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**The Green Tie:**

**Assessing the Influence of Financial Innovation via Sustainability-Linked Loans  
 Towards Business Transitions.**

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## Abstract

The transition to a sustainable economy demands vast financial investment. Sustainability-Linked Loans (SLLs), which tie economic benefits to achieving predefined Environmental, Social, and Governance (ESG) targets, are a unique financial product aimed at supporting this shift. This research investigates the extent to which SLLs influence business decisions in making sustainable investments. Employing a qualitative approach with semi-structured interviews involving lenders and borrowers in Indonesia, the study finds that SLLs primarily catalyze and institutionalize existing corporate sustainability commitments rather than initiating new ones. Key drivers for SLL adoption include reputational enhancement and strategic stakeholder management, often outweighing modest direct financial incentives. While the evolving SLL market and the advisory role of financial institutions contribute to refining Key Performance Indicator (KPI) robustness, challenges such as potential greenwashing and ensuring the meaningfulness of KPIs persist. The research concludes that SLLs exert significant, though conditional, influence on sustainable investment decisions. This influence operates primarily by catalyzing existing corporate commitments, is further shaped by an evolving market that enhances KPI credibility and is guided by the expanding advisory and standard-setting role of financial institutions. These insights offer nuanced contributions for academics and practitioners seeking to enhance SLL credibility and impact.

# 1. Introduction

## 1.1. Sustainability Context

The current global agenda is increasingly shaped by an undeniable and accelerating urgency for a more sustainable business operation. This is a crucial response to a deeply interconnected planetary crises, including climate change, significant biodiversity loss, and unjust social inequalities (Raworth, 2022). This urgency is highlighted through various international frameworks such as the Paris Agreement, which sets crucial climate mitigation targets, and the United Nations' Sustainable Development Goals, which offers a comprehensive blueprint for a more equitable and environmentally sound global system by 2030. These frameworks signal a growing global consensus on the need for immediate, transformative action, reshaping policies, investor priorities, and societal expectations worldwide. Such "grand sustainability challenges" (Köhler et al., 2019) call for systemic shifts across entire economies, necessitating a profound re-evaluation of the role and responsibilities of all actors, particularly within the interconnected web of our industrial ecosystems, and require significant financial innovation to meet these goals (Ziolo et al., 2021).

The transition towards these sustainable industrial ecosystems carries an immense financial implication, presenting a significant challenge that underscores the critical need for financial system engagement. Achieving the ambitious targets outlined in the Paris Agreement, such as limiting global warming, alongside the broader Sustainable Development Goals (SDGs), necessitates an unprecedented mobilization of capital. Estimates indicate a range of \$ trillion - \$275 trillion (Lee et al., 2023; Krishnan et al., 2022) needs to be invested to achieve the objectives of Paris Agreement. However current global investment levels fall significantly short of these needs as funding for renewable energy was still dwarfed by investments in fossil fuels (Mazzucato & Semieniuk, 2018). This substantial "financing gap" means the global financial community also needs to scale up their role in directing the necessary capital to support transition. The sheer scale of this "price tag" demands more than incremental adjustments; it necessitates profound and urgent innovation within financial systems, institutions, and instruments to effectively mobilize capital towards sustainable ends (Ziolo et al., 2021).

The financial system, historically pivotal in shaping economic development (Beck, 2012; Ferguson, 2008), is now crucial for driving the transition towards sustainability. This shift has

fostered concepts like sustainable finance, which integrates ESG criteria into decisions (Liang & Renneboog, 2020), and transition finance, which aids decarbonization (Valerievna & Igorevna, 2024). Financial instrument innovation has progressed from Socially Responsible Investing (SRI) (Renneboog et al., 2008) and "use-of-proceeds" Green Bonds (Liang & Renneboog, 2020) to performance-based tools like Sustainability-Linked Loans (SLLs). SLLs distinctively tie a borrower's financial characteristics to achieving predefined sustainability targets, making proceeds available for general corporate purposes (The Loan Market Association (LMA); Asia Pacific Loan Market Association (APLMA); and Loan Syndications and Trading Association (LSTA), 2023).

The SLL Principles guide the credibility of these instruments, emphasizing material Key Performance Indicators (KPIs) and ambitious, externally verified targets (LMA, APLMA & LSTA, 2023). Despite their innovative design to incentivize improvements and signal commitment (Kim et al., 2021), SLLs face academic scrutiny. Research indicates potentially limited real-world ESG performance improvements (Auzepy et al., 2023; Du et al., 2022), alongside concerns about weak KPI ambition (Auzepy et al., 2023; Carrizosa & Ghosh, 2022) and the risk of greenwashing (Migliorelli, 2021). Thus, while SLLs are a significant development, their effectiveness in genuinely advancing corporate sustainability remains a subject of ongoing critical evaluation.

## 1.2. Aims and objectives

With most of the existing research focused on whether an impact on ESG scores was observable (Auzepy et al., 2023; Du et al., 2022), this research aims to offer different perspective by trying to understand the nuanced influence of SLL. This is done by critically assessing the mechanisms through which SLLs influence (or fail to influence) corporate sustainable investment decisions through the perspectives and experiences of key market participants, namely the bank and the borrower. By studying companies that have issued SLLs in the past, this research looks at the how and why such impacts (or their absence) occur at the corporate decision-making level.

The finding of this research is hoped to complement the existing research on SLL. It will offer context-specific insights into the practical realities of SLL origination, negotiation, and implementation, identifying key factors that affect the potential of SLLs to foster genuine sustainability transitions. By providing nuanced evidence, this study can inform the ongoing debate on SLL effectiveness and additionality, contributing to a deeper understanding that

complements existing quantitative findings that are mainly driven by publicly available data (Auzepy et al., 2023; Carrizosa & Ghosh, 2022).

The research question is framed as followed:

***To what extent does innovation in financial products such as Sustainability-Linked Loans influence business decisions in making sustainable investment?***

## 2. Theoretical Framework

### 2.1. The Role of Finance in Sustainability

From the early banking systems that facilitated medieval international trade, to the advent of joint-stock companies and capital markets that funded global exploration and the infrastructure of industrial revolutions, financial innovations have consistently enabled the mobilization of capital for large-scale, transformative endeavors (Ferguson, 2008). This historical precedent demonstrates that finance is not merely a passive allocator of resources but an active force in shaping the structure, scale, and direction of entire industrial landscapes and their interdependencies (Beck, 2012).

With its transformative capacity, the financial system is confronted with a new, urgent task: to actively direct capital towards the creation of sustainable industrial ecosystems globally. The existential threat of climate change demands financial institutions to go beyond simply funding "green" projects, but also reorienting capital flows, incentivizing the decarbonization of existing industries, fostering circular economies, and promoting business models that inherently value the triple bottom line (Schoenmaker, 2017). This new perspective of the role of financial institutions represents both challenges and opportunities for the financial sector to leverage its influence in shaping a new economic paradigm. The critical question is how financial institutions and instruments can be designed and deployed to facilitate the complex ecosystem-wide transformation effectively, while recognizing that the financial regime itself may need to adapt (Geddes & Schmidt, 2020) and that different financial actors can contribute uniquely to the new direction (Mazzucato & Semieniuk, 2018).

To showcase the financial community's commitment to combat climate change, the concepts of "sustainable finance" and the more nuanced "transition finance" are evolving with emphasis on system-wide impact. Sustainable Finance involves the integration of ESG criteria into financial services and investment decisions for the lasting benefit of both clients and society (Liang & Renneboog, 2020; Beekhoven van den Boezem et al., 2019; Câmara, 2022; Kumar et al., 2022). Despite being relatively new concept, sustainable finance has seen transformation from simpler ethical exclusions towards more proactive impact-oriented strategies reflects a maturing understanding of its potential (Schoenmaker, 2017). Transition finance emerged as a more refined concept within sustainable finance, and was seen as pathway to channel capital towards assess the credibility and level of ambition towards decarbonization, especially those

in inherently high-emitting or "brown" sectors (Valerievna & Igorevna, 2024). This acknowledges that the sustainability of the entire industrial ecosystem depends on the transformation of all its constituent parts, not just the growth of inherently "green" sectors. The challenge lies in ensuring these financings support genuine transitions across industries rather than superficial adjustments.

## 2.2. Innovation in Financial Instruments for Sustainable Finance

The root of sustainable finance could be traced back to the overarching concept under the broad term of Socially Responsible Investing ("SRI"). Though the origins of SRI concept could be linked to the emergence of Abrahamic religions, modern SRI began to appear in the mainstream modern finance as manifestation of investors' avoidance and application of value-based exclusions from companies associated with the Vietnam War in the 1970s (Renneboog et al., 2008). The development of SRI principles became more assertive by incorporating positive screening criteria and a broader consideration of corporate behaviour regarding environmental stewardship and community impact. This development was further institutionalized through global frameworks such as the UN Environment Programme Finance Initiative in 1992 and the UN Principles for Responsible Investment in 2006, which provided platform for the financial community to integrate ESG into their investment analysis and decision-making processes.

The increasing societal and investor demand for tangible sustainability dimension drove the development of dedicated financial instruments designed to channel capital directly towards environmentally and socially beneficial activities. "Use-of-proceeds" instruments, such as the Green Bond/Loans, were among the earliest instrument being developed. These debt securities require that funds raised are exclusively allocated to finance or re-finance eligible green projects, such as renewable energy and green buildings. While successful in earmarking substantial capital for specific sustainable projects (Liang & Renneboog, 2020), the inherent project-specific focus of use-of-proceeds instruments presented limitations in driving strategic shifts within corporations. This highlighted an evolving need for financial instrument capable of embedding sustainability within core corporate strategy and operations, particularly to support transition finance for companies across diverse sectors on their decarbonization and broader sustainability journeys (Valerievna & Igorevna, 2024).

This evolution to support broader sustainability journeys paved the way for new paradigm that shift the focal point of financing from use-of-proceeds based to performance based. As a result, instruments like Sustainability-Linked Loans (SLLs) began to emerge. Defined as "*any types*

*of loan instruments and/or contingent facilities for which the economic characteristics can vary depending on whether the borrower achieves ambitious, material and quantifiable pre-determined sustainability performance objectives"* (LMA, APLMA & LSTA, 2023), SLLs marked a significant departure. Unlike the use-of-proceeds instruments, SLL proceeds are intended for general corporate purposes. The crucial distinction lies in the incentive mechanism: the interest rate margin of SLLs is directly tied to the borrower's future achievement of pre-agreed Sustainability Performance Targets (SPTs) linked to Key Performance Indicators (KPIs).

The incentive mechanism embedded in SLLs aims to facilitate and support environmentally and socially sustainable economic activity and growth, incentivize improvements in borrowers' sustainability profiles through ambitious targets, and offer the flexibility to be applicable across a wide range of industries where specific green projects might be less prevalent. The flexibility on use of proceeds and the possibility to secure tangible financial incentive make SLLs an attractive option for companies looking to integrate sustainability into their broader operations rather than limiting it to specific projects. Beyond potential cost savings, SLLs offer additional benefits such as serving as credible signalling tools to demonstrate commitment to ESG and helping to build trust with investors and other stakeholders (Kim et al., 2021). Internally, SLLs can also guide and reinforce a company's sustainability strategy by aligning financial incentives with sustainability goals (Auzepy et al., 2023). As a result, SLLs are not only an innovative financing solution but also a strategic tool for advancing corporate sustainability.

To foster integrity and guide the structuring of these performance-linked instruments, the Sustainability-Linked Loan Principles (SLLP) outline five core components essential for a credible SLL (LMA, APLMA & LSTA, 2023). First is the selection of Key Performance Indicators (KPIs), which should be relevant, core, and material to the borrower's business, measurable or quantifiable on a consistent basis, and ideally benchmarkable (LMA, APLMA & LSTA; 2023). Second, the calibration of Sustainability Performance Targets (SPTs) requires targets to be ambitious, meaningful, and represent a material improvement in the KPIs, remaining so throughout the loan's life (LMA, APLMA & LSTA; 2023). Third, the loan terms, such as the margin, are impacted by the borrower meeting the SPTs (LMA, APLMA & LSTA; 2023). Fourth, borrowers are to regularly and publicly disclose up-to-date information on their KPI performance against SPTs (LMA, APLMA & LSTA; 2023). Finally, verification necessitates independent, external confirmation of the borrower's performance against each SPT (LMA, APLMA & LSTA; 2024).

## 2.3. Existing Research on Sustainability-Linked Loans

The growing mainstream of SLLs have naturally attracted significant attention from the academic community, keen to understand the efficacy and legitimacy of this relatively new financial instrument. As SLLs gained prominence, an early wave of research sought to define their mechanics and assess their place within the broader sustainable finance ecosystem (Liang & Renneboog, 2020). This initial exploration gave critical examination whether these instruments live up to their intended promise of driving tangible corporate sustainability improvements. One prominent direction of this research has focused on the actual impact of SLLs on borrowers' ESG performance. Studies have often framed a skeptical view with several analyses finding limited or no statistically significant improvements in borrowers' overall ESG scores or specific environmental metrics post-SLL issuance (Auzepy et al., 2023; Du et al., 2022). This has led to questions about the "additionality" of actions spurred by these loans.

Another emerging research direction investigated the design of the sustainability targets themselves. Several papers have highlighted common shortcomings in the KPIs such as a frequent lack of materiality to the borrower's core business, insufficient ambition in target setting, challenges in ensuring robust and consistent measurability, and inconsistencies in the rigor of independent verification processes (Auzepy et al., 2023; Carrizosa & Ghosh, 2022). These findings on KPI characteristics are crucial, as the credibility of the entire SLL mechanism hinges on the integrity of these targets. This research direction directly feeds into yet another, and perhaps most profound, research direction: the potential for greenwashing. Given the critiques of KPI quality and demonstrable impact, a significant concern articulated in the literature is whether SLLs are sometimes utilized more for enhancing corporate reputation or signaling sustainability commitments, rather than driving genuinely transformative or additional sustainable action (Migliorelli, 2021; Valerievna & Igorevna, 2024).

Further research direction investigated the various financial implications and market perceptions of SLLs. Some research indicates that the direct financial incentives for borrowers, such as margin adjustments based on achievement of the KPIs can often be minimal, thereby questioning the strength of the financial incentive of SLLs to drive sustainability change (Du et al., 2022). Concurrently, studies analyzing stock market reactions to SLL announcements have reported largely indifferent or even negative responses in certain markets, suggesting a degree of investor skepticism or difficulty in discerning the tangible value and credibility of

these instruments (Auzepy et al., 2023). Collectively, while some studies acknowledge the potential of well-structured SLLs (Carrizosa & Ghosh, 2022), the growing body of literature often highlights a distinct shortcoming between the intended purpose of SLLs to foster substantial sustainability improvements and their currently observable outcomes and market reception, pointing to a need for deeper, more context-specific understanding of their influence.

## 3. Methodology

### 3.1. Case Selection

Indonesia offers an interesting context for examining the influence of SLLs on corporate sustainable investment decisions. Agriculture, forestry and mining, which together accounts for 23.05% for the 2023 GDP (Statistics Indonesia, 2024), contribute significantly to the economy. However, lack of sustainable business practices leads to deforestation and emissions (Globalforestwatch.org, n.d.), and underscores an urgent need for business transitions. Engagement of Indonesia's banking sector, the largest 5 to 6 of them consistently present in Indonesia's largest 20 market capitalization, to mobilize capital is crucial for the success of innovative instruments like SLLs. Furthermore, the Indonesian Financial Services Authority have demonstrated a growing commitment to fostering a green economy through supportive policies and regulatory frameworks for sustainable finance, including the development of a Green Taxonomy (Indonesia Financial Services Authority, 2024). While nascent, the sustainable finance market in Indonesia is building tangible momentum, driven by policy signals and increasing stakeholder awareness. This convergence of pressing sustainability needs, bank-centric financial system and evolving supportive regulatory landscape makes Indonesia a timely setting to explore the practical influence and potential of SLLs in fostering genuine corporate sustainability transitions.

### 3.2. Methodological approach

SLLs are a relatively new product in the banking industry, and they are typically private contracts that contain confidential information. Consequently, there may be only a limited number of companies or experts with experience in executing these transactions, and as a result, gathering data for this research was challenging. Since the study explored whether and how companies view SLLs as a driver for sustainable transitions—an area with no established theories—the researcher believes a qualitative approach is the most suitable method (Creswell, 2009).

This research utilized semi-structured interviews as the primary data collection and assessed various documents ranging from academic journals, relevant regulations and publicly available disclosure as the secondary data collection. Semi-structured interviews were selected for its strength in getting contextual and in-depth information (Hennink et al, 2020) on the role of SLL in the sustainable transitions. As discussed in Chapter 2.3, research on the role of financial

institutions and financial instruments towards investments in sustainability was still largely understudied, warranting for further investigation in this specific field.

Respondents (Table1) were recruited through the existing professional networks of the researcher, with small degree of snowballing. The snowballing method was utilized to understand the influence of SLLs within an organisation beyond the finance department. Six interviews were initially conducted. However, one interview was retracted, thus excluded from the analysis. The “lost insights” from the excluded interview could be mitigated by optimizing the insights from the remaining five other respondents.

<b>Respondent</b>	<b>Borrower / Lender</b>	<b>Title</b>	<b>Job Desc</b>
<b>Respondent1</b>	Borrower	Corporate Treasurer	Manage cash movement, loan fund raising, manage relationship with banks
<b>Respondent2</b>	Borrower	Head of Research and ESG	Selecting sites and projects for development, market research, strategize and execute sustainability initiatives
<b>Respondent3</b>	Lender	Investment Officer	Identify potential debt and equity investment opportunities in East Asia – Pacific on manufacturing, agribusiness, health, education and property
<b>Respondent4</b>	Borrower	Finance Director	Manage finance function and investment portfolio of the company and subsidiaries
<b>Respondent5</b>	Lender	Head of Syndication and ESG Solution	Promote adoption of green, sustainability and social loan. Engage with clients to structure facility based on adherence to the ESG Loan principles

**Table1:** Profile of Respondents

All interviews were conducted in English and was automatically transcribed by using application <https://www.descript.com/>. It was subsequently validated by manually listening to the recording to ensure accuracy. Data analysis followed a thematic coding approach by analysing interview transcripts. Initial codes were assigned to meaningful data segments and then grouped into broader themes aligned with the research objectives. Subsequent step was applied to uncover patterns in how businesses perceive and adopt SLLs by identifying themes.

### 3.3. Ethical considerations

Ethical considerations were integral to every stage of this research, ensuring that the study adhered to the rigorous research ethics guidelines established by the University of Groningen. These guidelines were carefully applied throughout the data collection process to promote responsible and ethical practices. Participants were provided with a detailed informed consent form prior to their participation. The form explicitly addressed critical ethical principles, including the guarantee of anonymity to protect participants' identities, the assurance that their involvement is entirely voluntary with the option to withdraw from the study.

### 3.4. Data Analysis

The analytical framework for this research was conducted on hybrid approach, which combined the inductive and deductive approaches. Hybrid approach was chosen to provide a comprehensive and nuanced interpretation of the interview data. By applying the hybrid approach, insight from this research is hoped to be more rigorous by ensuring that the voices of the participants are valued while simultaneously allowing for more theory-led analysis (Proudfoot, 2023). The deductive component offers a structured lens, ensuring that the analysis directly addresses the core research questions by assigning codes based on themes that emerged from pre-existing research such as the role of KPIs and concerns over greenwashing as discussed in Chapter 2.3, while inductive coding played a vital role in allowing fresh insights and unanticipated nuances to emerge directly from the rich narratives of the interviewees.

## 4. Findings and Discussion



**Figure1:** Structure of the Codes

The thematics analysis revealed 5 overarching sub-themes (Figure1) and further grouped into three themes. First, the corporate foundations combined internal company commitment and other factors such as financial and reputation for SLL adoption. Second, the practical process of designing the KPIs for SLL interacts with the practical challenges faced by the company. Finally, financial institutions play an expanded role as informal advisors and standard-setting role within the ecosystem of sustainability-minded corporates.

#### 4.1. SLL as Catalyst of Corporate Sustainability

SLL as catalyst to corporate sustainability emerged because the interviews consistently showed that the influence of SLLs was most effective, often as a catalyst or formalizer, when borrowers already had genuine commitment and an integrated internal strategy. In that case, SLLs can be framed as part of a longer journey. The common findings suggested that the SLLs did not function as trigger for strategic shift towards sustainability or transition, but rather for further internalisation of the already embarked sustainability trajectory. The influence of SLLs was often contingent upon a pre-existing corporate commitment to environmental, social, and governance (ESG) principles. **Respondent1** stated "*the sustainability link roadmap was not initially started from the financing side. It was initially started by our previous COO. He was the one that had has been very passionate about sustainability roadmap*". This sentiment was echoed by **Respondent2** who noted, "*I think pressure is maybe not the right word because we have been doing this anyway since many years so we didn't feel we were ever under pressure to do this*". Similarly, **Respondent4**, from another borrowing entity in a carbon-intensive sector, framed SLLs as means to "*showcase that basically we have a plan, that we are serious and we need to achieve it*", implying that the plan and commitment were foundational elements upon which the SLL was leveraged. These perspectives indicate that SLLs can act to formalize, add discipline to, or expedite existing operational efficiency goals or leadership-driven ESG agendas, rather than as the primary creation of ESG strategy.

However, the interview results also illuminate a more nuanced dynamic whereby the core commitment to sustainability was enhanced by the specific structure and requirements of an SLL. The unique feature of SLL that contains specific sustainability KPIs can introduce new considerations or enforce a higher degree of discipline and accountability. **Respondent1** detailed how specific loan requirements from an SLL necessitated a more structured approach: "*So on that loan requirement there also certain SPT sustainability performance target that has*

been set, which is those target will be checked on annual basis. So at the same time, we also try to do all checking on annual basis". **Respondent2** further elaborated on how SLLs can unlock specific projects that might otherwise be deferred or face more internal resistance: "Sometimes it could be that we would not otherwise ... but now because we have a sustainable link loan, then there's not much resistance from anyone because everyone agrees we have to meet the sustainable link loan commitments". This suggests that while the broad strategic direction towards sustainability may pre-exist, the SLL mechanism, with its defined targets and potential financial implications, can sharpen focus, elevate the priority of specific sustainable investments, and instil a more rigorous monitoring regime within the borrowing entity.

Insights under this category provided more nuance to the prevailing discussions in literature, such as those by Auzepy et al. (2023) and Du et al. (2022), which suggested that SLLs might often showcase existing practices and questioned their efficacy in genuinely promoting further ESG improvements based on limited post-issuance performance enhancements. While this research concurred that SLLs typically leverage existing corporate commitments, the qualitative data revealed a more dynamic interaction than passive "showcasing." The rigorous process of structuring SLLs, such as the formulation of SLLs KPI and external verification, actively formalizes these pre-existing strategies. This suggests SLLs are instrumental structure to amplify ongoing sustainability efforts, creating a more disciplined approach to the sustainability objectives.

Contrary to the literature, which indicated that SLLs may not consistently yield statistically significant improvements in overall environmental performance (Auzepy et al., 2023; Du et al., 2022), this study's findings propose a more targeted form of impact. The influence of SLLs appears to be concentrated on driving improvements in specific, pre-defined KPIs and facilitating sustainable projects aligned with the company's established sustainability objectives. This focused impact emphasized tangible progress on selected fronts, which may not immediately translate into broad ESG score enhancements but represents crucial, measurable steps within a larger sustainability journey. This aligns with Migliorelli's (2021) call for sustainable finance to be "finance for sustainability" demonstrably linking financial tools to activities with positive contributions, even if these are incremental or project-specific accelerations of an existing strategy.

The catalytic role of SLLs can be understood within the broader theoretical context of how financial innovations interact with corporate strategy and socio-technical transitions. While this research indicates SLLs often follow, rather than initiate, a firm's fundamental strategic

commitment to sustainability, their function extends beyond mere facilitation. SLLs impose a disciplined framework and performance-based incentives that can accelerate the operationalization of these commitments. This resonates with the concept of finance playing a role in "niche-regime interactions" (Geddes & Schmidt, 2020), where SLLs might initially "fit and conform" to a company's existing trajectory but, by introducing rigor and verifiable targets, contribute to "stretching" the company's capabilities and performance over time. Schoenmaker's (2017) framework also offers a lens: SLLs can act as a mechanism for companies to progress from earlier stages of sustainability engagement towards more deeply embedded practices by providing structure and incentives for continuous improvement on material ESG issues. Thus, while not typically the genesis of a sustainability strategy, SLLs are pivotal in its execution, transforming strategic intent into demonstrable action and fostering a more dynamic and accountable pathway towards achieving sustainability objectives.

## 4.2. Dual Outcome of Financial and Stakeholder Management

Building on the finding that SLLs served as catalyst of pre-existing sustainability strategies, various considerations for companies to specifically engage with these financial instruments was also driven by a complex interactions of other multiple dimensions. While the direct financial incentives of meeting the agreed sustainability KPIs through interest rate reductions presents a tangible attraction, the interviews also revealed that non-financial drivers, notably the pursuit of enhanced corporate reputation and a strategic responsiveness to escalating stakeholder pressures, frequently constitute equally important consideration. This sub-theme emerged from a synthesis of discussions concerning the perceived benefits of SLLs, the underlying considerations of borrowers, the inductive understanding of intense stakeholder engagement, and the strategic use of SLLs as a communication tool.

The financial incentive of SLLs, though a clear component of their design, was often described by with a degree of pragmatism, suggesting it is not always the main factor in their decision-making process. **Respondent1**, for instance, commented, *"to be honest, on the SLL itself the commercial benefit is not that big from financing side"*. This perspective was echoed by **Respondent4** who indicated that the financial impact of meeting Sustainability Performance Targets (SPTs) was *"just a tiny basis points to be honest. The impact. It's more about showing that we have determination and also commitment towards our carbon emission reduction target"*. Similarly, **Respondent5**, speaking from a lender's viewpoint, acknowledged that initial SLL incentives were sometimes *"more like a token,"* with examples like *"two basis points,*

*which is actually quite very token*", though he also noted this aspect is still continuously evolving. These accounts suggested that while financial benefits are considered, their modest scale means they are frequently weighed alongside or even outweighed by other strategic considerations for companies already predisposed to sustainable practices.

Respondents also highlighted other necessities such as to build a strong corporate reputation and to navigate the expectations of diverse stakeholders emerged as a powerful set of considerations. **Respondent1** highlighted that beyond direct financial gains, SLLs can enrich company's access to liquidity and improve its prospects for future fundraising by positively shaping investor perception. The significant reputational aspect of SLL was also underscored by **Respondent2**, who characterized successful SLL engagement and target achievement as like receiving a *"trophy"* or an *"acknowledgement"*. The respondent highlighted that securing SLL for the company reinforces internal legitimacy for the sustainability team by showing that *"these guys are doing something different. It's credible"*. This aligns with **Respondent5** observation that for companies, *"the impact from a good profiling probably is more indirect than a direct impact in financing costs"*. Furthermore, the increasing pressure from external stakeholders, such as investors and regulatory bodies—as noted by **Respondent4**, *"49% of our shares is hold by institutional investors, public investors, and most of these public investors institutional investors, they are, they have a very stringent environmental and also ESG aspects that they have to follow in their portfolio"*—acts as a crucial external catalyst. In this environment, SLLs become a valuable mechanism for companies to tangibly demonstrate their ESG commitments, thereby addressing these pressures, enhancing their market standing, and reinforcing their legitimacy.

This multiple dimension of corporate decision-making process provides a crucial nuance to existing sustainable finance literature. While the economic incentives tied to ESG performance are a defining feature of SLLs (Auzepy et al., 2023; LMA, APLMA & LSTA; 2023), and the signalling potential of adopting such instruments is acknowledged (Liang & Renneboog, 2020), these findings rebalance their perceived importance. Reputation and enhanced market standing from issuing an SLL could be greater strategic value. This aligns with the broader understanding that corporate actions, particularly in the sustainability domain, are increasingly scrutinized for their symbolic value and alignment with societal expectations (Schoenmaker, 2017). The "stamp of approval" from an SLL, especially one involving credible financial partners, thus becomes a significant non-financial asset.

The critical role of SLLs in navigating stakeholder pressures further corroborates and extends insights from broader ESG and corporate governance literature (Liang & Renneboog, 2020; Câmara, 2022). Pressures from investors demanding tangible ESG integration and the influence of evolving regulatory environments. These demonstrate SLLs acting as specific, instrumental responses to the complex web of stakeholder expectations, moving beyond general pressures to become concrete tools for engagement and compliance. This proactive stakeholder management via SLLs can be seen as firms attempting to secure their legitimacy in an increasingly sustainability-conscious environment.

The identified spectrum of considerations, ranging from reputational enhancement to a genuine internal commitment to sustainability and alongside financial considerations, challenges the view that SLLs are merely transactional or greenwashing. While concerns about greenwashing and the lack of "additionality" are valid in the discourse on sustainable finance (Migliorelli, 2021; Auzepy et al., 2023; Du et al., 2022), the depth of these non-financial drivers suggests a more substantive corporate engagement. The considerable resources and organizational effort often required to establish meaningful KPIs and manage SLL reporting are not supporting the "easy win" narrative. When adoption is driven by a desire for enhanced reputation built on credible action, by pressures from informed stakeholders demanding genuine progress, or by an intrinsic corporate commitment to embed sustainability, the SLL serves as a commitment device. This aligns with Carrizosa & Ghosh's (2022) findings that well-structured SLL contract terms can be associated with subsequent improvements in sustainability performance, suggesting that when drivers are sound and contracts robust, SLLs can indeed transcend tokenism and contribute to tangible positive outcomes. Therefore, these multifaceted drivers suggest that SLLs can be indicative of a deeper strategic integration of sustainability, rather than a purely opportunistic corporate cosmetic.

### 4.3. Building meaningful KPIs

The multiple dimensions of drivers of taking SLLs, ranging from financial incentives to crucial reputational gains and stakeholder responsiveness, necessitate a robust and credible mechanism for translating these varied objectives into meaningful and measurable action. This mechanism is fundamentally anchored in the careful design and rigorous application of Sustainability Performance Targets (KPIs). The interview data consistently underscored that the value proposition and perceived integrity of an SLL hinges on the role & nature of KPIs, specifically

their selection process, their inherent materiality and ambition, and the subsequent verification of achievements.

The KPI selection process itself emerged as a significant, often intricate, negotiation between borrowers and lenders, aimed at identifying metrics genuinely material to the company's core operations and sustainability impact. **Respondent2** highlighted the need to remain objective and contextual when establishing baselines: *"if my project is already energy efficient on day one ... you can't expect me to go 40% below my existing baseline"*. This borrower perspective underscores the pursuit of fairness and relevance. From the lenders' side, **Respondent5** detailed a diligent process of *"sitting with them to really firming up what's the material item, and then try to build the sustainability performance target around that"*. This collaborative effort is crucial for establishing KPIs that reflect genuine areas for sustainable improvement.

A central challenge in this process is calibrating the ambition of these KPIs. The targets must be significant enough to drive meaningful change and address potential greenwashing concerns, but still remain financially feasible for the borrower. **Respondent1** articulated this directly: *"we have to balance whether the targets versus the CapEx that we have to input to make sure that bottom line, we still, at the end of the day, we still a business"*. Lenders also play a key role in driving this ambition. **Respondent3** described the attitude of its own internal organisations as *"known to really push, to be ambitious ... our board is very particular about greenwashing"*. This indicates a commitment to ensuring SLLs deliver substantive outcomes, reflecting a key aspect of the banks' role and perspective in maintaining market integrity.

Given the risk of greenwashing concerns and to ensure that SLLs drive genuine environmental impact, the mechanisms for validating and ensuring the integrity of KPIs are critical. This involves both external consultation and robust internal evaluation processes. Borrowers, as quoted in **Respondent1** proactively seek external validation, noting they engage a *"third party consultant... To see whether our target is also... ambitious enough"*. Commercial lenders may leverage external expertise; **Respondent5** described a process of consulting multiple ESG specialists to *"add an extra layer of credibility...and shield us against the potential greenwashing risk"*, while other lender build dedicated internal resources as highlighted by **Respondent3**, *"we have green building specialists. We have a team of green building specialists and they...determine the ambitiousness or the achievability of client's targets, they essentially benchmark this against what they see globally... They're the ones who really sign off on the KPIs"*. This multi-faceted approach to verification and expert evaluation, incorporating borrower initiative, commercial bank due diligence with external consultants,

and internal specialist teams, is pivotal in substantiating the sustainability claims linked to SLLs and satisfying broader stakeholder expectations.

These findings directly engage with and elaborate upon significant concerns within the sustainable finance literature regarding the potential for SLLs to feature "low-hanging fruit" KPIs or facilitate greenwashing (Auzepy et al., 2023; Du et al., 2022; Migliorelli, 2021). The mechanisms detailed by practitioners in this study, such as rigorous negotiation processes, the engagement of expert consultants to define and validate KPIs, and the mandatory involvement of third-party verifiers for assessing performance represent tangible market-led efforts to ensure KPI robustness. These practices, while not universally standardized, demonstrate a conscious effort by market participants to address the credibility gap highlighted by critics and to move beyond superficial target-setting.

The proactive stance of lenders in advocating for more ambitious KPIs also confirms and provides empirical weight to calls within industry guidelines and academic literature for more rigorous target setting (Auzepy et al., 2023; LMA, APLMA & LSTA, 2023). The SLL Principles explicitly state the need for targets to be ambitious and meaningful. The active role of lenders in shaping these targets, as observed in this research, suggests a developing market discipline aimed at ensuring SLLs genuinely contribute to sustainability improvements rather than merely ratifying business-as-usual scenarios. This lender-driven push for ambition is a critical countermeasure to the risks of complacency and is vital for maintaining the legitimacy of the SLL instrument.

However, this research also sheds light on a practical tension inherent in the KPI-setting process that is perhaps under-articulated in broader calls for ambition: the delicate balance between setting ambitious targets and ensuring they remain achievable for the borrower. Insights from **Respondent5** and **Respondent3** articulated the tension for companies that are already high performers in sustainability or operate in several sensitive sectors face distinct challenges in defining targets that are both a "stretch" and operationally feasible. This operational reality necessitates a nuanced approach to KPI setting, where "ambition" must be contextualized against the borrower's specific circumstances, industry benchmarks, and technological capabilities. While the literature rightly critiques a lack of ambition, the practicalities of negotiation often involve reconciling the need for market credibility and demonstrable impact with the borrower's operational constraints and capacity for change. Successfully navigating this tension is crucial, as overly ambitious and unattainable targets could disincentivize participation, while easily achievable ones would undermine the

instrument's purpose. The findings of Carrizosa & Ghosh (2022), which associate well-defined SLL contract terms with subsequent sustainability improvements, implicitly underscore the importance of this calibrated KPI-setting process. The effectiveness of SLLs is not just about demanding ambition in isolation but about fostering a collaborative yet rigorous negotiation that results in meaningful, credible, and ultimately achievable sustainability objectives (Carrizosa & Ghosh, 2022).

#### 4.4. Evolving Market

Given its relatively nascent development, the landscape for SLLs was characterized by continuous evolution and increasing sophistication, yet it simultaneously presented notable complexities and demand for resources among the market participants. Lenders interviewed described a significant acceleration in SLL adoption, particularly in recent years. **Respondent3** observed that the SLL market "*really took off during the height of the pandemic*" while **Respondent5** noted the first SLL booking in Indonesia occurred "*around 2022*", indicating a relatively recent engagement. Despite the development of market norms and "best practices" through issuance of frameworks like the SLL Principles issued by APLMA as frequently referenced by **Respondent5**, challenges such as ensuring client readiness for the instrument's intricacies and the ongoing need for market education continued to persist.

For borrowing companies, effectively navigating this evolving SLL market involved not only confronting external complexities but also dedicating significant internal resources and establishing robust systems. The process of defining appropriate KPIs, establishing credible baselines, and setting up monitoring and reporting systems could be demanding. **Respondent4** explained his company's integrated approach: *so basically we monitor everything on a monthly basis. So every month whenever we done with the financials, operational results, we also analyze and monitor about our carbon emission and impact on the ESG aspects*". This frequent monitoring, intertwined with regular operational and financial reviews, demonstrated the level of internal commitment and systemic integration required for the successful execution and tracking of the KPIs. Furthermore, navigating these sophisticated instruments often involves a significant learning curve & capacity building. **Respondent2** articulated this internal evolution: *"we learn along the way, right? When we started this, we did not know. You are experimenting with many things. You learn as you go... And based on that, you evolve your approach. More and more if things work, there's more and more confidence because there's track record, there's experience"*. This iterative process of learning, experimenting, and

building internal track records is crucial for companies to effectively integrate SLL requirements into their core workflows and successfully manage these complex financial tools. From the lenders' perspective, the increasing market sophistication brings both opportunities and the responsibility of managing these complexities. **Respondent5** pointed out to the detailed engagement required, particularly when clients are new to SLLs or have intricate sustainability profiles, mentioning a case where a client found the SLL process "*really complex for their company. So they put it on hold*". This necessitates an advisory capacity from banks, as well as internal expertise to evaluate and structure these deals appropriately. The market's evolution also drives financial institutions to develop more nuanced products such as the "*Transition Finance Playbook*" mentioned by **Respondent5**, to cater to a wider range of companies at different stages of their sustainability journey, reflecting ongoing efforts to standardize and refine SLL applications effectively.

The "relative infancy" of the SLL market (Auzepy et al., 2023; Du et al., 2022) is characterized by the resource intensity reported by borrowers. This demand suggests that SLLs are not yet commoditized products but require significant strategic engagement, a characteristic often found in the early stages of niche development within broader socio-technical transition pathways (Geels & Schot, 2007; Köhler et al., 2019). Challenges in the adoption of novel financial instruments and sustainability practices presented information asymmetries and substantial learning costs (Liang & Renneboog, 2020). As the market matures, this learning-by-doing is leading to the development of more sophisticated and tailored financial solutions, such as the "Transition Finance Playbook", aimed at accommodating diverse corporate sustainability profiles and transition needs. This evolution is crucial for broadening market access and ensuring SLLs can effectively support a wider array of companies in their sustainability journeys, moving beyond early adopters to mainstream integration.

#### 4.5. Evolving Role of Financial Institutions

The interaction between financial and technicality of sustainability parameters ingrained in the structure of an SLL necessitates financial institutions to expand their traditional capacity beyond a mere capital providers. Interviews reveal a clear expansion in their functions, positioning them as crucial advisors, navigators of complex frameworks, and influential standard-bearers within this evolving sustainable finance ecosystem. This enhanced engagement appears crucial in shaping how SLLs are understood and effectively implemented

by their clients, reflecting a dynamic shift in the banks' role and perspective towards a more holistic partnership with their clients in achieving sustainability objectives.

A prominent feature of this expanded role is the provision of specialized advisory services. Financial institutions are proactively guiding clients through the SLL lifecycle, from initial comprehension and deal structuring to navigating evolving market expectations and specialized frameworks like transition finance. **Respondent5** detailed his team's proactive engagement by assisting clients "*to structure the facility based on adherence to the ESG loan principles*". The "Transition Finance Playbook" mentioned during the interview exemplified the development of sophisticated tools to support clients, particularly those in "brownier industries" on their decarbonization journeys. This advisory role is complemented by practical support, as **Respondent3** highlighted that their contribution includes "*the support as well with achieving these SPTs that we offer,*" leveraging internal expertise and resources such as their own internal green building certification.

As the SLL market itself undergoes significant market development and maturity, these institutions also serve as essential navigators. The rapid growth of SLLs has created a dynamic yet sometimes challenging environment. While increasing standardization offers some clarity, the initial complexity for certain clients underscores an ongoing learning curve and need for capacity building for market participants. The guidance provided by experienced financial partners is therefore crucial for successful SLL adoption.

As an active market actor, financial institutions are instrumental in setting market standards. **Respondent3** articulated its company's leadership in the market as the "*standard setters and pioneers in this space,*" whose involvement provides a "*stamp of approval*" signifying that an SLL from a certain lender "*has passed the most stringent kind of test high watermark*". This standard-bearing function not only elevates the quality of individual transactions but also exerts a broader influence on market practices and client expectations, fostering greater credibility and ambition in the use of SLLs for sustainable development.

This expansion of the roles of financial institutions offered a crucial counterpoint and potential solution to some criticisms of SLLs found in the literature. The active advisory and quasi-standard-setting function directly addresses concerns about greenwashing (Migliorelli, 2021; Auzepy et al., 2023) and the establishment of insufficiently ambitious KPIs (Auzepy et al., 2023). By leveraging their expertise and market position, these financial institutions actively shape deal structures and promote higher standards of accountability and transparency. This

hands-on approach, effectively "stretching and transforming" aspects of the financial regime to better support sustainability niches (Geddes & Schmidt, 2020), contributes to enhancing the overall credibility and impact of SLLs. Consequently, while formal regulatory frameworks for SLLs are still maturing globally, the informal governance exerted by these influential lenders acts as a powerful market-based mechanism. It drives adherence to best practices and informally enforces a level of rigor that begins to address literature-driven calls for stricter labelling, more robust disclosure, and demonstrable additionality in sustainable finance (Migliorelli, 2021).

## 5. Conclusion

Answering the research question, *'To what extent does innovation in financial products such as Sustainability-Linked Loans influence business decisions in making sustainable investment?'*, this research reveals that SLLs exert a significant, though conditional, influence. This influence operates primarily through three interconnected mechanisms, reflecting the core themes identified in the data.

First, SLLs influence business decisions by catalysing and institutionalizing corporate sustainability commitments. The KPIs embedded within SLLs act as powerful tools to legitimize sustainability-driven investment changes and foster the necessary discipline to achieve stated objectives. While these instruments incorporate financial incentives, the trigger for their adoption may go beyond the direct economic benefits, with considerations such as reputational enhancement and strategic stakeholder management—particularly attracting a broader investor base—playing a bigger role.

Second, the influence of SLLs is shaped by an evolving market that progressively refines KPI robustness and credibility. As experience with SLLs grows among borrowers and lenders, there is an apparent trend towards more material and ambitious KPI formulation, critically supported by third-party verification which underpins accountability.

Lastly, financial institutions also shape the impact of SLLs by acting as informal advisors and standard setters. By actively guiding clients, especially those in complex transition pathways or sensitive sectors, in structuring credible SLLs, these institutions not only facilitate sustainable investments but also contribute to steadily raising the bar for KPI ambition and market best practices. Collectively, these mechanisms demonstrate that SLLs are important

instruments that can deepen and accelerate sustainable investment, particularly when aligned with a firm's existing strategic commitments and broader market expectations.

## 5.1. Academic Contribution

This research makes several contributions to the existing literature on sustainable finance and the role of financial instruments in promoting sustainable investment. First, it offers nuances into the mechanisms, considerations, and practitioner perceptions surrounding SLLs. These insights complement quantitative analyses, such as those by Auzepy et al. (2023) and Du et al. (2022), which often report mixed or limited direct ESG performance impacts. By exploring the 'why' and 'how' from the perspectives of both borrowers and lenders, this study helps to explain the contextual factors and decision-making nuances that underpin observed outcomes, offering a more holistic understanding than econometric analysis alone can provide.

The study also contributes by giving context to the practical realities of KPI setting, detailing the operational complexities and inherent tensions between the need for ambitious targets, as advocated by industry principles (LMA, 2023) and academic calls (Auzepy et al., 2023), and the borrower's requirement for achievable and material objectives. Finally, a key contribution lies in identifying the extended role of financial institutions. Moving beyond their traditional roles, these institutions act as pivotal advisors, knowledge brokers, and informal standard setters. By actively shaping deal structures, promoting best practices, and influencing market norms around KPI credibility and ambition, they contribute to the governance and evolution of the SLL ecosystem, potentially impacting the broader 'financial regime' in its interaction with sustainability niches (Geddes & Schmidt, 2020).

## 5.2. Practical Contribution

The findings of this research offer several practical implications for key stakeholders involved in the SLL market. Borrowers are recommended to place SLLs as part of an integrated genuine sustainability strategy. Companies should also anticipate and allocate adequate resources for the rigorous KPI setting, data management, and monitoring that these instruments demand, while actively leveraging the significant non-financial benefits, such as reputational enhancement and stakeholder communication.

This study also underscores the importance for lenders to develop their advisory capacities to effectively guide borrowers in defining material and ambitious KPIs. Maintaining rigorous due diligence is critical to uphold legitimacy of the instrument and mitigate greenwashing risks.

Furthermore, continued innovation in structuring SLLs to offer meaningful incentives, while balancing the drive for standardization with the need for flexibility to suit diverse borrower contexts, will be crucial for market development.

### 5.3. Limitations of the Study

First, this study may be subject to a degree of survivability bias, as the primary borrower perspectives are drawn from companies that successfully implemented Sustainability-Linked Loans. The experiences and decision-making rationales of companies that considered SLLs but ultimately chose not to adopt them, perhaps due to insurmountable challenges in KPI setting, resource constraints, or perceived lack of suitability, are not as deeply explored, although insights from one lender did touch upon such an instance.

Another limitation is the potential for interviewee bias such as social desirability and the researcher's interpretive lens also warrant consideration, despite researcher's best effort to mitigate this by ensuring anonymity and preparing a neutral question phrasing. The SLL market itself is dynamic and rapidly evolving; thus, these findings represent a snapshot at a particular point in its development. Finally, while the influence of existing regulations was briefly touched upon by some participants, this research did not undertake an in-depth analysis of the specific role and impact of diverse policy and regulatory frameworks on SLL adoption and effectiveness, which was beyond the primary scope focused on organizational decision-making and market interactions.

### 5.4. Future Research Directions

Further investigation in several key areas can help to deepen the understanding of SLLs and their broader impact.

First direction is on the longitudinal impact studies. Given that genuine sustainability transformations are inherently long-term endeavors (Geels & Schot, 2007; Köhler et al., 2019), future research should track SLL adopting companies over extended periods. This longitudinal approach would allow for a more robust assessment of the sustained impact on their strategic direction and actual sustainability performance, moving beyond the shorter-term observations in some initial SLL studies (Auzepy et al., 2023; Du et al., 2022) and evaluating contributions to long-term value creation (Schoenmaker, 2017).

Another direction is to provide a more complete market perspective and address the potential survivability bias identified in this study, dedicated research is needed to understand the

experiences of companies that considered SLLs but ultimately did not adopt them. Investigating the decision-making processes, perceived barriers such as insurmountable challenges in KPI setting, prohibitive resource demands, or a perceived lack of strategic fit and the alternative financing or sustainability paths these "non-adopters" pursued would offer crucial insights into the practical limitations and broader applicability of SLLs.

Finally, a more in-depth exploration of the role and impact of policy and regulatory frameworks is warranted. While this study noted the peripheral influence of existing regulations, further investigation into the role and impact of policy and regulatory frameworks is crucial. Building on critiques of existing sustainable finance frameworks and identified policy risks (Migliorelli, 2021), comparative policy analyses could identify regulatory approaches and financial policy interventions (Geddes & Schmidt, 2020) that most effectively support genuine sustainability outcomes through instruments like SLLs, thereby ensuring they contribute meaningfully to broader objectives such as the SDGs (Ziolo et al., 2021).

## 5.5. Transdisciplinary Reflection

The study on the impact of SLLs provides a fascinating optic on the intricate interactions between finance, corporate behavior, and the urgent global sustainability transition. Transcend beyond financial mechanics, SLLs emerge as complex socio-economic catalysts where multivariate considerations eclipse economic incentives in steering corporate sustainability. Such dynamics require harmonious multidisciplinary collaboration within firms, synergizing on diverse expertise to convert sustainability aspirations into actionable, economically sound strategies. The critical challenge of designing meaningful KPIs and mitigating greenwashing highlighted that these financial innovations are not just technical tools, but potent indicators of evolving corporate ethics, governance pressures, and the societal expectations to embed sustainability deep within economic practice.

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# Appendix A - Information Sheet

**Research Question:** To what extent sustainability-linked financial instruments incentivize company in making sustainable investments?

Dear Participant,

Thank you for your interest in participating in this research. My name is Muhammad Alif Habibie, and I am a student at University of Groningen in the master program Master of Science in Sustainable Entrepreneurship.

This information sheet contains information about the research and how the research will be conducted. Please take time to read the following information carefully. If any information is not clear, please ask possible questions before the interview. You can find my contact information at the end of the information sheet.

## **What this study is about?**

The transition to a sustainable economy requires substantial financial investments, estimated to range from \$136 trillion to \$275 trillion by 2050. Sustainability-linked instruments, such as Sustainability-Linked Bond (“SLB”) and Sustainability-Linked Loan (“SLL”), arise as a novel financial product that tie economic benefits, the achievement of predefined environmental, social, and governance (ESG) performance metrics. This research seeks to answer the question: To what extent sustainability-linked financial instruments incentivize company in making sustainable investments?

It examines how Sustainability-linked instruments shape corporate decision-making, functioning as tools to signal ESG commitments and guide internal sustainability practices. Preliminary insights suggest that while SLLs hold promises for facilitating sustainable transitions, challenges such as greenwashing and the negotiation of superficial performance indicators limit their efficacy. The study aims to provide actionable recommendations to enhance the credibility and impact of such instrument and enrich the discourse on sustainable finance.

You have been included to participate in this study because of your expertise and experience in the corporate finance. This research is self-funded by the researcher and does not receive external sponsorship or funding.

## **What does participation involve?**

Participation in this study involves semi-structured interviews, where you will be asked question related to your company’s strategy regarding sustainability transition and its implications towards financing strategy. The interview will approximately last 45-90 minutes. Audio recordings of the interviews will be made to ensure accuracy in capturing your responses, and these will be transcribed for analysis.

### **Do you have to participate?**

Participation in this study is on a voluntary basis. You may choose to withdraw your participation from the study at any time without providing reasons or facing any consequences. Furthermore, you are not obligated to answer any questions that might make you uncomfortable.

### **Are there any risks in participating?**

The risks associated with participating in this study are minimal. However, you are encouraged to express concerns at any time.

### **Are there any benefits in participating?**

There are no direct benefits to you for participating in this study. However, the findings might provide valuable insights for your company, highlighting the efficacy of sustainability-linked financial instruments to foster investment in sustainability transition.

### **How will information you provide be recorded, stored and protected?**

All information provided by you will be treated with the utmost confidentiality. The recordings will be transcribed, anonymized, and securely stored. No identifying information, such as your name, or company details, will be included in the analysis. Data will be stored according to GDPR rules at the University of Groningen. Only the researcher and research supervisor will have access to the data. Audio recordings will be deleted after transcription.

### **What will happen to the results of the study?**

The results of the study will be used for academic purposes, including the completion of a research dissertation, submitted to the University of Groningen. Findings may also be disseminated through publications and presentations at academic conferences. Participants will not be identifiable in any published materials.

### **Ethical Approval**

The researcher adheres to all relevant ethical standards throughout the study, including transparency, respect for participants, and academic integrity.

### **Addressing Complaints**

In case of a complaint, the researcher will first make every effort to address and resolve any concerns or complaints directly with the participant. If the issue remains unresolved, participants can contact the Campus Fryslân Ethics Committee for further assistance.

### **Informed Consent Form**

Please read and sign the attached informed consent form to indicate your intention to participate in the study.

### **Who should you contact, if you want further information?**

**Primary Contact Person:** Muhammad Alif Habibie, Master of Science in Sustainable Entrepreneurship, [muhammad.alif.habibie@student.rug.nl](mailto:muhammad.alif.habibie@student.rug.nl), +31 657 602 007

# Appendix B – Informed Consent Form

**Title Study:** To what extent sustainability-linked financial instruments incentivize company in making sustainable investments?

**Name Participant:** \_\_\_\_\_

## Assessment:

- I have read the information sheet and was able to ask any additional questions to the researcher before the interview.
- I understand I may ask questions about the study at any time.
- I understand I have the right to withdraw from the study at any time without giving a reason.
- I understand that at any time I can refuse to answer any question without any consequences.
- I understand that I will not benefit directly from participating in this research.

## Confidentiality and Data Use

- I understand that none of my individual information will be disclosed to anyone outside the study team and my name will not be published.
- I understand that the information provided will be used only for this research and publications directly related to this research project.
- I understand that data (consent forms, recordings, interview transcripts) will be retained on the Google Drive of the University of Groningen server for 5 years, in correspondence with the university GDPR legislation.

## Future Involvement

- I wish to receive a copy of the scientific output of the project.

**Having read and understood all the above, I agree to participate in the research study:**

yes / no

**Date:** \_\_\_\_\_ **Signature:** \_\_\_\_\_

## To be filled in by the researcher

- I declare that I have thoroughly informed the research participant about the research study and answered any remaining questions to the best of my knowledge.
- I agree that this person participates in this research study.

**Date:** \_\_\_\_\_ **Signature:** \_\_\_\_\_

## Appendix C – Interview Framework

**Research Question:** To what extent sustainability-linked financial instruments incentivize company in making sustainable investments?

**Estimated Time:** 45-90 minutes

### Introduction

- Thanking the participant for their involvement and assure confidentiality
- Quick introduction of yourself
- Provide a brief overview of the research goals, that is whether sustainability-linked financial instruments, in particular the SLBs and SLLs, incentivize investments towards sustainability

### Background Information

1. Could you please introduce yourself and describe your role within your company?
2. Could you please describe what are your company's core business activities?

### Motivation Towards Transition

3. To the best of your knowledge, is your company subject to specific sustainability-related framework/regulation (*or conducting voluntary adherence*)? **Note:** Think of UN-SDG, EU Taxonomy, Sustainability Reporting Framework such as GRI or ESRS.
4. To the best of your knowledge, does your company have a specific vision/mission/objective/KPI regarding sustainability?
  - If yes, can you please describe them? (**Go to Question 5**)
  - If no, why do you think that is the case? (**Skip Question 5, Go straight to Question 6**)
5. How frequent do you assess the progress that your company make towards those vision/mission/objective/KPI, and how well do you think your company communicate this information to the (internal and external) stakeholders?
6. In your day-to-day job, do you feel increasing pressure from your stakeholders to have vision/mission/objective/KPI regarding sustainability?

### Questions to Finance Team

7. Could you please describe the financing strategy of your company?
8. Do you think that the growing attention on climate change and the development of sustainability investment is relevant to your company's financing strategy?
9. I noticed that your company has SLB/SLL as one of the financing instruments. Could you please describe that/those? **Note:** The description would include issuance size, time, the interest rate, and the Sustainability KPIs
10. Could you describe what was the background or the thinking process in selecting SLB/SLL as one of the financing instruments?
11. Could you describe why and how the Sustainability KPI(s) was/were chosen? **Note:** Try to connect with the respondent's answer to **Question 3**
12. To what extent does the Sustainability KPIs of your SLB/SLL affect the strategic decision-making process of your company?

13. What is your thought on the effectiveness of this instrument in helping your company to achieve its objectives? **Note: Some ideas to help the respondent**
  - a. whether the instrument widen the company's access to a new/different pool of capital (e.g. new banks/investors)
  - b. are the KPIs creating new administrative/bureaucracy/compliance burden and whether these burdens outweigh the corresponding incentives/penalties
  - c. are there any temporal gaps between the available loan/bond tenor and company's strategic timeline
14. In the future, are you considering another issuance of SLL or SLB but with more ambitious targets?
15. Open discussion and follow up questions based on the respondent answers.
16. Is there anything else you would like to add that may be helpful for this research but was not covered in this interview yet?

### Questions to Business Development / Operation Team

7. **Bus. Dev.:** Could you please describe how do you position your company within the industry?  
**Operation:** Could you please describe what are the most significant materials needed for construction, operation, maintenance of your assets?
8. **Bus. Dev.:** Can you describe what are the significant investments that your company made in the last 3 years?  
**Operation:** Could you please give an overview of how you procure these materials, how or to what extent do you consider sustainability in your procurement process?
9. Can you describe how does your company plan/execute/monitor for environmental and social impacts of your business activities?
  - a. Can you also describe whether there are any significant internal changes/developments in the way you plan/execute/monitor environmental and social impacts?
10. To what extent are you involved in the determination of the KPIs of your company's SLL?
11. To what extent does the Sustainability KPIs of your SLB/SLL affect the strategic decision-making process of your company?
12. What is your thought on the effectiveness of this instrument in helping your company to achieve its objectives? **Note: Some ideas to help the respondent**
  - a. whether the instrument widen the company's access to a new/different pool of capital (e.g. new banks/investors)
  - b. are the KPIs creating new administrative/bureaucracy/compliance burden and whether these burdens outweigh the corresponding incentives/penalties
  - c. are there any temporal gaps between the available loan/bond tenor and company's strategic timeline
13. Open discussion and follow up questions based on the respondent answers
14. Is there anything else you would like to add that may be helpful for this research but was not covered in this interview yet?

### Questions to Bank

1. Could you please introduce yourself and describe your role within your company?
2. For how long has this product been in your organisation?
3. Could you please describe the key features of your bank's Sustainability-Linked Loan?  
**Note:** Some ideas to help the respondent:
  - a. difference and similarities between SLL and traditional loan, due-diligence and credit assessment process,
  - b. target customers,
  - c. unique selling point (compared to other products within own bank's portfolio or compared to the SLL of other banks) of the SLL.
4. Could you please describe the determination process of the sustainability KPIs that you negotiate with your clients? **Note:** Some ideas to help the respondent:
  - a. who is/are the key decision makers within the banks,
  - b. any internal policies/framework that need to be adhered to
  - c. how to manage the relative different in bargaining position between bank vs customers
5. Could you please describe the performance of your SLL portfolio? **Note:** Some ideas to help the respondent:
  - a. The growth rate and % of SLL compared to the overall bank's portfolio
  - b. The % of clients who exceeds vs fail the KPIs
  - c. Lesson learnt and planned improvement
6. Could you please describe what are the enabling and blocking factors for expansion and effectiveness of SLL? **Note:** Both internal factors and external factors
7. Have you experienced that these standards affect acceptability of SLL?

**Thank the participant for their time and valuable contributions to the research. Reassure them about the confidentiality of their responses and provide contact information for any future queries or updates on the research.**

## Appendix D – Access to Anonymized Transcripts

[https://drive.google.com/drive/folders/1\\_uOYECTRPNu1wj3-miolk4uYIRhR2R8i?usp=sharing](https://drive.google.com/drive/folders/1_uOYECTRPNu1wj3-miolk4uYIRhR2R8i?usp=sharing)