green information technology, green building and infrastructure, diversity, and employment opportunities for older workers. The pursuit of economic benefit continues to drive each of these endeavours. Although incorporating sustainability into business practises may have a positive impact on certain facets of sustainability, the primary objective is to cut costs and mitigate business risks, boost the company's reputation and make it more appealing to new or existing human talent, adapt to changing customer demands and market segments, and, ultimately, increase profits, market positions, competitiveness, and shareholder value in the short term. The success of a company is still judged only in terms of its financial position, and its primary concern is continuing to be meeting the needs of the company and achieving its financial objectives (Dyllick and Muff, 2016). The maximisation of shareholder value or profits is still the overarching goal of the organisation, but with a few modifications here and there.

SF 2.0: Internalisation of externalities to avoid risk.

In the Sustainable Finance 2.0 model, financial organisations make decisions taking into account the potentially negative effects on society and the environment caused by their actions. Over the medium to long-term horizon, these externalities may become priced (for example, via a tax on carbon emissions), and/or they may have a detrimental influence on the reputation of an organisation. Taking into account the impact of the externalities will, as a result, lower the probability that the financial investments would become unprofitable. As a result of the fact that this risk is proportional to the age of the financial instrument, it is much higher for equity (stocks) than it is for debt (bonds and loans). On the bright side, the internalisation of externalities assists financial institutions and businesses in regaining trust, which is the positive opposite of the danger that is posed by their reputation. Putting a monetary value on the social and environmental implications of a business makes it easier to optimise how those impacts interact with the other parts of the business (F, S, E). The monetisation of social and environmental impacts is made possible by advancements in technology (measurement, information technology, and data management), as well as advancements in science (life-cycle analyses, social life-cycle analyses, environmentally extended input-output analysis, and environmental economics). By integrating the financial, social, and environmental values in this manner, one may arrive at the overall value, also known as the true value T. This value can be determined by adding up the individual values. When discounting future cash flows, financial institutions and businesses will employ a private discount rate, which will be a higher rate than the public discount rate due to the inherent uncertainty in the future. Private discounting leads to a lower weighting of social and environmental worth than money value as a result of the fact that social and environmental repercussions, in particular environmental impacts, become evident over a longer horizon and are therefore more unpredictable than financial impacts.

The term "Sustainable Finance 2.0" may refer to a few distinct things. Examples of this include the "triple bottom line," which considers people, the environment, and profits together. Another example is integrated profit and loss accounting. One can speak of an extended stakeholder approach within the context of corporate governance. This is an approach in which not only the direct stakeholders, such as shareholders, suppliers, employees, and customers, but also the indirect stakeholders, such as society and the environment, are included in the discussion.

SF 3.0: Contributing to sustainable development, while observing financial viability.

The new Sustainable Finance 3.0 model shifts the focus from risk to opportunity. Rather than avoiding (very) unsustainable enterprises due to the inherent risk they provide, financial institutions invest only in sustainable companies and initiatives. According to this point of view, money is a tool that may be used to encourage sustainable development. This can be accomplished, for instance, by providing funds for healthcare, green buildings, wind farms, makers of electric cars, and initiatives that reuse land. The positive selection of investment projects on the basis of their ability to produce beneficial social and environmental consequences is where Sustainable Finance 3.0 (SF 3.0) gets its start. In this manner, the global financial system contributes to the objective for sustainable development throughout the medium to long term. Under sustainable finance 3.0, the economic and financial feasibility of a development project is an essential component of sustainable development. A criterion for sustainable

investment and lending is financial viability, which takes the shape of a reasonable financial return (which, at the very least, maintains capital). In the absence of financial viability, projects may need to be terminated early due to insufficient funding. The most important shift is that finance will no longer play a primary role in maximising profits but will instead focus on addressing other needs (a means to contribute to sustainable development). This framework also sheds some light on corporate governance, the legitimacy theory which is considered as one of the foundation for the 3.0 version of Sustainable Finance. According to legitimacy theory, businesses should make an effort to legitimise their practises in order to win the support of the general public and, thus, to guarantee that they will continue to exist (Omran and Ramdhony, 2015). This social licence to operate is representative of a wide variety of expectations that society has on the manner in which an organisation should carry out its day-to-day business. The behaviour of the company may thus be considered to be within the confines and norms of what society considers to be socially responsible behaviour. This behaviour includes the firm's compliance with social and environmental standards.

Key players in sustainable finance.

Cunha, F. A. F. d. S., Meira, E., & Orsato, R. J. (2021) in their research paper have identified four primary types of participants in the SFI domain, and have differentiated them according to the functions that they perform: (i) providers; (ii) receivers; (iii) supporters; and (iv) beneficiaries.

Providers are those who route and intermediate financial resources and investments in order to allow sustainable initiatives, solutions, and innovations. Providers make up the supply side of the Sustainable Finance Initiative (SFI). There are three types of investors: individual investors, institutional investors (such as mutual, pension, hedge, seed, and venture capital funds; and value-based organisations such as charities and churches), and financial institutions (such as banks, insurance companies, and microfinance institutions). Individual investors include people who invest their own money. Institutional investors include organisations that invest other people's money. The majority of the research published in this field has concentrated its attention on analysing the characteristics of investors as well as the banking sector in general.

The demand side of SF is represented by the recipients. They include businesses that handle their finances and investments in a way that is consistent with sustainable practises. They market goods and services that have a beneficial effect on both society and the environment by using environmentally friendly ways of doing business..

The institutional context that is essential for the establishment and execution of the SF is created and developed by supporters. The research has primarily concentrated on the functions that governments perform as regulators and supervisors of the financial sector; however, supporters also includes a variety of other entities, such as non-governmental organisations (NGOs), stock exchanges, data and rating providers, standard organisations, network organisations, academic institutions, and the media.

The primary beneficiaries of SF are society and the environment, which, despite their importance, have been neglected in the literature. Participation in social activities is essential for establishing the legitimacy of SF's efforts and results (Ebrahim & Rangan, 2014; Lehner & Nicholls, 2014). Traditional actors in the financial market continue to see the environment as a source of natural resources with endless potential. This human-centered perspective on the world has to shift if the SF is going to be effective (Gao & Bansal, 2013; Richardson, 2009).

A sizeable fraction of the players referred to in the previous sentence are eligible to take part in more than one of the four groups. For instance, governments are some of the most important backers of SF, but they may also play the role of providers by funding SF projects via public investment banks (Geddes et al., 2018), and they can play the role of beneficiaries through the issuing of sovereign bonds (Weber, 2005).

Strategies to implement sustainable finance

The next section will explore a variety of tactics that various actors in sustainable finance have reportedly employed according to the literature. When we talk about "strategy," we're referring to all of the collective measures that participants might take to increase their chances of achieving financially viable outcomes.

Providers

- Negative and positive screening (the removal or inclusion of assets based on sustainability criteria);
- shareholder activism (changing the behaviour of investee firms toward more sustainable practises); and socially responsible investing.
- Both ESG integration, which is the explicit and systematic evaluation of ESG risks and opportunities in investment choices, and community investing are becoming more popular (support for financially underserved communities)
- measuring and reporting the socioenvironmental outcomes of investments;

- providing managerial incentive structures aimed at valuing socioenvironmental performance;
- providing clients with the technical and financial support necessary to measure the socioenvironmental outcomes of projects;
- measuring and reporting the socioenvironmental outcomes of investments; and signing SFI initiatives, commitments, and protocols.

Recipients

- Providing managerial incentives for SFI,
- reorienting investor relations to communicate with SFI players, adopting sustainability accounting and reporting, issuing green bonds and social impact bonds,
- making philanthropic donations, participating in sustainability stock indices, and
- engaging in public–private funding arrangements to promote projects with high–positive social impacts are all good things to do.

Supporters

- There are four primary categories of policy instruments, which are as follows:
  In accordance with the hierarchy and authority reasoning, legal factors include state legislative, executive, and judicial authorities. Economic factors include incentives and market pressures. Informational factors include the persuasive rationale. Legal factors also include partnerships (co-regulatory networking rationale).

Challenges

A departure from the existing financial system is necessary in order to make progress toward more sustainable financial practises. Insufficient collective effort and a predisposition toward the short term are the two primary problems that must be overcome before successful implementation of sustainable finance can take place.

Insufficient private effort

Although adopting sustainable business and financial practises is a significant step in the direction of sustainable development, it may not be enough for two reasons. (i) the fallacy of composition and (ii) boundary problem.

(i) Fallacy of composition

The logical error known as the fallacy of composition occurs when someone draws the conclusion that something is true of the whole (macro) based on the fact that it is true of each individual portion (micro). Even if certain businesses internalise the social and environmental costs associated with their operations, there is no guarantee that the planetary limits will not be exceeded. One such example is the present push by businesses to lessen the impact of their operations on the environment caused by carbon emissions. This drive for eco-efficiency is, in and of itself, a desirable trend; nevertheless, the data that is now available implies that the anticipated trajectories for carbon emissions will exceed the permitted carbon budget for maintaining a temperature increase of less than 2 degrees Celsius (eco-effectiveness). According to Dyllick and Muff (2016), this disparity is referred to as the "huge disconnect." The counterintuitive discovery that increasing sustainable investment does not always encourage sustainable growth was noted by Busch, Bauer, and Orlitzky (2016).

The differences between the micro and macro results may be attributed to a number of factors. First, to discount future cash flows, businesses and financial institutions utilise a private discount factor. Stern (2008) contends that the government should regard both the present and the future generations equally, hence the public discount factor should be extremely modest or zero. Due to the fact that social and environmental effects are most noticeable over a lengthy period of time, private discounting results in inadequate effort from the standpoint of social welfare. Then, just 20% of businesses actively manage their carbon footprints in some way. These small-scale efforts are insufficient to maintain carbon emissions within the macro-level carbon budget.

(ii) Boundary problem

The boundary problem aggravates the difficulty of internalising externalities. When one sector's regulations are tightened, businesses will move to other industries and nations with less or no restrictions (Goodhart, 2008). Exemptions in the EU emissions trading scheme, such as those for aviation operating between EU and non-EU countries, emphasise the border issue (and the international coordination challenge) in environmental regulation. Other instances include national product rules that businesses might evade by shifting manufacturing to less restrictive nations. The application of product- or activity-based regulation may provide a solution to this issue (Schoenmaker and Wierts, 2015).

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Short-Termism

A significant barrier to sustainable financing is posed by the tragedy of the horizon (Carney, 2015). The expenses associated with taking action are incurred right now, but the rewards are not realised until far later. The effects of economic activity on society, and maybe even more so on the environment, are often not felt until a considerable amount of time has passed. Conventional financial management, on the other hand, focuses primarily on shorter time horizons, both for managers and investors.

- Reporting of financial information by corporations on a quarterly basis;
- Pay structures that vary depending on yearly performance;
- Monthly or quarterly benchmarks for measuring the overall performance of investors;
- Taking into account the current value of assets;
- handling of illiquid assets in terms of supervision.

The switch to sustainable finance is challenging because of these behaviours. There is a trade-off between creating policies or incentives that encourage managers' and investors' long-term behaviour and utilising markets as a tool for punishment. The widely acknowledged efficient markets theory, which holds that stock prices generally represent the long-term intrinsic value of the business by incorporating all relevant information, is a common thread driving these actions (Fama, 1970). The emphasis on stock price as the primary performance indicator for executive and investor performance is strengthened by the efficient markets concept.

Suggestions

Company perspective

- Change from a shareholder value strategy to a stakeholder value approach, in which a firm balances the interests of all its stakeholders: customers, workers, suppliers, shareholders, and the community.
- More generally, corporations should aim towards long-term value creation for the common good (that is, what is shared and useful to all or the majority of people of a particular community)

Extending the time horizon of executives and investors.

- The time horizons of executives and investors should be brought into alignment with the long term in order to combat short-termism.
- On the executive side, reducing short-termism may be accomplished by implementing a reporting system that is more long-term oriented (moving away from quarterly reporting) and a compensation structure for executives (such as deferred awards and claw back provisions).
- In a broader context, integrated reporting by firms improves the social and environmental openness of their operations, which in turn enhances the executives' level of personal responsibility.
- On the investment side, encouraging long-term investment might be accomplished by the implementation of a more long-term investment performance horizon (moving away from quarterly benchmarking), as well as incentives for long-term investors (such as loyalty shares).

Market efficiency and liquidity.

- Raise people's knowledge of the many competing ideas of market efficiency.
- The prevalent perspective of liquidity, which may be defined as the degree to which an asset can be swiftly acquired or sold in the market without impacting the price of the asset, favours listed assets and is based on the efficient markets hypothesis.
- The adaptive markets hypothesis is a different way of looking at things; it suggests that the level of market efficiency relies on an evolutionary model of people adjusting to different environments. This is an alternate point of view. This may help to explain why new risks, such as those related to the environment, are not (yet) completely factored in.

Supervisory intervention

- Reduce the bias in supervision that favours listed, "liquid" assets and promotes "buy and hold" investments. The launch of sustainable retail investment funds based on sustainability standards is one example (instead of transferability)
- In order to uncover overexposure and concentration in carbon-intensive assets, financial institutions should be subjected to stress tests. These carbon stress experiments use many climatic scenarios, including the negative scenario of late adjustment resulting in a "hard landing," and have a lengthy horizon over which unfavourable impacts might occur.

CONCLUSION

This article has provided an in-depth discussion of sustainable finance, its structure, need of incorporating sustainable sustainable finance into mainstream finance, important participants in sustainable finance, and the issues that sustainable finance confronts.

As a result of our in-depth research into the literature surrounding sustainable finance, we have learned that there are a number of unanswered questions that could be addressed by theoretical research. These questions concern the relationship between sustainable finance strategies and outcomes based on the most significant predicators, moderators, and mediators. The research might also address the motives and tactics of sustainable finance participants on the individual, organisational, and institutional levels. Research might also explain the notion of sustainable finance and provide underlying assumptions that could be evaluated by future empirical investigations in the area. Various empirical researches on sustainable finance have concentrated on quantitative analyses, particularly those using experimental and correlational techniques. Therefore, there is a high need for qualitative research and other quantitative research approaches. Case studies might give in-depth knowledge, such as evaluating the motives of sustainable finance participants or finding the best cost-effective techniques in certain institutional settings. To guarantee a diverse set of inputs for the study and to encourage the evaluation of non-financial effects of sustainable finance, new social and environmental data, metrics, and ratings might be generated, evaluated, and compared.

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