



A Systematic Literature Review On Green Financial Investment Products

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Abstract:

Globally, as environmental protection concerns develop, sustainability has become more important in all spheres of company operations. Scholars from all around the world have undertaken a great deal of research and study on the topic of financing sustainable business practices. The term "green financial investment products" has been used to describe these funding mechanisms. This study aims to identify the most researched components of green financial investment products by reviewing the literature written by scholars and academicians worldwide between 2017 and 2023. The study's conclusions show that there is a significant amount of skewness in the research on green financial investment products, and there is comparatively less focus on connecting new tech-enabled investment products, such as cryptocurrencies, to sustainability issues. As far as green financial investment products are concerned, research on green cryptocurrency markets has been found to receive less attention than research on green bonds. The results of this study will be useful in directing future research on the market for green cryptocurrencies and way forward to develop the same.

Key words: Sustainability; Investment Products; Market, Green Cryptocurrencies

Introduction

The financial industry should ideally support a more sustainable future through green finance. It directs funding from financiers, both institutional & retail, to finance environmental projects. This can include projects that lessen their negative effects on the environment, such as pollution control or clean water technology, or renewable energy sources, like solar or wind power, including use of green cryptocurrencies. Cryptocurrencies are increasingly becoming a favourite investment product, specially with the millennial and Gen-Z investors. However, cryptocurrencies are often criticized as they are associated with huge power consumption and hence high carbon footprint. The answer to this shortfall is greening of cryptocurrencies. Green cryptocurrencies derive their name from their much lower power consumption and much lesser carbon footprint.

The focus of green finance is a paradigm change. Investments were traditionally made purely for financial gains. Green financing serves as an additional environmental filter, giving projects that benefit the environment and generate profit top priority. Green investments are sums of money given to businesses that can clearly show they are pursuing a sustainable future. They take on different forms:

- Stocks: Invest in businesses creating sustainable practices or renewable energy sources like wind and solar power.
- Funds such as mutual funds or exchange-traded funds (ETFs) that combine investors' capital and focus on companies having a low environmental impact.
- Similar to conventional bonds, green bonds are used to finance environmentally beneficial initiatives like energy efficiency or clean water projects.
- Financial institutions offer green loans with advantageous conditions to companies or people who make investments in ecologically sound ventures.

These products take care of environmental issues as well as financial gains.

The scope of green finance extends beyond climate change. It covers a wider variety of environmental objectives, such as enhancing sanitation and conserving biodiversity. It does this by incorporating environmental factors into financial decisions in an effort to steer the economy toward greater sustainability.

The emergence of green finance is a reflection of the world's increasing awareness of environmental issues. It's an effective instrument for promoting change by raising money for a more environmentally friendly future.

The Sustainable Development Goals (SDGs) of the UN and green finance are complementary initiatives that aim to improve the future. These are how they are interconnected:

- Organizing Resources: It is predicted that the SDGs will require enormous annual investments totalling to trillions of dollars. By rerouting money flows from the public and commercial sectors toward sustainable development projects, green finance fills this gap.
- Aligning Priorities: Initiatives that directly aid in accomplishing the SDGs are given priority in the green finance sector. This covers targets like promoting clean water and sanitation (SDG 6), fighting climate change (SDG 13), and creating renewable energy infrastructure (SDG 7). Green finance drives the transition to a more sustainable world by providing funds for these efforts.
- Risk management: Financial institutions are encouraged by green finance to take environmental risks into account in addition to traditional financial concerns. This lessens the effects of problems like pollution and resource depletion, which can hurt businesses and entire economies. The SDGs' emphasis on fostering resilience for future generations is consistent with this focus on risk management.

- **Bringing in Investment:** Sustainability becomes a catalyst for economic expansion through green finance. Investors looking for both financial gains and a positive environmental impact are drawn to it. Businesses are encouraged to implement sustainable practices as a result, hastening the SDGs' advancement.
- **Accountability and openness:** Green financing encourages accountability and openness in sustainable processes. Through the establishment of green investment standards, such as green bonds, it guarantees that projects that get funding actually advance environmental objectives. The focus of the SDGs on responsible and quantifiable development is in line with this accountability.

The driving force behind our attainment of the SDGs is green financing. It makes financial resources for sustainable development accessible and encourages investors and companies to place equal emphasis on environmental preservation and economic expansion. For everyone, this potent combination presents a hopeful route to a more sustainable future.

Understanding and navigating the constantly changing world of green financial investment products requires a thorough reading of the literature. The following are some advantages of a literature review.

- **Finding patterns and Opportunities:** An analysis of green investment products identifies patterns, emphasizing developing markets or areas with rapid expansion. This makes it easier for investors to find potentially profitable and significant investment possibilities.
- **Evaluating Performance:** Studies examine the past achievements of various green investment options. As a result, investors are able to evaluate risk-reward profiles and decide how best to deploy their money.
- **Recognizing Risks:** Investing in green projects carries some risk. This information helps investors to reduce risks and make smart investments. A literature study examines potential issues, such as green-washing (businesses misrepresenting their environmental impact) or the lack of established definitions for "green."
- **Acquiring Knowledge from Specialists:** Examining scholarly and commercial studies offers access to perspectives from preeminent authorities on sustainable finance. This can improve investors' comprehension of the workings of the market and possible future paths for green investment products.
- **Developing a Robust investing Theory:** Investors can build a well-informed investing thesis by combining the best available information. This thesis provides a road map for investors' financial journey by outlining their investing objectives and how green products fit within them.

As a result, a literature study gives investors the information and understanding they need to make wise choices in the field of green investing. In light of this, this study was conducted to determine what factors academics studying green financial investment products deem significant as well as to pinpoint any gaps in previous research that would be worth doing.

Objectives of the study

The three pillars of sustainable development are ongoing economic, environmental, and social development. These three pillars are carefully balanced, with no one element taking precedence over the others. For this research, a literature review was conducted with an emphasis on striking a balance between environmental and economic development.

Investment by investors in financial products is necessary for economic progress. When environmental development is integrated into these financial products, they are referred to as "green financial investment products." As a result, green financial products target both environmental and economic sustainability.

There are four components to Green Financial Investment Products: securities and instruments, investor behavior, market mood, and regulatory structure.

This essay looks at academic research projects that have tackled one or more of the four previously listed components to uncover the most prevalent conclusions from these kinds of investigations. This study's secondary goal is to locate any areas that previous research hasn't touched on so that those areas can be the focus of subsequent investigations.

Methodology of the study

The study's scope has been restricted to the years 2017 through 2023. Papers that have been indexed by Google Scholar, Scopus, and Web of Science have been gathered through a variety of keyword searches involving the terms "carbon footprint," "green investments," "sustainability," and "environment."

This study used the PRISMA framework. Researchers performing systematic literature reviews can greatly benefit from the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework. It provides an open and scalable way to find, sort, evaluate, and compile pertinent research papers on a certain subject. Scholars who follow the PRISMA standards can be sure that their literature surveys are reliable, thorough, and of high quality.

A systematic literature review goes through three different stages, which are outlined under the PRISMA framework:

- **Protocol Development:** This first step is stating the review protocol and specifying the study question. The search approach, including the databases to be searched, keywords, and inclusion/exclusion criteria for choosing pertinent studies, is described in full in the protocol. A precise and targeted research topic serves as the review's cornerstone. It directs the search approach and guarantees that the literature found directly answers the research topic. To find relevant research in electronic databases, the search technique makes use of Boolean operators (AND, OR, NOT) and relevant keywords. The databases selected are based on the area of study; for example, PsycINFO is used for psychology research while PubMed is used for medical research. The purpose of inclusion and exclusion criteria is to screen studies according to predetermined attributes. This could have to do with restrictions on publishing dates, study designs (such only randomized controlled trials), target demographics, or research methods.
- **Study Selection:** Using the predetermined search strategy, this step entails searching the selected databases. After the references are retrieved, they are loaded into a reference management program for effective sorting and filtering. Researchers and scholars typically turn to a two-stage screening method. Titles and abstracts are scrutinized during the preliminary screening process in order to eliminate research that do not meet predetermined inclusion/exclusion criteria. Research that are judged possibly relevant move on to full-text screening, where the complete article is evaluated for methodological rigor and compatibility with the research question. At this point, the PRISMA flow diagram is essential. The process of selection is illustrated by a visual aid that shows the number of studies found at each stage (such as those obtained from databases, excluded during the title/abstract screening, and excluded during the full-text screening), culminating in the number of studies included in the final review.
- **Extraction and Synthesis of Data:** Following the identification of pertinent studies, data is structured and extracted. In order to do this, important data from each study must be extracted, including the study's design, demographic characteristics, intervention specifics, results, and primary conclusions. Organizing the retrieved data and finding themes, patterns, and trends among the included studies constitute data synthesis. Different synthesis techniques, such as narrative synthesis, thematic analysis, or meta-analysis (statistical pooling of data from multiple studies), may be used, depending on the research question.

Utilizing the PRISMA framework has the following benefits:

- **Transparency and Reproducibility:** Readers are able to appraise the methodology and validity of the review by obtaining thorough documentation of the search strategy, selection procedure, and data extraction. This makes it easier for other researchers to replicate the review.
- **Decreased Bias:** By using a systematic approach, bias in the selection and interpretation of studies is reduced. Researchers can avoid cherry-picking findings that confirm their preconceived notions by following predetermined criteria.
- **Thorough and Trustworthy Results:** The methodical approach to searching and choosing sources guarantees an exhaustive exploration for pertinent material, minimizing the probability of overlooking significant research. This results in a more trustworthy and solid body of evidence that backs up the research topic.
- **Improved Communication:** Readers are able to comprehend the reasoning behind the selection of included studies because of the PRISMA flow diagram and thorough reporting, which help to clearly communicate the review process.

PRISMA is a useful framework, therefore, for performing thorough and trustworthy systematic literature reviews. Researchers can guarantee the authenticity, transparency, and comprehensiveness of their research findings by adhering to its rules. In the end, this methodical technique fortifies the body of knowledge across a range of academic fields.

1,032 research papers were downloaded at first. After duplicate papers were eliminated, the total number of papers came down to 471. The number of papers decreased to 98 when papers with titles that did not match were eliminated from those. After these 98 studies were carefully reviewed, 18 of them were determined to be in line with the study's goals, and the study is based on those 18 papers.

Findings of the Study

Isa et al. (2017) used Rasch analysis to confirm the validity of a survey tool for office investors in Kuala Lumpur's green office building projects. To verify statistical acceptability, a questionnaire was sent to 106 office investors. The data was then examined according to predetermined specifications. Item fit analysis, encouraging summary statistics, and unidimensionality all backed the Rasch analysis's confirmation of the validity and reliability of every questionnaire item. Rasch analysis was presented in the paper as a novel method for evaluating the validity and reliability of data. Sections on demographic profiles, views on green buildings, return on investment, characteristics of green offices, obstacles to investment, and readiness to invest were all covered in the questionnaire. To reduce bias, careful item selection and questionnaire design were stressed. The results underscore the significance of data quality management in decision-making processes and advance our understanding of the variables impacting investments in green office buildings.

Bullock (2017) emphasized on the methodological problems with information-based governance. The study defined the terms validity, replicability, and reliability and used them to an evaluation of the openness and caliber of the information and techniques employed in the current information-based projects. It was also addressed how crucial life cycle techniques are to creating reliable environmental data about businesses and their products. Data from 245 cases of these efforts, with a few notable exceptions, showed a general lack of scientific transparency and validity and brought attention to the difficulties in creating reliable sustainability measures. The study addressed a number of significant trade-offs between various validity characteristics and offered a number of solutions for handling them. It also lists the database's most promising and troublesome information generating techniques along with the lessons that may be drawn from them.

Deschryver & Mariz (2020) examined the several obstacles that hinder the green bond market's potential to grow, including the absence of worldwide standards that are harmonized, the possibility of greenwashing, the perception of increased costs for issuers, the restricted supply of green bonds for investors, and the market's relative youth. Through the integration of market pricing analysis, literature review, and expert interviews, the research provided a thorough examination of these obstacles. It looked at the unique difficulties faced by various stakeholders and attempted to close the knowledge gap on the market's lack of scalability. The study also looked at the advantages of green bonds, what's driving the industry, and how to fully utilize green bonds to finance sustainability objectives.

According to Franck & Dejan (2020), the European Investment Bank issued the first green bond back in 2007. Since then, the market has grown significantly, with issuance rising from less than USD 1 billion to over USD 100 billion between 2007 and 2017. They looked into what made the green bond market so successful. Comparing green bonds versus non-green bonds, they examined if there were any direct or indirect economic benefits. They also looked closely into the reasons behind businesses' decisions to issue green bonds. In addition to the financial gains, they demonstrated that the primary forces behind the issue of green bonds were corporate attributes and the legislative framework pertaining to the environment.

The complex interrelationships between arbitration, environmental protection, and international investment law were examined by Baltag & Dautaj (2020). The function of the Investor-State Dispute Settlement (ISDS) system in resolving investment disputes involving environmental factors was examined by the writers. Contrary to allegations of threats and negative effects, they said that the ISDS system had been successful in providing proper settlement of investment disputes. By providing data that demonstrated that states won a sizable percentage of cases and that investors did not always win, the authors disproved the idea that there was investor bias in ISDS proceedings. The research tackled the notion of regulatory chill, recognizing its subjective nature while highlighting the fact that executive actions, rather than legislative acts, were the basis of most ISDS cases. They emphasized how crucial it is to support reform ideas with concrete data rather than generalizations. The authors contended that states' rights were typically safeguarded by treaties and emphasized that complaints of the ISDS system were sometimes not backed up by facts or case law. The study also covered how international treaties change over time, using the Gabčíkovo-Nagymaros case as an illustration of how treaties might change to reflect new standards of international law. The study stressed how important it is to take environmental preservation and other sustainable development goals into account when evaluating IIAs. The study emphasized how treaties are dynamic and how it's important to adjust to shifting international standards. The study also discussed how investment promotion and environmental conservation interact, emphasizing how crucial it is to strike a balance between these goals. The report emphasized the necessity of a coordinated strategy that took into account international investors' rights as well as environmental preservation. It was noted how crucial it is to strike a balance when arbitrating conflicts involving environmental issues by using Philippe Sands' viewpoint on the convergence of investor rights and environmental protection. In light of environmental concerns, the report argued for a sophisticated understanding of the intricacies inherent in international investment law and arbitration. They demanded a well-rounded strategy that would protect the rule of law and take into account the concerns of host states as well as investors.

Dhaval et al. (2021) investigated Indian retail investors' inclinations about green bonds. One of their main conclusions was that people were eager to invest in green bonds in order to gain both financial and environmental advantages. The study emphasized how critical it is to raise investor knowledge and how policymakers may be able to encourage the issue of green bonds. Their study's limitations were its emphasis on regional retail investors and the respondents' inexperience with the Indian bond market. In summary, the study highlighted the potential of green bonds as a sustainable investment choice in India, underscoring the necessity for additional investigation and regulatory backing.

Istomin & Beldina (2021) talked about how important it is to balance environmental concerns with investors' interests when making investments. It promoted a healthy coexistence of economic efficiency and environmental preservation and stressed the significance of taking public environmental interests into account in profit-making ventures. In order to guarantee that investors' actions comply with environmental regulations, the writers emphasized the importance of governmental environmental policy. They recommended favorable conditions for environmental investment projects and the inclusion of environmental protection concepts in investment laws. The urgent need to address environmental challenges through a combination of administrative strategies and the promotion of ecologically oriented investments, as well as the worldwide need for sustainable development, were also covered in the paper.

The critical analysis of Italian investments in Senegalese agro-fuel production was examined by Benegiamon (2022). The research provided insights on the traits of Italian investors involved in agro-energy production, the motivations for their participation, and the ensuing practical difficulties encountered. From the standpoint of Italian investors, the report emphasized the post-2007 land rush, highlighting the effects of European bio-fuel plans and the developing dynamics of the green economy. The study covered how Italy's public support programs and mandated targets affected the country's demand for agro-fuels and encouraged investments in crops like jatropha. After 2010, the Italian bio-fuels industry experienced a decline as the practical realities of the situation exposed the economic unviability of these endeavors. The study revealed the structural dynamics of green economy investments through fieldwork and desk analysis, emphasizing the inexperience and incapacity of certain Italian entrepreneurs joining the Senegalese agro-fuel sector. The necessity of a thoughtful evaluation of green economy policies and the influence of private actors on sustainable development goals were emphasized in the paper's conclusion. The concept of "green grabbing," in which resources and land are taken for environmental reasons, was also examined in the study, as well as how it related to the unsuccessful Italian investments in Senegal. The study challenges the green economy's speculative character by highlighting the discrepancy between optimistic projections and real results, especially when it comes to the effects on society and the environment. In light of Italian involvement in Senegal's agro-fuel industry, the study offered important insights into the nuances of green investments, the difficulties associated with land grabbing, and the wider implications for sustainable development.

In their book, Cerniglia & Saraceno (2022) explored the transformative power of public investments in Europe, especially in light of the Next Generation EU (NGEU) initiative and the necessity of moving toward a greener economy. This extensive publication examined the many facets of public investment and its role in promoting sustainable development by bringing together research works from different European institutions, university departments, and think tanks. The enormous influence of the NGEU initiative, which was expected to mobilize 750 billion euros and have the ability to both increase public and private investment, therefore stimulating economic growth, was one of the book's main themes. The authors emphasized the necessity of coordinated efforts across all sectors and levels of government and the significance of utilizing NGEU funds to advance the ecological transition in Europe. The book emphasized how important it is for the government to invest to solve urgent issues including energy transition, climate change, and sustainable development. It looked at several angles on funding green projects, the importance of green multipliers, regulatory issues, changes to industrial strategy, and the need for investment in the energy sector—which has become more significant in light of the situation in Ukraine. To guarantee the success of green investments, the writers also looked into the Eurozone's governance and the necessity of strategic coordination. The book also provided insight into how public investment has changed inside the EU, charting its course from the aftermath of the global financial crisis and the European sovereign debt crisis to the most recent legislative changes intended to boost public investment. It was noted that one important source of funding that has made it possible to enhance expenditures in R&D, digital technologies, and climate mitigation initiatives was the European Fund for Strategic expenditures (EFSI). The book covered how EU fiscal policy prioritized short- and long-term investment needs in response to the COVID-19 pandemic and the ensuing economic difficulties. One of the most important steps in

boosting the EU's development potential and directing public spending toward sustainable projects was the creation of the Recovery and Resilience Fund (RRF). Nevertheless, the advent of fresh difficulties, like the conflict in Ukraine, has made it difficult to carry out the investment plans that were already in place and emphasized the value of flexibility and resilience in the face of unanticipated circumstances. The book provided a thorough examination of the state of public investment in Europe at the time and emphasized the potential and difficulties involved in making the shift to a more sustainable and greener future. The book was an invaluable tool for politicians, economists, and other stakeholders who were involved in determining the direction of public investments in Europe since it brought together a variety of viewpoints and thoughts.

In order to lower CO₂ emissions, Raza et al. (2022) concentrated on the value of green R&D spending and patent creation in Pakistan. They emphasized the nation's initiatives to create environmentally friendly technology and increase energy efficiency via patents. Using a new decomposition method based on the Kaya identity, the study determined important variables impacting the advancement of technology and the decrease of CO₂ emissions. The results underlined how crucial R&D expenditures are to advancing green technologies and stimulating patent applications. The study emphasized how projects such as the China-Pakistan Economic Corridor (CPEC) have the potential to advance renewable energy technologies and lessen their negative environmental effects. Their research has yielded valuable information for Pakistani officials and company executives seeking to improve sustainability initiatives and mitigate the effects of climate change worldwide.

In order to demonstrate how investors might encourage compliance with climate change policy objectives through investment arbitration, Farnelli (2022) examined the applicability of environmental obligations, particularly those pertaining to climate change, in evaluating violations of investment agreements. After an introduction, the study was divided into four sections. First, the first concerns raised by the filing of environmental claims and defenses in investment arbitration were dealt with. Regarding appropriate legislation and jurisdiction, this matter was discussed. Second, the study concentrated on the potential application of environmental arguments by plaintiffs in investment arbitration. The study demonstrated that they could be pertinent from an interpretive as well as a factual one. Thirdly, the examination of evidential discrepancies concerning the use of environmental arguments in investment arbitration was conducted. The possible advantages for investors of bringing up climate change-related issues in investment arbitration were finally discussed in closing remarks.

According to Zhou and Jin's (2023) research, corporations have emerged as significant players in environmental conservation initiatives in response to grave environmental issues. Businesses might enhance their reputation, win over the public and the government, and increase their influence by taking on environmental obligations and working to safeguard the environment. Green investors and green executive cognition were significant forces in businesses and the market economy at the same time. Their study looked at how green investors and green executive cognition affected the relationship between environmental protection and sustainable development, as well as whether the environmental protection behavior of firms had a favorable impact on their sustainable growth. The fixed effects regression method was utilized in their study to investigate Chinese A-share listed corporations from 2011 to 2020. The findings demonstrated how corporate investment and environmental responsibility contributed to sustainable growth. The more environmentally conscious executives were, or the more green investors participated, the more environmental investments and environmental responsibility performances supported the sustainable growth of businesses. This study added to the body of knowledge on businesses' actions that promote sustainable development and environmental protection while also offering a theoretical framework for future research in these areas. According to the authors, executives and investors would be motivated by the role that green investors and green executive cognition play in advancing environmental preservation and the sustainable growth of businesses.

Drobetz et al. (2023) examined the impact of institutional investor ownership, namely investment horizon and investor origin, on the monetized environmental impact produced by their investee enterprises using an international data set to quantify corporate environmental costs. They concluded that there was a negative correlation between company environmental expenses and institutional investor ownership. Long-term foreign institutional investors, particularly those from advanced economies, were the main drivers of this effect. It was discovered that the cost of equity had a positive correlation with corporate environmental costs and a negative correlation with firm valuation. The study's findings shed new light on how institutional investors influence corporate environmental impact because environmental, social, and governance evaluations did not account for corporate environmental costs.

In the German-speaking region of Europe, Deniss and Hendrik (2023) made an effort to investigate the impact of the legal framework in place at the time on the investment choices made by institutional investors who prioritize sustainability. The study provided specific insights into investor preferences when buying green bonds, or bonds that helped reduce or prevent detrimental consequences coming from climate change, through the use of an institutional investor-focused structured questionnaire. Upon examination of the 179-person sample, it became evident that an investor needed to be confident in a green bond's legitimacy before deciding to buy one. Financial considerations like tax breaks and the state of interest rates also had an impact on how appealing green bonds were. The environmental pillar was shown to be the most significant for investors in the research on the impact of environmental, social, and governance (ESG) policies on green bond investment decisions.

In order to evaluate energy metals' potential as safe haven assets in clean energy investment portfolios, Dias et al. (2023) looked into the link between energy metals and precious metals. It concentrated on the consequences of the events that occurred between 2020 and 2022, which were marked by large investments in renewable energy. The study found that energy metals and clean energy indexes were positively correlated, with the exception of Nickel Futures (NICKELc1). This implied that green investors wishing to diversify their holdings might find them to be a safe investment choice. The study's conclusion thus rejected the first query, suggesting that energy metals might be regarded as safe havens in the context of clean energy investments. Furthermore, the study supported earlier discoveries that precious metals with safe haven qualities, such as gold, silver, and platinum, were associated with particular clean energy stock indices. These findings had important ramifications, especially in light of the rising clean energy stock investments and ongoing market concerns. The study provided credence to the notion that energy metals and precious metals might both be beneficial additions to clean energy portfolios, offering stability in volatile market conditions.

Glavas (2023) used stakeholder and agency theories to investigate why companies issue green bonds. The goal of the study was to identify the framework that best described how green bond issuing decisions are made. The study emphasized the competitive benefits of green bonds over traditional bonds, such as informing stakeholders and investors about company social responsibility initiatives. The study investigated the influence of environmental, social, and governance issues on the probability of corporations issuing green bonds through the examination of empirical data and regression models. The results illuminated the intricate relationship between stakeholder concerns and shareholder interests in sustainable finance, which helped to clarify the function of green finance and CSR practices in the financial industry.

In order to evaluate the influence of Environmental, Social, and Governance (ESG) Factors on investment decisions in Nepal, Karmacharya (2023) looked at Nepalese Business Studies. The study used statistical methods such as Confirmatory Factor Analysis (CFA) and Path Analysis, along with structured questionnaires with a sample size of 392 participants, to investigate the associations between ESG variables and investing choices. The study's conclusions showed that whereas environmental elements had a detrimental effect on investment decisions, maybe as a result of investors' lack of understanding, social

aspects had a favorable affect. The study also brought attention to the moderating effect that investor awareness has in the relationship between investment decisions and governance parameters. The study emphasized how important environmental, social, and governance factors are in influencing individual investors' decisions to make investments in Nepal.

Xiangfan (2023) investigated the dynamic investing environment that is influenced by unstable regulations and frequent tail occurrences. The study emphasized the need for fund managers to modify their strategies in order to effectively minimize risks. The study emphasized the relationship between high-risk and low-risk assets when building a portfolio and the significance of liquidity in times of market turbulence. The impact of international events such as the Sino-U.S. trade disputes and the COVID-19 epidemic on the financial markets, resulting in a change in investing environments and a rise in tail events. The concept of natural selection in the market, where investors had to adjust to shifting conditions in order to survive, was further examined in the study. According to the report, funds could manage risks and take advantage of market opportunities by using financial instruments, keeping liquidity, and handling hedging separately. The study emphasized how important it is for investors to be proactive, adaptable, and ready to deal with difficulties in the current volatile financial climate. This result suggested that while making investment decisions, investors should exercise greater caution about the environment.

The following four topics emerged from the survey of the eighteen study publications, and these have been the focus of all previous studies.

- The majority of green financial investment instruments are biased toward green bonds.
- To make wise and significant investment decisions, investors must keep up with changes in regulations, compliance standards, and sustainability trends.
- Financial performance, regulatory considerations, and environmental sustainability are some of the factors that influence investment decisions.

In the present global scenario where business houses are increasingly aligning their operations as per ESG guidelines and countries all over the globe have agreed on the 2030 SDG agenda, environmental sustainability has emerged as a key factor in guiding investment decisions, emphasizing the importance of energy efficiency, green certifications, and sustainability.

This review of literature identifies the fact that studies on markets for green cryptocurrencies which act as the linking pin between technology, finance, environment, legislation and the sentiment of the millennial and Gen-Z investors who are increasingly becoming an important investor class, have been so far inadequate in comparison with other green investment products like green bonds.

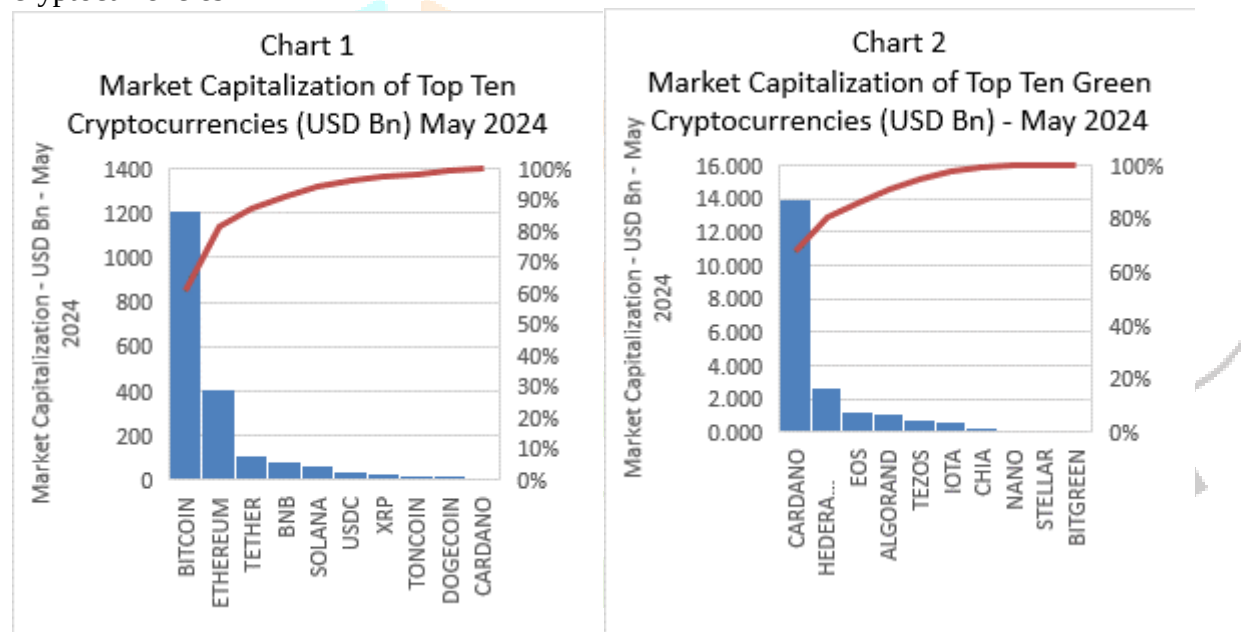
One of the reasons of such inadequate scholastic attention to green cryptocurrencies is the relatively smaller size of the market capitalization of green cryptocurrencies compared to that of other cryptocurrencies as is contained in Table 1 and Charts 1 & 2 below:

Table 1

Top Ten Cryptocurrencies and Top Ten Green Cryptocurrencies by Market Capitalization (May 2024)

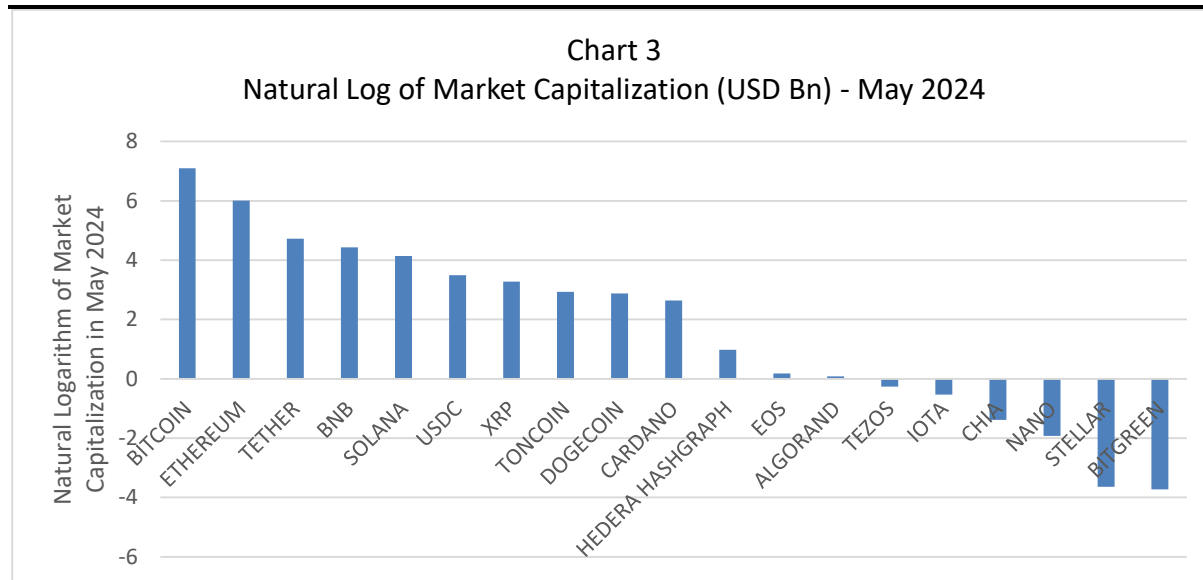
Top Ten Cryptocurrencies			Top Ten Green Cryptocurrencies		
	Crypto-Currencies	Market Capitalization in USD Bn May '24		Crypto-Currencies	Market Capitalization in USD Bn May '24
1.	Bitcoin	1210.25	1.	Cardano	13.940
2.	Ethereum	405.52	2.	Hedera Hashgraph	2.670
3.	Tether	112.86	3.	EOS	1.190
4.	BNB	84.27	4.	Algorand	1.090
5.	Solano	62.91	5.	Tezos	0.766
6.	USDC	32.72	6.	IOTA	0.588
7.	XRP	26.41	7.	Chia	0.249
8.	Toncoin	18.69	8.	Nano	0.145
9.	Dogecoin	17.79	9.	Stellar	0.026
10.	Cardano	13.94	10.	BitGreen	0.024

Source: <https://coinmarketcap.com/all/views/all/>; <https://prismecs.com/blog/the-10-most-sustainable-cryptocurrencies>



Source: <https://coinmarketcap.com/all/views/all/>; <https://prismecs.com/blog/the-10-most-sustainable-cryptocurrencies> and authors' own visualization of data

The contrasting position of market capitalizations of general cryptocurrencies and their green counterparts become more prominent if the natural logarithms of the market capitalizations of both the categories of cryptocurrencies are visualized together as given below in Chart 3



Source: Source: <https://coinmarketcap.com/all/views/all/>; <https://prismecs.com/blog/the-10-most-sustainable-cryptocurrencies> and authors' own calculations and visualization of data

Scope of Further Studies

Additional research on green cryptocurrencies and other green financial products, as well as the perspectives of institutional and retail investors, particularly millennial and Gen-Z investors, is highly warranted. The results of this and other studies in the future will be crucial in helping researchers, practitioners, and legislators promote sustainability in the investing sector.

Conclusion

Green bonds have received a lot of attention from green financial investment products. A growing percentage of millennial and Gen-Z investors favor tech-enabled investment products like cryptocurrencies and NFTs, according to the current global investor profile. But these investment products are sometimes accused for using a lot of energy and harming the environment as a result. Green cryptocurrencies, which maintain all the features and advantages of cryptocurrencies but with a considerably lower power consumption and, consequently, a much smaller carbon footprint, are the countermeasure for such negative impacts. Therefore, research on green cryptocurrencies is urgently needed, as is knowledge of and attitudes toward these instruments among investors and decision-makers.

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