

UNRAVELLING MOTIVES, DETERMINANTS AND OUTCOMES OF GREEN BOND ISSUANCE: A SYSTEMATIC LITERATURE REVIEW AND FUTURE RESEARCH AGENDA

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Abstract

How to cite this paper: Ashri, D. (2025). Unravelling motives, determinants and outcomes of green bond issuance: A systematic literature review and future research agenda. *Corporate Ownership & Control*, 22(3), 153–168.
<https://doi.org/10.22495/cocv22i3art12>

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ISSN Online: 1810-3057

ISSN Print: 1727-9232

Received: 08.08.2025

Revised: 22.09.2025; 06.10.2025

Accepted: 14.10.2025

JEL Classification: G32, M14

DOI: 10.22495/cocv22i3art12

This paper provides a comprehensive systematic literature review (SLR) of existing research on corporate green bond issuance (GBI). The study aims to 1) identify the motivations of issuers for issuing green bonds (GB), 2) examine the determinants, and 3) assess the outcomes of GBI. Adopting the SLR method, I reviewed 38 articles published between the years 2019 and 2024 in 23 journals from finance, economics, and management disciplines that have been ranked in the Australian Business Deans Council (ABDC) 2022 list. Key findings show that, first, improving corporate reputation is the key motivation for the issuers. Additional motives could be easing financial constraints or greenwashing. Second, macroeconomic conditions, policy support, and issuers' characteristics are significant determinants of GBI. Third, post-issuance issuers witness increased institutional ownership, enhanced environmental performance, and reduced corporate cost of capital. By consolidating these insights, this study advances prior research by systematically synthesising GBI literature, offering a theoretical framework by integrating signalling and greenwashing perspectives, and outlining future research.

Keywords: Green Bonds, Green Bond Issuance, Systematic Literature Review

Authors' individual contribution: The Author is responsible for all the contributions to the paper according to CRediT (Contributor Roles Taxonomy) standards.

Declaration of conflicting interests: The Author declares that there is no conflict of interest.

1. INTRODUCTION

In the past decade, the wide-ranging effects of climate change have caught the attention of academicians, industries, and regulators. The Paris Agreement 2015 catalysed discussions around sustainability, climate change, and green finance (Strielkowski, 2020). At the microeconomic level, firms undertake environmentally beneficial projects to mitigate their environmental impact. This has created a need for financial instruments, such as green bonds (GBs), to mobilise funds for green initiatives (Gilchrist et al., 2021; Painter-Morland et al., 2016). The GB market has expanded rapidly in response to this demand.

Despite the substantial growth in GB literature over the past five years, fragmentation persists, underscoring the need for a systematic review. Prior reviews have explored green finance more broadly, with GBs only as part of a larger discussion (Gilchrist et al., 2021; Abhilash et al., 2022). More recent systematic reviews have focused exclusively on GBs, covering themes such as the existence of a GB premium (greenium), market performance, links with other instruments, and supply-side determinants (Cortellini & Panetta, 2021; MacAskill et al., 2021; Bhutta et al., 2022; Abhilash et al., 2023; Gyamerah & Asare, 2024). I acknowledge the valuable contributions of previous reviews;

however, they lack in-depth exploration of the studies from the issuers' standpoint.

Thus, this study differentiates itself from previous systematic literature reviews (SLRs) in terms of its scope by focusing on corporate issuers only. In particular, I examine issuers' rationales (or motives), determinants, and outcomes associated with green bond issuance (GBI). Therefore, I organise this review around three primary research questions:

RQ1: What are the key motives for firms to issue green bonds?

RQ2: What are the determinants of green bond issuance?

RQ3: What are the outcomes for the firms by issuing green bonds?

I distinguish between motives and determinants of GBI, wherein motives refer to the underlying intentions or rationale that drive firms to issue GBs. More importantly, motives also provide a theoretical lens for interpreting subsequent outcomes. In contrast, determinants are the empirically observable factors that influence issuance decisions, including firm-specific characteristics, macroeconomic conditions, etc. By disentangling these constructs, the study offers a nuanced issuer-centric perspective that enables a more robust analysis.

An investigation focused exclusively on corporate issuers is both timely and significant due to several reasons. Firstly, corporations represent a considerable share of global greenhouse gas emissions and resource consumption; thus, their investment decisions directly affect the transition to a low-carbon economy. Secondly, the motivations for corporates are often fundamentally distinct from those of sovereign or municipal issuers. Lastly, insights from corporate GBI can have significant implications for regulators, investors, and managers.

Using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) protocol, this work systematically reviewed 38 articles published between 2019 and 2024 across 23 journals in the domain of finance, economics, and business management. The analysis reveals that one of the primary motives for issuing GBs is to signal environmental commitment to investors (Benlemlih et al., 2023; Dutordoir et al., 2023; Fatica & Panzica, 2021; Flammer, 2021). However, alternative motives could be greenwashing and easing financial constraints.

The determinants of GBI identified in the literature can be broadly categorised into three groups: 1) macroeconomic conditions, 2) policy support, and 3) firm-specific characteristics. Post-issuance, firms witness a reduction in the cost of capital and exposure to carbon risk, as well as an increase in firm value and institutional ownership.

This review contributes to the extant literature in several ways. Firstly, it organises and thoroughly reviews the literature on GBs from the issuer's point of view. I document the motives for offering GBs and consolidate fragmented literature on the determinants and outcomes associated with issuing GBs. Secondly, the study offers future research questions. Finally, the study also provides a comprehensive framework instrumental in guiding researchers and practitioners in advancing their understanding of GBs.

The paper proceeds as follows. Section 2 describes the background literature. Section 3 delineates the article selection criteria and provides

a descriptive overview of the selected studies. Section 4 identifies the issuers' motives, determinants, and outcomes of GB issuance. Section 5 outlines future research avenues and offers a comprehensive framework for researchers and practitioners. Section 6 concludes the paper.

2. BACKGROUND LITERATURE

The "going green" narrative has been popularised in recent years (Strielkowski, 2020). In an attempt to transition to a low-carbon economy, the first step for policymakers is to green the financial system itself (Gilchrist et al., 2021). Efforts have been made to make green investments. Corporations are stepping up and undertaking projects that have environmental benefits (Flammer, 2021; García et al., 2023). In such a situation, the need for financial instruments, such as GBs, arises to mobilise funds for green projects. Given increasing demand, the GBs market has experienced remarkable growth since its inception in 2007 by the European Investment Bank, significantly accelerating after the Paris Agreement 2015 (Fatica & Panzica, 2021; Tolliver et al., 2019). According to Harrison et al. (2022), approximately USD 522.7 billion GBs were issued in 2021, bringing the cumulative total to a staggering USD 1.6 trillion.

The Green Bonds Principles (GBP) define GBs as "any type of bond instrument where the proceeds or an equivalent amount will be exclusively applied to finance or re-finance, in part or in full, new and/or existing eligible Green Projects" (International Capital Market Association [ICMA], 2021, p. 3). Unlike other sustainable finance instruments, such as sustainability-linked loans or environmental, social, and governance (ESG)-screened equity funds, GBs directly channel capital to green projects while providing issuers with reputational benefits and investors with a credible sustainability signal (Benlemlih et al., 2023; Sisodia et al., 2022). However, definitional ambiguities remain, as classification systems and taxonomies differ across jurisdictions (Gilchrist et al., 2021). The absence of harmonised certification standards, definitional ambiguities across taxonomies, and jurisdictional differences in what constitutes "green" create incentives for issuers to pursue greenwashing (ElBannan & Löffler, 2024; Shi et al., 2023). Furthermore, concerns regarding the credibility of environmental reporting, the risk of greenwashing, high transaction costs, and limited market liquidity remain key barriers (Banga, 2019; Otek Ntsama et al., 2021). These barriers are particularly acute in emerging economies, where shallow financial markets exacerbate access constraints to green finance (Abhilash et al., 2023).

As summarised in Table 1, prior reviews use methodologies ranging from bibliometric analyses to SLRs. To elaborate, MacAskill et al. (2021) focus on green premium (greenium), Abhilash et al. (2022) review GB literature in the context of emerging economies to identify bottlenecks for the GB market, and Gyamerah and Asare (2024) review how macroeconomic shocks influence GBs' returns. Bhutta et al. (2022) identify factors that hinder the expansion of the GBs market, like the role of regulation and building investor trust through the quality of information about GBs. While these studies provide valuable overviews, they often analyse the GB market in aggregate and do not

systematically synthesise issuer-level insights. This study differentiates itself by focusing exclusively on corporate issuers, examining: 1) the underlying motives driving issuance, 2) the determinants shaping issuance decisions, and 3) the outcomes

for issuing firms. I further distinguish between motives, which reflect firms' strategic and reputational intentions, and determinants, which refer to observable macroeconomic or firm-level factors.

Table 1. Existing reviews

Type	Reference	Focus	Methodology	Findings
GB as a part of the review	Gilchrist et al. (2021)	GBs and syndicated loans	No standardized literature selection model	Identified various advantages and deterrents of green finance.
	Abhilash et al. (2022)	Overall GB market	Bibliometric analysis	Identified major themes: sustainable finance, GBs, and green finance.
Focuses exclusively on GBs	Cortellini and Panetta (2021)	GBs	SLR	Identified five major research themes: greenium, connection of GBs with other instruments, GB market performance, market reaction to GBs issuance, and supply side analysis of GBs.
	MacAskill et al. (2021)	GBs premium (greenium)	SLR	Finds a consensus on the existence of greenium and investigates drivers.
	Bhutta et al. (2022)	Factors influencing the development of the GBs market and implications of GBs	SLR	Factors associated with the development of the GB market and their impact on issuers.
	Abhilash et al. (2023)	GB in the Indian context	SLR	Highlighted challenges to the GB market in the context of emerging market economies.
	Gyamerah and Asare (2024)	GBs returns	SLR	GB returns are influenced by macroeconomic shocks.

Source: Author's elaboration.

3. METHODOLOGY

3.1. Systematic literature review approach

Systematic literature review (SLR) has gained prominence in business and management research, enabling us to aggregate and appraise extant literature to address specific research questions.

This methodology is robust, facilitating both consolidation of existing knowledge and identification of future research avenues (Snyder, 2019). Following Benachio et al. (2020) and Xavier et al. (2017), I adopt the SLR strategy suggested by Briner and Denyer (2012) to provide a transparent and reproducible literature review (see Table 2).

Table 2. Structure of systematic review protocol

Background to review	• Growth in corporate GBI. • Lack of comprehensive review studies from the issuer's point of view. • No review was carried out to chart out the motivations, determinants, and outcomes for the issuers of GBs.
Objectives	• Identifying the motivation for the firm to issue GBs. • Identifying what factors influence the issuance of corporate GBs. • To highlight firm-level outcomes of GBI.
Criteria for considering studies for this review	• Articles that examine aspects of corporate GBI. • Studies from the subject areas of economics, finance, and business management.
Search strategy for identification of studies	• Databases utilised: WoS and Scopus. • Period: 2019 to 2024. • Keywords string using Boolean operators: "corporate* green bond*" OR "green bond" AND "compan*" OR "green bond" AND "firm*" OR "green sukuk". • Types of studies: qualitative and quantitative.
Eligibility	Inclusion criteria: • Studies related to corporate GB issuers; • Only academic journal articles; • Documents written in English. Exclusion criteria: • Studies related to the GB market; • Studies related to greenium; • Studies related to GB investments or portfolio; • Studies not written in English; • Conference proceedings and book chapters are not to be included.
Assessment of methodological quality	Australian Business Deans Council (ABDC) 2022 list.
Synthesis	Aggregation, synthesis, and interpretation.

Source: Adapted by the author from Briner and Denyer (2012).

The necessity for this review arises from the rapid expansion of the GB market, paralleled by the increasing number of studies. This has resulted in a fragmented body of literature, underscoring the need for reviews to aggregate findings. Existing reviews have focused on greenium (MacAskill et al.,

2021), emerging economies (Abhilash et al., 2023), and GB returns (Gyamerah & Asare, 2024). Bhutta et al. (2022) focus on documenting macro-level factors that can help support the growth of the GB market. Seldom have attempts been made to review studies that document the issuer's point of view, or

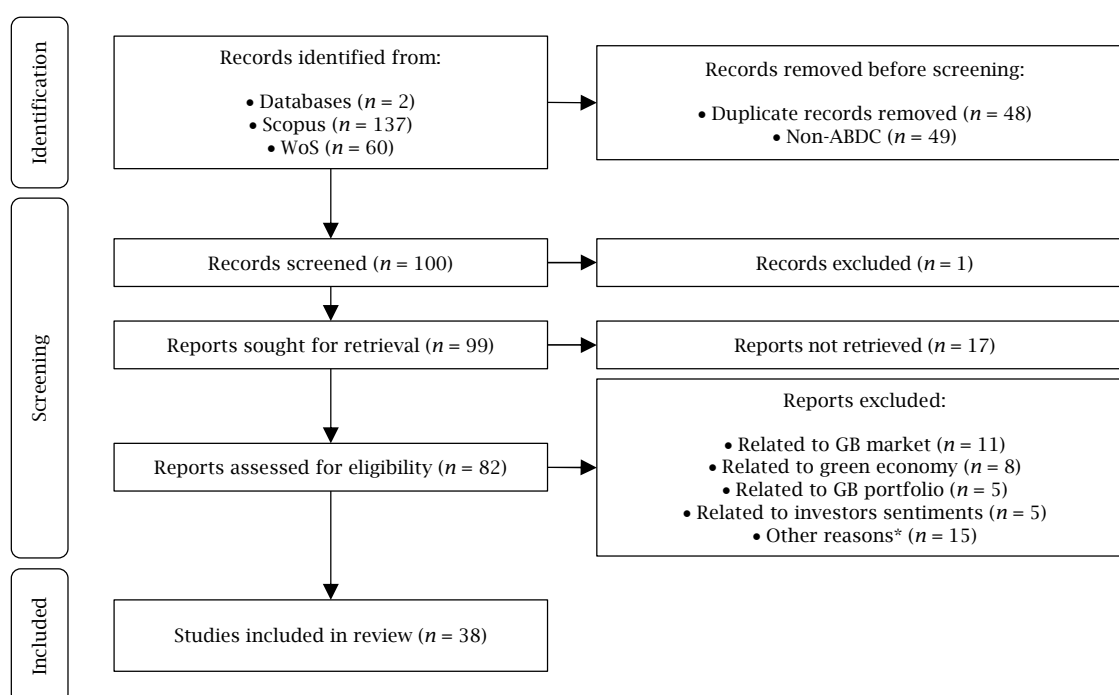
what Cortellini and Panetta (2021) call the studies on the “supply-side” of GBs. Against this backdrop, the objectives of this review are threefold. First, the key motives of the issuers of GBs must be identified. Second, recognising the determinants of GB issuance at the macro and micro levels. And third, assessing outcomes (or benefits) for the issuers.

This article is restricted to articles published in the journals from the subject areas of economics, finance, and business management. I utilised two of the most popular academic databases: Scopus and Web of Science (WoS). Both databases span multiple disciplines and are increasingly prevalent in management research (Paul et al., 2021). To thoroughly capture relevant literature on corporate-level GBs, a keyword search was conducted using terms such as “corporate* green bond*”, “compan*”,

and “firm*”. The keyword “Green sukuk” was also included to account for terminology used in the Malaysian context, where GBs are often referred to as green sukuk (Tang & Zhang, 2020). Thereafter, I decided on various inclusion and exclusion criteria. Only studies pertaining to GB issuers, published in English, and appearing in ABDC-listed journals were considered to maintain a high standard of quality.

I relied on the PRISMA protocol to select relevant articles for this review. The protocol suggests three stages: identification, screening, and inclusion (Page et al., 2021). In the identification stage, 197 documents were identified from WoS ($n = 60$) and Scopus ($n = 137$). After the elimination of 48 duplicate documents, 99 documents remained for screening. Finally, 38 articles were included after removing inaccessible ($n = 17$) and irrelevant ($n = 44$) documents (see Figure 1).

Figure 1. PRISMA protocol



Note: * Articles related to sustainability-linked bonds, GB pricing, Sovereign Green Bonds (SGBs), etc., were excluded.
Source: Author's elaboration based on Page et al. (2021).

3.2. Descriptive analysis

Details of 38 papers from 23 journals reviewed in this study are presented in Table A.1 (see Appendix) and Table 3.

It has been observed that the number of studies exploring determinants, motives, and outcomes of corporate GBI has steadily risen since 2021 (see Figure 2). Over 75% of the studies have been published between 2022 and 2024. Almost one-third of the studies have been published in the year 2023.

Almost 47% of the studies have been carried out on GBs in the global context (see Figure 3). The studies from China (39%) have garnered much attention from the academicians. However, studies focusing on emerging economies are underrepresented in the literature.

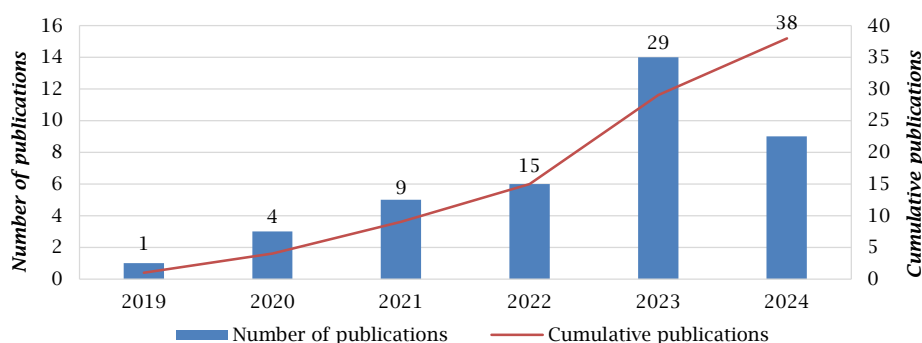
Out of the selected 38 articles, 37 articles employ a quantitative approach. Only one article has relied on a qualitative research design (Deschryver & de Mariz, 2020). Table 4 analyzes various models or research methods used by the researchers over the years. The difference-in-differences (DID) method remains a popular choice amongst researchers for establishing causal inferences for assessing outcomes of GB issuance. Literature is lagging in picking qualitative research methods, even though qualitative data provides rich insights. For instance, Deschryver and de Mariz (2020) conducted interviews with experts, including issuers, to assess managerial perspectives on GBs. Tang et al. (2023) also used content analysis to measure environmental information disclosure (EID) for GBs to capture detailed, multi-dimensional environmental disclosures, allowing flexible scoring with weighted indicators.

Table 3. Articles in journals

Journals	Total articles	Journals	Total articles
<i>Applied Economics</i>	1	<i>International Review of Financial Analysis</i>	2
<i>Applied Economics Letters</i>	1	<i>Journal of Asian Economics</i>	1
<i>Asia-Pacific Financial Markets</i>	1	<i>Journal of Banking & Finance</i>	1
<i>Asia-Pacific Journal of Financial Studies</i>	1	<i>Journal of Cleaner Production</i>	2
<i>British Journal of Management</i>	1	<i>Journal of Corporate Finance</i>	1
<i>Business Strategy and the Environment</i>	7	<i>Journal of Financial Economics</i>	1
<i>Economic Modelling</i>	1	<i>Journal of Risk and Financial Management</i>	2
<i>Energy Economics</i>	2	<i>Managerial Finance</i>	1
<i>European Financial Management</i>	1	<i>Pacific-Basin Finance Journal</i>	1
<i>Finance Research Letters</i>	5	<i>Research in International Business and Finance</i>	1
<i>Global Finance Journal</i>	2	<i>Technological Forecasting and Social Change</i>	1
<i>International Journal of Managerial Finance</i>	1	Total publications	38

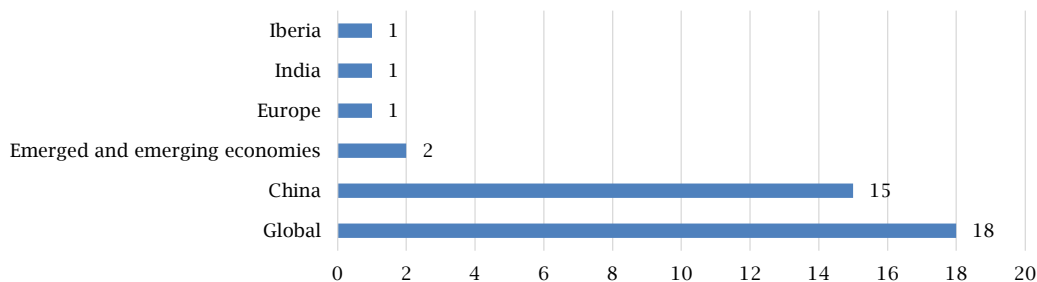
Source: Author's elaboration.

Figure 2. Year-wise distribution of the selected studies



Source: Author's elaboration.

Figure 3. Geographic scope of the selected studies



Source: Author's elaboration.

Table 4. Methods over the years

Methods	2019	2020	2021	2022	2023	2024
Panel data regressions	*	**	*	*	**	****
Machine learning models						*
Event study		**	*		*	*
DID			***		*****	
Propensity score matching-difference-in-differences (PSM-DID)				*	*	
Linear probability model				***	****	*
Generalized least squares (GLS)			*			
Dynamic conditional correlation-generalized autoregressive conditional heteroskedasticity (DCC-GARCH)					*	
Structural vector autoregression (SVAR)				*		
Ordinary least squares (OLS)				*	*	
Qualitative research design		*				

Note: * denotes that the method was employed in one study, ** in two studies, *** in three studies, **** in four studies, and ***** in five studies.

Source: Author's elaboration.

4. FINDINGS

4.1. Motive for issuing green bonds: A theoretical lens

This section discusses corporate-specific motivations for issuing GBs. Three motives have been discussed in the literature: 1) signalling, 2) easing financial constraints, and 3) the greenwashing motive.

4.1.1. Signalling argument

The concept of information asymmetry has been well-documented in corporate finance literature. In their seminal paper, Myers and Majluf (1984) posited that a pecking order emerges, as managers (insiders) command superior information concerning the firm than the potential investors (outsiders). Therefore, to mitigate these informational gaps,

firms may transmit signals to various stakeholders. Issuing GBs enables firms to signal their environmental commitment (Benlemlih et al., 2023; Dutordoir et al., 2023; Fatica & Panzica, 2021; García et al., 2023; Sisodia et al., 2022).

However, the signalling theory also suggests these signals are effective only if investors perceive such signals as credible. Existing literature recognises GBs as a credible signal due to two reasons. First, firms commit significant funds to finance eco-friendly projects. Second, credibility is further enhanced through certifications issued by independent third parties. For instance, the ICMA evaluates GBs based on GBP. This process involves internal and external costs. Internal costs are incurred on modifying or improving existing internal controls or creating new ones to review and monitor the use of proceeds. External costs are incurred to hire auditors or other costs for obtaining certification (Zirek & Unsal, 2023). Failure to maintain compliance with green certification standards (or so-called green defaults) is costly and can damage the firm's reputation (Flammer, 2021; Sisodia et al., 2022). However, it is essential to note that obtaining certification is discretionary for the issuers. Nevertheless, these certifications by a third party can help boost investors' confidence and improve environmental performance (Yeow & Ng, 2021).

4.1.2. Easing financial constraints

Wei et al. (2023) documented no improvement in environmental performance post-issuance of GBs, attributing this outcome to the issuer's primary motivation of alleviating financial constraints rather than pursuing environmental benefits. Their findings stand in contrast to those of Fatica and Panzica (2021), García et al. (2023), and Benlemlih et al. (2023), all of whom find evidence suggesting that GBI is associated with improvements in environmental performance. In line with Wei et al. (2023), Gan et al. (2024) also demonstrate that Chinese firms issuing GBs could attain higher trade credit than those with conventional bonds. They argue that the tightly regulated Chinese GBs market fosters mutual trust between firms and suppliers. Such enhanced access to trade credit provides firms with alternative avenues to mitigate financial constraints, potentially substituting for more traditional credit sources such as bank loans. While some studies acknowledge that the alleviation of financial constraints serves as a potential motive for issuing GBs, empirical investigation remains limited.

4.1.3. Greenwashing and green bonds

In response to climate change and environmental degradation, businesses are now focusing on economic, social, and environmental performance (Porter & Kramer, 2006). Research indicates that communication of such activities can help a firm gain a competitive advantage (Herold & Lee, 2017) and improve the company's image (Uyar et al., 2020). Nevertheless, this shift toward sustainability has been accompanied by the proliferation of greenwashing practices. Lyon and Montgomery (2015) argue that greenwashing is multifaceted and no stiff definition exists. However, broadly speaking, it can be referred to as a phenomenon whereby the firm misleads its stakeholders by showcasing itself as an environmentally responsible entity to enjoy the reputational benefits generated thereof (de Freitas Netto et al., 2020).

In the absence of any rigid definition of greenwashing, defining it in the context of GBI becomes crucial. In the context of GBs, greenwashing can be seen as selective disclosure, making false or exaggerated claims about the environmental benefits of the project to be financed (Zirek & Unsal, 2023), or not utilizing or diverting the proceeds for the intended purposes defined in the prospectus (García et al., 2023). Shi et al. (2023) characterise greenwashing as an exponential rise in the quantum of green patents of the firms while compromising on the quality.

A question arises as to why an issuer would engage in greenwashing. The literature suggests two reasons: first, the intrinsic motivation of the firm to create an image of being "green" and enjoy the reputational gains (Benlemlih et al., 2023; Dutordoir et al., 2023; Flammer, 2021; García et al., 2023), and second, to gain support from the government (Azhgaliyeva et al., 2022).

Flammer (2021) argued that the company's environmental performance would not improve post-issuance in the case of greenwashing. The empirical findings of this study are inconsistent with the greenwashing view. One possible explanation could be that firms practising greenwashing may selectively disclose or falsify information to improve environmental-related ratings.

While a growing number of studies have suggested better environmental scores, a reduction in the quantum of carbon emission has not been observed post-issuance (ElBannan & Löffler, 2024). Shi et al. (2023) contend that some issuers may have greenwashing as their primary motivation. Greenwashing could be successful since potential investors do not possess adequate information about the instrument, like its characteristics, benefits, or information asymmetry. Considering that GBs are relatively new instruments, the problem of asymmetric information will be even more severe (Tang et al., 2023). Furthermore, it will be difficult for potential investors to assess the green projects undertaken by the issuer due to a lack of information.

In such a situation, the role of regulators becomes paramount in addressing greenwashing risks (Tang et al., 2023). Research has shown that third-party GBs certification can address the greenwashing risks (Zirek & Unsal, 2023). However, compliance with such requirements (say, GBP issued by ICMA) is voluntary. While the GB markets have been thriving in recent years, the development of regulatory requirements is in the nascent stage (Deschryver & de Mariz, 2020). Current regulatory conditions are inadequate in addressing greenwashing concerns. From an *ex-ante* perspective, the existing standards are inadequate, and compliance with such standards is not compulsory. García et al. (2023) also highlight the absence of a consistent definition of "green" across regions. From an *ex-post* perspective, no uniform disclosure requirements have yet been established in the GB market. This makes inter-project and intra-project comparisons challenging.

4.2. Determinants of green bond issuance

An important question investigated in the literature is the determinants of GBs' offerings. The general econometric model to test the impact of determinants on GBI can be formalized as follows:

$$GB_{it} = \alpha + \beta X_{it} + \gamma Z_{it} + \vartheta_i + \mu_t + \varepsilon_{it} \quad (1)$$

where, GB is a measure of green bond issuance. X represents the variable of interest used in the study. Z denotes a vector of control variables. θ_i and μ_t capture firm and time fixed effects, respectively.

The extant literature measures two dimensions of GBI: 1) the decision to issue and 2) the extent of issue. The decision to offer GBs is usually denoted with a binary variable in a logit/probit regression (García et al., 2023). In contrast, studies have also used continuous measures to represent the extent of the issue (funding size by Barua & Chiesa, 2019).

The literature has examined the impact of economic factors, issuers' characteristics, and policy support in the following subsections.

4.2.1. Issuers' characteristics

So far, papers have examined how accounting-related variables, the company's strategic orientation, and board characteristics explain the likelihood of GB offerings. Table 5 summarizes the literature in this direction.

Accounting variables include business growth, leverage, profitability measures, firm size, and short-term solvency. Empirical evidence regarding firm size is mixed. On the one hand, some evidence has shown that firms with large sizes are more likely to undertake green projects and thus offer GBs, while on the other hand, it might be convenient for larger firms to raise funds using conventional sources of finance.

The strategic orientation of the issuer can also influence GB offerings. A pure green player will be keen to offer GBs. Another measure for strategic orientation discussed in the literature is the ESG score. A higher ESG score may indicate a firm's commitment to the environment, thereby making it more likely to offer GBs, to undertake green projects.

Board composition can also affect the decision to offer GBs by firms. Evidence suggests that a board with more women and independent directors is likely to go for GBI. The presence of a strong sustainability committee can also influence GBI.

4.2.2. Economic factors

The literature on issuers' characteristics abstracts from country-specific factors and assumes findings are equally relevant to all the firms. However, an expanding body of research indicates that country-level variations play a significant role in shaping GBI.

Oil shocks can prompt firms to transition towards renewable energy sources, thereby increasing their propensity to issue GBs (Azhgaliyeva et al., 2022). An accommodative monetary policy stance may render conventional sources of finance (such as bank loans) more lucrative than GBs (Lin & Su, 2022). Russo et al. (2021) suggest that a country's orientation towards sustainability is also an essential determinant. For instance, if heavy environment-related taxes are imposed, the firms are more likely to go green and issue GBs. Countries pursue rapid industrialization to achieve economic growth, leading to resource depletion and increased pollution. In the process of industrialization, the government and corporations may not be inclined towards green investments, making the issuance of GBs unlikely. Macroeconomic instability, usually viewed as extremely high

inflation rates, can also deter GBIs in a country (Mertzanis & Tebourbi, 2024). Emerging economies are increasingly becoming environmentally conscious. Support from governments to stimulate green investment is evident. Empirical results by Barua and Chiesa (2019) show that the size of firms operating in emerging economies is expected to be bigger than those in non-emerging economies. Geopolitical risk (GPR) can also influence GBI activities (Mertzanis & Tebourbi, 2024)¹. Geopolitical tensions often lead to higher energy prices, prompting firms to seek alternative renewable energy sources and potentially stimulating GBI. Furthermore, amid turbulent times, GBs can instill confidence amongst various stakeholders and arrest value erosion (Sisodia et al., 2022).

4.2.3. Policy support from the government

The Paris Agreement 2015 represents a significant milestone for the GB market. As countries advance towards their commitments to limit global temperature increase, there is an increasing need for financial mechanisms capable of mobilizing capital for environmentally sustainable projects. Fatica and Panzica (2021) argue that the Agreement has provided firms with incentives to finance eco-friendly initiatives. Furthermore, their findings indicate that, since 2015, firms issuing GBs have succeeded in reducing their emissions.

Research indicates that sovereign bond issuance stimulates the corporate bond market, especially in developing economies (Dittmar & Yuan, 2008). Similarly, the issuance of SGBs can spur the issuance of GBs at the corporate level (Azhgaliyeva et al., 2022). The introduction of SGBs not only raises awareness, but also informs and educates prospective investors, thereby reducing information asymmetry concerning the features and benefits of such instruments (Shi et al., 2023). As a result, firms are better positioned to access the GBs market as a source of capital (Zhang et al., 2021).

Generally, companies are reluctant to invest in climate-friendly projects due to long duration and unattractive returns on green transformation (Wang et al., 2023). However, support from policymakers, such as tax incentives and reduced interest rates, positively affects the issuance of GBs by corporations (Shi et al., 2023). In China, several policy measures were taken to accelerate green transformation, including the introduction of Green Credit Guidelines (GCCs) and the development of a Green Credit Statistics System, which integrates national credit assessments with companies' environmental performance ratings (Kidney et al., 2015).

4.3. Firm-level outcomes of green bond issuance

Outcomes for the issuers are discussed as follows.

- *Reducing corporate cost of capital:* Asymmetric information can increase the cost of capital. The greater the asymmetry in information (in other words, less public information and higher private information), the higher the rate of return demanded by investors (Easley & O'Hara, 2004). Research has consistently shown that GBs can reduce asymmetric information by compelling a firm

¹ Caldara and Iacoviello (2022) define GPR as "the threat, realization, and escalation of adverse events associated with wars, terrorism, and any tensions among states and political actors that affect the peaceful course of international relations" (p. 1195).

to disclose information related to the environmental impact of projects undertaken (Tang et al., 2023). This reduction in information asymmetry can curtail the cost of capital (Zhang et al., 2021).

- *Improved environmental performance:* Improvement in the environmental performance of the issuer can be attributed to the signalling effect of GBI. Studies have indicated improvements in environment-related indicators, such as emission and resource use scores (Flammer, 2021; García et al., 2023; Makpotche et al., 2024; Zheng et al., 2023).

- *Impact on stock:* Based on the signalling argument, if the issuance is viewed as credible, the stock market is expected to respond positively (Flammer, 2021; Tang & Zhang, 2020). However, the literature provides mixed evidence in this regard. Lebellet et al. (2020) report negative cumulative abnormal returns (CAR) in developed countries post-issuance of GBs. Kodiyatt et al. (2024) report no abnormal returns post-GBI announcement. Makpotche

et al. (2024) report that multiple-time GBs issuers perform better than conventional bond issuers; however, after three years, the stock performs similarly to other firms. Issuance of GBs can also lower stock price crash risk (Zhang et al., 2024).

- *Changes in ownership:* The announcement of a firm issuing GBs is anticipated to garner significant media attention, potentially boosting the company's visibility and attracting interest from potential investors. Empirical evidence by Tang and Zhang (2020) suggests that institutional ownership in such firms increases post-issuance. This is primarily driven by pension funds; however, hedge fund holdings are reduced in these firms. Flammer (2021) also suggests that GB issuers witness a surge in ownership by long-term and green investors. This aligns with the signalling argument that has been discussed in the literature. By issuing GBs, the firm can attract investors who are mindful of the environment.

Table 5. Literature on firm-level determinants of green bonds issuance

Reference		Issuers' characteristics	Impact on GBI	Rationale
Accounting related	Barua and Chiesa (2019)	Business growth	-	As revenues grow, the firm will likely retain more earnings (internal funds) and reduce reliance on debt. This aligns with the pecking order theory.
	Barua and Chiesa (2019)	Leverage	-	Higher debt in the balance sheet increases the firm's fixed financial costs. This can reduce firms' flexibility to issue green debts.
	García et al. (2023)	Profitability (return on assets [ROA])	+	A profitable firm is capable of meeting fixed financial costs related to bonds, thus increasing the probability of GBI by a firm.
	Leitão et al. (2023), Lin and Su (2022)	Firm size (Market Capitalisation / Total assets)	+/-	Evidence is mixed in this regard. On the one hand, the argument is that firms with higher market capitalisation are likely to invest more in eco-friendly projects. On the other hand, larger firms may find it easy to raise capital through conventional bonds.
	Cicchello et al. (2022)	Short-term solvency (current ratio)	-	Firms that hold strong short-term solvency rely on conventional sources of debt. Thus, such firms may not issue GBs.
Strategic orientation	Russo et al. (2021)	Pure green player	+	A pure green player is more likely to offer GBs to investors.
	Cheng et al. (2023), Wang et al. (2024)	ESG score	+	A greater ESG score reflects better ESG policies and firms' commitment to sustainability, making GBI an attractive option to finance green projects. Furthermore, this relationship is further reinforced by brand reputation. In effect, every dimension of the ESG score has an impact on the likelihood of GBI.
	García et al. (2023), Russo et al. (2021), Wang et al. (2024)	Environmental and governance dimension	+	Robust environmental practices and a good governance framework ensure managers are accountable to various stakeholders, making GBs attractive.
	Wang et al. (2024)	Social dimension	-	Increased social responsibility will make a firm reduce default risk, thus making GBI unattractive.
Board characteristics	García et al. (2023)	Sustainability committee	+	A firm that intends to make green investments is likely to have a sustainability committee. The presence of a sustainability committee can reinforce firms' environmental commitments. Consistent with the stakeholders' theory, the firm is likely to issue GBs.
	Cicchello et al. (2022), García et al. (2023)	Women on board	+	Prior research indicates that women on the board can lead to excellent ethical behaviour and the adoption of green practices. This argument is consistent with gender socialization theory.
	Cheng et al. (2023), Cicchello et al. (2022)	Independent director	+	Independent directors can ensure that firms heed the environmental repercussions of business operations. This can make GBI highly likely.
	Cicchello et al. (2022)	Board size	+	A larger board can make environmentally friendly business decisions, making GBI more likely.

Source: Author's elaboration.

- *Enhances firm's value:* GB's offerings can increase the firm's value. This argument aligns with the stakeholder theory, which suggests that firms can maximize their value by performing social and environmentally friendly activities (Sisodia et al., 2022). Jiang et al. (2022) indicate that firms' value (measured by the Q ratio) increases post-GBI. However, they found that this effect is not sustainable.

Sisodia et al. (2022) posit that firms with GBs can curtail value erosion during periods of economic crisis. During the pandemic, the stocks of firms that issued GBs witnessed positive abnormal returns. This shows a positive attitude of investors towards firms that maintain a green image during times of crisis (Jin & Zhang, 2023). This may be because of the rise in "socially responsible" investors. Additionally, amid geopolitical tensions, GBs become

attractive (Mertzanis & Tebourbi, 2024), and such bonds exhibit safe-haven asset properties (Chopra & Mehta, 2023).

- *Reducing carbon risk*: Firms are transitioning to low-carbon operations. This transition process can expose firms to financial vulnerabilities or carbon risks (Shu & Tan, 2023). GB's offerings can help firms to curtail carbon risk in two ways — first by improving their relationships with stakeholders (García et al., 2023) and second by earmarking funds for green projects, which can enhance the energy efficiency and energy consumption structure of a firm, thus reducing carbon risk (Wang et al., 2023).

- *Building green capabilities*: Firms increasingly face pressure to reduce carbon emissions. Therefore, the need to finance green research and development (R&D) activities arises. However, R&D activities are highly risky. Since GBs can reduce financing costs (Zhang et al., 2021), they can play the role of a catalyst in corporate green transformation (Cheng & Wu, 2024; Wan et al., 2024).

Issuance of GBs can trigger green innovation (Chen et al., 2024). Green R&D activities can improve the green output (number of green patents) and build capabilities. Such capabilities provide a sustainable competitive advantage (Ge et al., 2018). However, Shi et al. (2023) posit that while the number of green patents has surged post-issuance, the quality of such patents has deteriorated. This can also highlight the greenwashing motives of the issuer.

Thus, there is yet to be a consensus on whether GBI drives green innovation and capabilities.

- *Greater access to trade credit*: Firms that issue GBs can effectively signal to suppliers their environmental commitment. This can help firms improve their relations with suppliers and attain higher trade credit (Gan et al., 2024). Greater access to trade credit can mitigate a firm's financial constraints by substituting them with conventional credit sources like bank loans.

5. DISCUSSIONS

The findings of this review highlight both the progress and the persistent gaps in the literature on corporate GBI. The findings indicate that firms issue GBs primarily to signal environmental commitment, alleviate financial constraints, or, in some cases, engage in greenwashing. At the same time, issuance is shaped by macroeconomic conditions, policy interventions, and firm-specific characteristics, while post-issuance outcomes include reduced cost of capital, enhanced environmental performance, and increased institutional ownership. Despite these advances, the literature remains fragmented and, at times, contradictory, particularly regarding the authenticity of motives and the consistency of outcomes across different contexts. Therefore, this section outlines future research directions by providing a list of research questions. Furthermore, I also provide a comprehensive framework that will be instrumental for guiding future research.

5.1. Motives for issuing green bonds

In this review, I identify three principal motives underlying GBI: 1) signalling, 2) alleviation of financial constraints, and 3) greenwashing. Empirical evidence from Chinese firms suggests that

alleviating financial constraints is a salient motive; for instance, Wei et al. (2023) document that GBs are often issued to mitigate such constraints. This is particularly relevant in emerging markets, where firms typically encounter more severe financial barriers than their counterparts in developed economies, a challenge compounded by institutional weaknesses (Beck et al., 2008). Future research should explore cross-country comparisons to understand how institutional and market differences shape these motivations.

The greenwashing motive, on the other hand, lacks robust empirical support. While greenwashing, where firms issue GBs to project an environmentally friendly image without making substantial environmental contributions, has not been strongly validated in academic studies. However, anecdotal evidence and media reports suggest that greenwashing does occur. Notable cases have involved major Chinese and Brazilian firms (see reports involving GDF Suez and Three Gorges Corp in Malhotra, 2020).

To address these gaps, qualitative data from issuers' disclosures and media coverage must be synthesized to better understand the issuers' motives. While a few studies have begun to leverage textual analysis of such data (Tang et al., 2023), this remains an underexplored area. Differences in sample selections, time periods, methodologies, issuer characteristics, and industry-level differences can explain the conflicting results regarding motivation to issue GBs.

Furthermore, it is important to examine industry-specific motivations for GBI. To elaborate, Cao et al. (2021) posit that Chinese commercial banks issue GBs to take advantage of regulatory arbitrage. Given favourable policies that provide the convenience of obtaining financing permission, banks are keen to issue GBs. Inter-industry comparisons can thus yield valuable insights into the diverse motives influencing GBI.

5.2. Determinants of green bond issuance

While prior research has predominantly focused on firm-specific determinants of GBI, there remains a substantial gap in the literature regarding the influence of industry-level factors. Future research should explore how industry-specific factors, such as environmental regulations, competitive pressure, industry-specific risks, and industry norms, affect propensity to issue GBs. For instance, industry type can also determine whether a firm will choose GBs over conventional ones. Given escalating environmental challenges, firms operating in high-pollution sectors increasingly face external and regulatory pressures to invest in sustainable projects (Vollero et al., 2016), thereby enhancing their likelihood of utilizing green financial instruments such as GBs.

Future research should also consider project-specific characteristics. The project's intrinsic features could affect the firm's decision to offer GBs. However, data collection at the project level may be challenging.

Moreover, the impact of firm ownership structures, including family ownership, state participation, and the presence of nominee or bank-affiliated directors on the board, warrants closer examination, particularly in the context of emerging economies where these factors may affect corporate

financing decisions. Institutional characteristics, including tax codes, bankruptcy regulations, and overall institutional quality, also play a vital role in shaping capital structure decisions (Vasiliou & Daskalakis, 2009). Weak institutional characteristics could restrain firms from issuing GBs, making the exploration of institutional determinants a crucial avenue for future research.

The disciplines of economics and finance have historically paid limited attention to the role of narratives in elucidating economic phenomena and corporate decisions (Shiller, 2017). Martek et al. (2018) assert that “sustainability is a narrative; it is about storytelling” (p. 14). The ambitious Paris Agreement 2015 catalysed sustainability narratives, and firms are expected to pursue green projects and become more accountable for their environmental performance. As Fatica and Panzica (2021) argue, the Paris Agreement 2015 marked a pivotal moment for the GBs market, driving its growth and prominence. However, the role of prevailing sustainability narratives in shaping firms’ decisions to issue GBs remains unexplored.

5.3. Firm-level outcomes for green bond issuance

An increasing number of studies document that firms observe reduced cost of capital and enhanced environmental performance post-issuance. Firms

witness an increase in institutional ownership and value. However, GBs are a relatively new instrument. The empirical results are based on a few observations (Flammer, 2021; García et al., 2023; Zheng et al., 2023). Temporal updates are necessary as the GB market grows. It provides an opportunity for researchers to undertake studies on a longer time series. Access to a longer time series of GBI can also allow researchers to conduct a detailed inter-industry, intra-industry, and country-level analysis. While studies have noted that firms that invest in green projects may be able to develop green capabilities, it can be tamed by greenwashing motives. This area warrants further empirical research.

Literature is dominated by studies conducted on developed economies. Studies on Chinese firms are ample (Gan et al., 2024; Jiang et al., 2022; Lin & Su, 2022). However, few have addressed other emerging economies like India and South Africa, even though the GB market in these economies has grown significantly (Abhilash et al., 2023). It is crucial to extend research efforts to these contexts, as the findings from developed economies cannot be extrapolated to emerging economies because corporate bond markets in emerging economies exhibit structural differences from those in developed countries. These discussions are summarised in Table 6.

Table 6. Future research avenues

<i>Research topic</i>	<i>Research avenues</i>
Motivation for issuing GBs	Using qualitative information (such as board discussions, annual reports, media coverage, stakeholder interviews) to uncover motivations for GB issuance. Examining the role of industry in explaining motivation for issuing GBs.
Determinants of GBI	How do industry-specific regulatory environments affect GBI? Does the level of competition within an industry affect the issuance of GBs? What role do industry-specific risks (e.g., environmental risk, regulatory risk) play in determining GBI? Impact of institutional frameworks (e.g., tax codes, bankruptcy laws) on GBI. Examining project-level characteristics as potential determinants. Studying the impact of governance structures, including family ownership and nominee directors, on GBI. Do sustainability narratives influence corporate decisions to offer GBs?
Outcomes of GBI	Does issuing GBs reduce a firm’s exposure to ESG risks, and how do credit rating agencies respond to these issuances? Are firms that issue GBs more likely to build long-term capabilities in environmental technologies, and do these capabilities provide a sustainable competitive advantage? Study long-term outcomes of GBI by accessing extended time series data. Investigate the potential of greenwashing to limit green capabilities development. Explore outcomes for GBs issuers in emerging economies.

Source: Author’s elaboration.

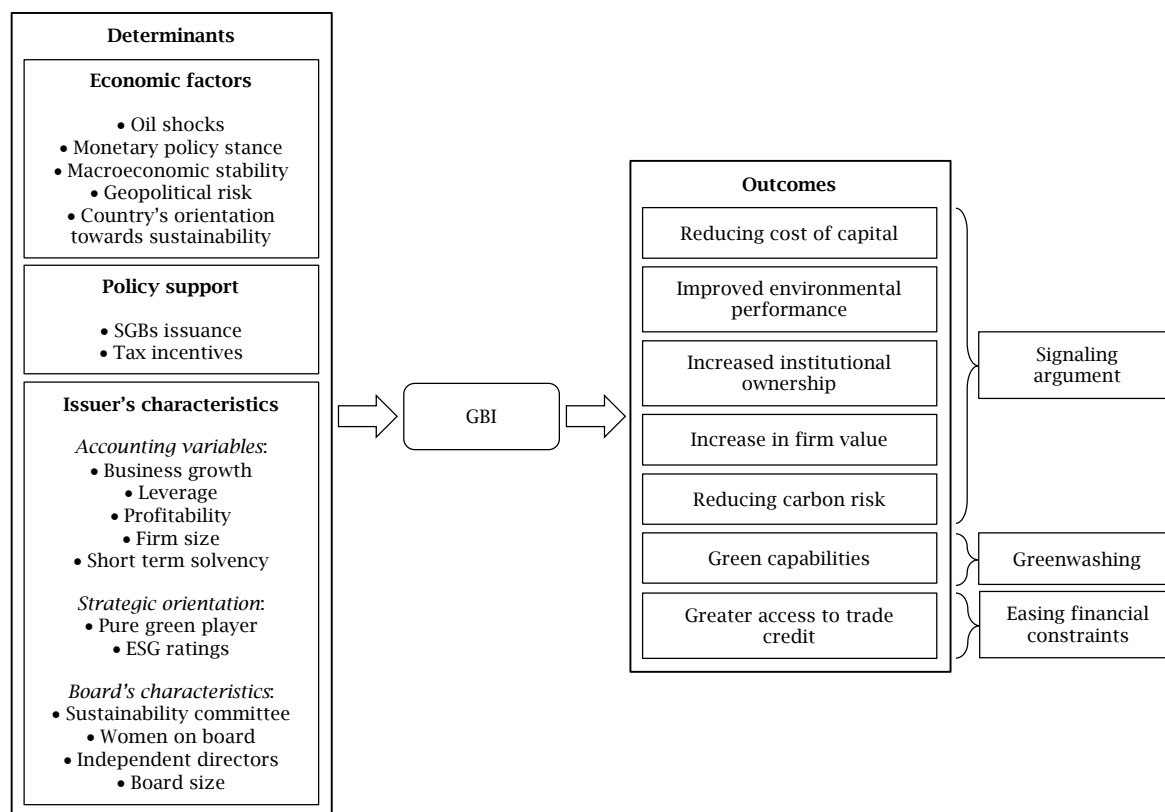
5.4. An integrated framework for green bond issuance

Based on our review of extant literature, I now present a comprehensive framework for GBI that integrates the key determinants, issuer motives, and post-issuance outcomes (see Figure 4).

Determinants of GBI include economic factors, policy support from the government, and the issuer’s characteristics. Each component has been expanded into detailed subcategories. Empirical evidence suggests that firms issuing GBs benefit from reduced cost of capital and carbon risk, enhanced environmental performance, greater

institutional ownership, and increased firm value. These outcomes align with signalling theory, under which GBI serves as a credible signal that reduces information asymmetry between firms and relevant stakeholders. Conversely, another strand of research highlights the persistence of greenwashing, noting that some issuers fail to achieve substantive improvements in their green capabilities after issuing GBs. Additionally, drawing on arguments related to the alleviation of financial constraints, the framework recognizes that GBI can facilitate firms’ expanded access to trade credit.

This robust framework will be instrumental for advancing future research on GBI.

Figure 4. Framework for green bonds issuance

Source: Author's elaboration.

6. CONCLUSION

In this review, I synthesised the existing literature on GBs by systematically identifying the motivations underlying GBI and consolidating the previously fragmented literature on the determinants and outcomes of this financial instrument.

The review hints that firms may issue GBs for three primary motives. First, to signal their environmental commitments. Second, ease financing constraints. Third, to greenwash stakeholders. Based on the corpus of the studies reviewed, I categorised determinants of GB issuance into macroeconomic factors, policy support, and firm characteristics (including board features and strategic orientation). Empirical evidence indicates that GBI is associated with improved environmental performance, a reduction in corporate cost of capital, and, under certain conditions, enhanced firm value and mitigation of value erosion during periods of crisis.

This study yields several theoretical implications. Firstly, it advances the theoretical underpinnings of GB's research by developing an integrative framework that elucidates the complex interplay among determinants, motives, and outcomes associated with GBI. Secondly, it systematically organises fragmented literature on determinants of GBI. Specifically, I categorised determinants into economic factors, policy interventions, and issuer-specific characteristics. Third, it extends the literature by documenting a range of post-issuance outcomes for GB issuers. Fourth, the study informed researchers about the most prevalent research methods. Finally, I propose avenues to advance future research.

The practical implications of these findings are manifold. The study offers important insights to managers. First, GBI enables managers to signal their

environmental commitments, enhance corporate reputation, and integrate with broader ESG strategies. Second, managers can make informed choices about when and how to issue GBs by considering macroeconomic and firm-specific conditions. For example, issuing bonds during crises can signal credibility and build investor confidence. Third, informing managers about the potential benefits of GBI can help them make better-informed financing and investment decisions.

For policymakers, our findings should be viewed in the light of the growing GBs market. I highlight the role of policy support, including tax incentives and favourable regulations, in advancing GB issuance by corporations. Additionally, policymakers should identify bottlenecks and challenges associated with firms' GBI decisions.

The present study should be considered in the light of its limitations. Firstly, I considered only the peer-reviewed articles and excluded other forms of publications, such as conference papers and book chapters. Books and book chapters are not considered because they are more explanatory than exploratory. Conference proceedings are typically research in progress and often do not undergo a rigorous peer review. Secondly, since the literature on sovereign and supranational organizations is limited, I focused on corporate issuers only. Thirdly, there is a possibility that some relevant articles may not have been included in this review. To address this limitation, I used two academic databases (Scopus and WoS) and various combinations of keywords related to corporate GBs. This is done to ensure broader coverage. Thereafter, for quality purposes, the articles published in journals ranked in the ABDC 2022 list were taken up for review. Nonetheless, I believe 38 journal articles are adequate as a sample considering the scope of the study.

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APPENDIX

Table A.1. Details of the articles included in the review (Part 1)

<i>Reference</i>	<i>Title</i>	<i>Journal</i>	<i>Geographical scope</i>	<i>Sample period</i>	<i>Nature of contribution</i>
Wan et al. (2024)	Can green bonds promote corporate green technology innovation? Evidence From China	<i>Applied Economics</i>	China	2016–2020	Empirical
Cheng and Wu (2024)	Can the issuance of green bonds promote corporate green transformation?	<i>Journal of Cleaner Production</i>	China	2010–2022	Empirical
Liu and Li (2024)	Corporate green bond issuance and high-quality corporate development	<i>Finance Research Letters</i>	China	2010–2021	Empirical
Lebelle et al. (2020)	Corporate green bond issuances: An international evidence	<i>Journal of Risk and Financial Management</i>	Global	2009–2018	Empirical
Flammer (2021)	Corporate green bonds	<i>Journal of Financial Economics</i>	Global	2013–2018	Empirical
Wei et al. (2023)	Corporate green bonds and carbon performance: An economic input-output life cycle assessment model-based analysis	<i>Business Strategy and the Environment</i>	Global	2009–2018	Empirical
Tang and Zhang (2020)	Do shareholders benefit from green bonds?	<i>Journal of Corporate Finance</i>	Global	2007–2017	Empirical
Benlemlih et al. (2023)	Does financing strategy accelerate corporate energy transition? Evidence from green bonds	<i>Business Strategy and the Environment</i>	Global	2013–2019	Empirical
Zhang et al. (2024)	Does green bond issuance affect stock price crash risk? Evidence from China	<i>Finance Research Letters</i>	China	2014–2021	Empirical
Kodiyatt et al. (2024)	Does green bond issuance enhance market return of equity shares in the Indian stock market?	<i>Asia-Pacific Journal of Financial Studies</i>	India	2015	Empirical
Wang et al. (2023)	Does green direct financing work in reducing carbon risk?	<i>Economic Modelling</i>	China	2009–2019	Empirical
García et al. (2023)	Exploring the determinants of corporate green bond issuance and its environmental implication: The role of corporate board	<i>Technological Forecasting and Social Change</i>	Global	2013–2019	Empirical
Russo et al. (2021)	Exploring the determinants of green bond issuance: Going beyond the long-lasting debate on performance consequences	<i>Business Strategy and the Environment</i>	Global	2013–2016	Empirical
Mertzanis and Tebourbi (2024)	Geopolitical risk and global green bond market growth	<i>European Financial Management</i>	Global	2008–2021	Empirical
Chopra and Mehta (2023)	Going green: Do green bonds act as a hedge and safe haven for stock sector risk?	<i>Finance Research Letters</i>	Global	October 2014–March 2022	Empirical
Zhang et al. (2021)	Green bond issuance and corporate cost of capital	<i>Pacific-Basin Finance Journal</i>	China	2016–2020	Empirical
Zheng et al. (2023)	Green bond issuance and corporate ESG performance: Steps toward green and low-carbon development	<i>Research in International Business and Finance</i>	China	2013–2019	Empirical
Gan et al. (2024)	Green bond issuance and trade credit access: Evidence from Chinese bond market	<i>Finance Research Letters</i>	China	2018–2022	Empirical
Lin and Su (2022)	Green bond vs Conventional bond: Outline the rationale behind issuance choices in China	<i>International Review of Financial Analysis</i>	China	2016–June 30, 2021	Empirical
Fatica and Panzica (2021)	Green bonds as a tool against climate change?	<i>Business Strategy and the Environment</i>	Global	2007–2019	Empirical
Zirek and Unsal (2023)	Green bonds: Do investors benefit from third-party certification?	<i>Global Finance Journal</i>	Global	2012–June 2019	Empirical
Shi et al. (2023)	Green bonds: Green investments or greenwashing?	<i>International Review of Financial Analysis</i>	China	2013–2020	Empirical
Jiang et al. (2022)	Green creates value: Evidence from China	<i>Journal of Asian Economics</i>	China	2015–September 2020	Empirical
Leitão et al. (2023)	Green finance sources in Iberian listed firms: A socially responsible investment approach	<i>Journal of Cleaner Production</i>	Iberia	2010–2020	Empirical
ElBannan and Löffler (2024)	How effectively do green bonds help the environment?	<i>Journal of Banking & Finance</i>	Global	2010–2020	Empirical

Table A.1. Details of the articles included in the review (Part 2)

<i>Reference</i>	<i>Title</i>	<i>Journal</i>	<i>Geographical scope</i>	<i>Sample period</i>	<i>Nature of contribution</i>
Cheng et al. (2023)	Interactive effects of brand reputation and ESG on green bond issues: A sustainable development perspective	<i>Business Strategy and the Environment</i>	Global	Circa 338 GBI until 2016	Empirical
Dutordoir et al. (2023)	Issuer motivations for corporate green bond offerings	<i>British Journal of Management</i>	Emerged and emerging economies (the US, Europe, and China)	2014–2021	Empirical
Wang et al. (2024)	Nexus of environmental, social, and governance performance in China-listed companies: Disclosure and green bond issuance	<i>Business Strategy and the Environment</i>	China	2016–2020	Empirical
Azhgaliyeva et al. (2022)	Oil price shocks and green bonds: An empirical evidence	<i>Energy Economics</i>	Global	2010–April 2021	Empirical
Barua and Chiesa (2019)	Sustainable financing practices through green bonds: What affects the funding size?	<i>Business Strategy and the Environment</i>	Global	2010–2017	Empirical
Tang et al. (2023)	The impact of environmental information disclosure on the cost of green bond: Evidence from China	<i>Energy Economics</i>	China	2016–2020	Empirical
Yeow and Ng (2021)	The impact of green bonds on corporate environmental and financial performance	<i>Managerial Finance</i>	Emerged and emerging economies (North America, Asia, and Europe)	2015–December 2019	Empirical
Chen et al. (2024)	The positive impact of green bond issuance on corporate ESG performance: From the perspective of environmental behavior	<i>Applied Economics Letters</i>	China	2011–2021	Empirical
Baldi and Pandimiglio (2022)	The role of ESG scoring and greenwashing risk in explaining the yields of green bonds: A conceptual framework and an econometric analysis	<i>Global Finance Journal</i>	Global	2012–2019	Empirical
Jin and Zhang (2023)	The stock performance of green bond issuers during COVID-19 pandemic: The case of China	<i>Asia-Pacific Financial Markets</i>	China	2016–2019	Empirical
Deschryver and de Mariz (2020)	What future for the green bond market? How can policymakers, companies, and investors unlock the potential of the green bond market?	<i>Journal of Risk and Financial Management</i>	Global		Qualitative approach
Sisodia et al. (2022)	Whether corporate green bonds act as armour during crises? Evidence from a natural experiment	<i>International Journal of Managerial Finance</i>	Global	2020	Empirical
Cicchello et al. (2022)	Which are the factors influencing green bonds issuance? Evidence from the European bonds market	<i>Finance Research Letters</i>	Europe	2015–2020	Empirical