

# ***Green or Greed? Examining the Realities of the ESG Investment Bubble***

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**Abstract:** This article conducts a rigorous examination of the fundamental nature and practical realities of Environmental, Social, and Governance (ESG) investments, systematically reviewing existing literature and research to underscore the ongoing discourse surrounding these investments. It acknowledges the considerable attention they have attracted in recent years, noting that ESG investments are regarded on one end of the spectrum as a sustainable and accountable form of financial engagement, promising long-term gains for investors. On the contrary, there is an emerging body of research suggesting that ESG investments might be nurturing a 'green bubble,' implying that the real benefits might not be as significant as they initially appear and could potentially introduce unexpected risks to investors. Additionally, the study methodically evaluates various determinants influencing ESG investments, which include technological innovations and policy changes, among others. In its conclusion, the paper presents a thorough and profound viewpoint, facilitating a deeper comprehension for individual investors, corporate bodies, and academic investigators of the complex practicalities and intertwined obstacles associated with ESG investments.

**Keywords:** ESG, investments, real benefits, green bubble, unexpected risks

## **1. Introduction**

With the advancement of global economic development and technological progress, the concept of Environmental, Social, and Governance (ESG) investing has been widely accepted and has gradually become a major trend in the investment realm [1]. This approach to investment not only focuses on the economic returns of a corporation but also values social responsibilities and impact on the environment. Concurrently, discussions on the "green bubble" have surfaced. This term refers to the overinflation of asset prices in the financial market due to overly optimistic expectations of green or sustainable investments [2].

History informs us that sustainability and green investments are not novel concepts. From early environmental movements to current global climate change issues, the close relationship between economic growth and environmental protection has been delineated [3]. Moreover, past financial market bubbles, such as the tech bubble and the real estate bubble, have provided researchers with empirical examples of market irrationalities and overvaluations of assets [4][5].

Investor irrationality is a significant field of study within finance. When market participants hold overly optimistic views about a particular investment domain, it can lead to a divergence of asset prices from their intrinsic values, resulting in a bubble [5]. When investigating the mechanisms

behind the "green bubble," the theories of market efficiency and inefficiency offer robust theoretical support to researchers [6]. These theories elucidate that under certain conditions, markets might fail to fully reflect all available information, leading to asset prices deviating from their true value.

To comprehensively understand the "green bubble" and its significance in the financial market, employing a Descriptive Review method proves to be an effective means. This method primarily focuses on the systematic description and summary of literature without delving into in-depth explanations or critical analysis.

Given the growing popularity of the ESG investment philosophy, understanding, and preventing the formation of a "green bubble" becomes especially crucial. This concerns not just the long-term interests of investors but also the stability and health of the global economy. Through such research, the aim is to offer academia and the practitioner community a more profound insight into the "green bubble," thereby providing valuable references and guidance for future green investment decisions.

## **2. Methodology**

### **2.1. Data Sources and Retrieval**

To gain a deeper understanding of the "green bubble" and its associated concepts, this study primarily combed through academic databases such as Google Scholar, JSTOR, and ScienceDirect for relevant research articles from the past decade. The sources for the review encompassed approximately 100 academic papers, spanning multiple disciplines and research areas.

The keywords for this review included, but were not limited to: "green", "environmental", "ESG", "finance", "carbon", "renewable energy", "investment", "risk", "bubble", "impact", and "threat". To ensure the breadth and depth of our search, this research utilized various combinations of these keywords to capture literature either directly related or potentially related to the green bubble.

### **2.2. Challenges, Adjustments, Filtering, and Categorization**

It's worth noting that, while the term "green bubble" has gradually surfaced in public discourse and some reports, academic research directly concerning this concept remains scarce. To bridge this research gap, concepts analogous to it, such as the "carbon bubble" and "green energy bubble". The core content of these papers but also delved into their bibliographies to extract more information similar to or related to the green bubble concept.

Given the voluminous potential literature, this study try to established a set of filtering criteria, including the publication date of the literature, the number of citations, the impact factor of the publishing journal, etc. The ultimate goal was to ensure that the literature reviewed holds high academic value and relevance. Additionally, this research categorized the chosen literature into conceptual definitions, causation analysis, potential impacts, and comparisons with other bubble concepts. Due to space constraints, subsequent discussions will focus primarily on representative literature to deeply explore the formation and potential impacts of the green bubble. These papers will aid in revealing the pivotal factors behind the green bubble and what potential risks are.

## **3. Discussion**

### **3.1. The Potential Existence of Green Bubble**

With the growing global attention to sustainable development and ESG factors, green investments are garnering increased focus. While this investment trend has its positive impacts, it also poses some unforeseen risks. In financial markets, a "bubble" phenomenon might emerge when investments in a particular asset category increase, valuations are overinflated, and they exceed the genuine intrinsic

value. This section will delve into the possibility of such a green bubble and the factors that might lead to its formation.

Due to the increasing emphasis on ESG factors [7], there's a heightened demand for assets related to ESG as investors seek them out. This surge in demand might create a competitive environment in the market, pushing investors to flock to the ESG sphere, driving up the prices of ESG-related assets. Simultaneously, uncertainties in climate policies can potentially lead to over-investments in these assets [2][8]. An overly optimistic stance on the implementation of climate policies and technological advancements might result in over-investment in ESG assets, neglecting the inherent risks, thereby shaping an ESG bubble. For instance, in China, the renewable energy sector once experienced a bubble [2]. As a crucial component of the green industry, its bubbly behavior might interact with and magnify market behaviors in other green sectors like electric vehicles and green buildings, intensifying the potential risk of a bubble in the overall green sector. Moreover, excessive investment enthusiasm [9] and specific investor groups, such as inexperienced investors, students, and some professionals, might further inflate asset prices [8][10]. Influenced by factors like market euphoria, policy incentives, media hype, and the public's heightened attention to environmental concerns, these investors could easily be drawn to the green asset domain, leading to over-investment and asset price inflation [9].

Government policies also play a pivotal role in the formation of a green bubble. Fiscal incentives provided by governments for green supply chains, like subsidies and preferential loans, could make investors overly optimistic about the future returns of green assets [11]. Such policies, combined with loose monetary policies, might result in excessive funds flowing into green assets [12][13]. Government support and policy interventions might fuel investor optimism regarding a green bubble, especially when these policies are perceived as drivers for future growth. However, this also raises the potential risks after the green bubble bursts, possibly inflicting significant economic damages on investors and markets [13][14]. Braga et al. also illustrated how public sector policy interventions can lead to over-investment and misjudgment of risks, aggravating the potential dangers of a green bubble [15]. These policy perspectives align with views on coal power overcapacity, suggesting that irrational investment behaviors might hinder the true green transition [9].

The intricacy and depth of financial markets further escalate the risk of forming a green bubble. Near-zero risk-free rates might encourage investors to pivot to riskier green assets [16] as they seek higher returns while potentially overlooking the associated risks. This trend mirrors the high-yield bond market, where, although it might not be a real bubble, overly optimistic expectations for future returns by investors might also manifest in the green investment market, leading to overvaluations of green assets. Additionally, geopolitical risks might exacerbate the formation of a green bubble [17] since nations might be inclined to develop local renewable energy sources. The BRICS nations - Brazil, Russia, India, China, and South Africa, owing to their rapid economic growth and swift shift to a green economy, might emerge as epicenters of the green bubble [17][18]. The rapid development and colossal demand for renewable energy in these countries might draw substantial investments. These investments, in the absence of proper regulations and excessive speculation, could lead to asset price bubbles. Simultaneously, the growth of green finance might overly depend on certain risk factors and government policies, leading to investment decision errors and amplifying the risk of a green bubble [17].

Finally, it's pivotal to recognize that when factors such as green investments, government incentives, and fluctuations in oil prices converge, they might cause a short-term overheating in the market [19][20]. Investors could be lured by green bonds and renewable energy projects, especially in scenarios where governments are actively promoting sustainable development and green finance. In such contexts, investors might over-pursue green assets, pushing their prices beyond reasonable levels, thereby elevating the risk of a green bubble. Furthermore, as ESG investments and the

importance of ESG factors gain traction globally, the market dynamics might induce asset overvaluation, which might consequently jeopardies global financial stability.

### 3.2. Drivers and Potential Risks of the Green Bubble

The formation of the green financial bubble is not merely the result of a single driver but emerges from a confluence of intertwined internal and external factors. Ranging from government policies, news coverage of climate disasters, external economic and political dynamics, to the multi-functionality of green infrastructure and the amplification of societal and moral elements, these drivers can profoundly influence the price trajectory of green assets, potentially leading to the bubble's inflation and subsequent burst. This section will explore these drivers and their potential ramifications on the green financial markets.

Building on the backdrop of public-sector involvement, there is an intimate connection between governmental agencies and the potential of a green bubble, as underlined by Braga et al. [15]. Specifically, governments employ tools such as subsidies, tax incentives, and low-risk green bonds to encourage green investments and sustainable development. However, this intervention could inadvertently pave the way for potential risks associated with the green bubble. For starters, government backing might lead to over-investments, prompting the prices of green assets to bloat unreasonably, paving the way for a bubble. Additionally, this intervention could instill a false sense of security among investors, making them underestimate the risks associated with green investments, banking on governmental support when required. Furthermore, policies motivated by political or societal agendas, rather than market demand or technological prospects, can result in the misallocation of resources, amplifying the bubble's risks. Lastly, an over-reliance on government support, with an inflated expectation of its continuity, can induce market instability should there be a change in policy or a reduction in support.

Transitioning to the influence of climate disasters and media portrayal, Marshall et al. suggest that a surge in news stories centered around climate disasters could propel the green bubble's development [21]. Such narratives can prompt investors to shift their focus disproportionately towards green investments, viewing them as a hedge against the impacts of climate change. However, if such an emphasis stems from emotional reactions rather than a grounded fundamental analysis, it might lead to irrational capital inflow into the green markets, subsequently inflating asset prices and inducing a bubble.

As Folqué et al. highlighted, external elements also play a pivotal role in shaping the trajectory [22]. Factors such as global economic conditions, geopolitical events, and natural disasters can profoundly influence the green bubble's evolution. Often unpredictable, these elements demand a holistic approach when evaluating the risks of a green bubble. Moreover, while sustainable investment strategies and regulations can help manage ESG risks, it's crucial to recognize that the attitudes and behaviors of market participants significantly shape asset prices. The reactive behaviors of fund managers, investors, and other market stakeholders can deeply impact the genesis of the green bubble.

Pallathadka et al. explored the interplay between green infrastructure and flood risks, hinting at potential links with the "green bubble" [23]. With an elevated environmental consciousness, both governments and private investors may exhibit a leaning towards green infrastructure investments to mitigate flood risks. However, if such investments are driven by short-term, immature, or overly optimistic expectations rather than grounded in genuine demand and long-term sustainability, it could result in the formation of a "green bubble." Furthermore, owing to the multi-functionality of green infrastructures, not only do they mitigate flood risks, but they also offer ecological, recreational, and aesthetic values. Overemphasizing these supplementary benefits and harboring inflated economic return expectations might catalyze the bubble's formation.

Lastly, providing a broader perspective, other paper also emphasized the escalating role of societal and moral principles in ESG investments [24]. With escalating social and environmental issues, there's a burgeoning interest in green finance, driven by an increasing concern for the moral and societal implications of investments. Such dynamics might lead to a surge in capital funneled into the green realm, accompanied, however, by the risks of a green bubble [25]. Under such influences, investors might priorities moral and societal outcomes over financial returns, potentially leading them to chase green assets without robust analysis and valuation, further exacerbating the risk of bubble formation.

#### 4. Conclusion

The process of forming a green financial bubble is intricate, affected by numerous internal and external factors. Public sector interventions may promote green investment, but they also bear the risk of leading to excessive investment and unjustified asset price inflation. The portrayal of climatic disasters in news reports and reactions to external economic events can foster unrealistic expectations among investors, which may contribute to the development of a bubble. The multi-functional nature of green infrastructure, along with societal and moral principles, may also drive excessive capital inflow into the green market, thus increasing the bubble risk.

Discussions within this study have revealed that the formation and bursting of a green financial bubble are not merely outcomes of market supply and demand. They are intertwined with a combination of macro and micro factors. In order to mitigate the risks associated with a green bubble, a comprehensive understanding of these factors is crucial for investors, policymakers, and market participants when making informed decisions. In the context of escalating environmental and societal issues, investments should be anchored on genuine value and long-term sustainability rather than short-lived gains or reactionary impulses. Recognition of the potential for a 'green bubble' is paramount among stakeholders.

Looking towards future research directions, with the increasing prevalence of ESG investments and concerns about potential bubble risks, there is a clear need to broaden the scope of understanding. Research should investigate the impact of ESG investments on the wider economy, including employment and innovation, and assess how these investments may drive or hinder economic growth and technological advancements. Defining and quantifying the 'bubble' characteristics within ESG investments remain challenging, and future research should aim to understand how market dynamics, investor behaviors, and external economic factors contribute to ESG overvaluation. Expansion of this research to include emerging markets and developing countries is essential for a comprehensive understanding of global market responses and risk assessment.

Furthermore, with technological advancements, research into the roles of big data and machine learning in ESG investment decisions is warranted. These technologies have the potential to optimize investment strategies and enhance market efficiency. A systematic investigation into how different ESG factors contribute to investment returns could also provide more precise guidance for investors.

This study acknowledges that despite thorough efforts to cover the breadth and depth of the topic, limitations exist, including keyword selection, data source constraints, and the time frame of the study. These limitations may introduce omissions or biases, and future research is encouraged to address these gaps, supplementing and refining the insights offered in this analysis.

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