THE MATERIALITY OF DOUBLE MATERIALITY

Master thesis, MSc, Sustainable Entrepreneurship

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Abstract:

This paper investigates the impact of double materiality assessment on sustainable investment decisions in the banking sector, emphasizing the significance of environmental, social, and governance factors. Through interviews and data analysis, the study explores how banks utilize this assessment and identifies its strengths and weaknesses. Despite its nascent stage, double materiality assessment shows potential to enhance transparency in sustainability reporting. Recommendations for improving its implementation include standardized guidelines, capacity building, and increased transparency. The research underscores the importance of considering both financial and non-financial aspects in investment decision-making processes, aiming to support informed and sustainable investment decisions in the future.

1. INTRODUCTION

The extraordinary growth the world has seen since World War 2 has come at a colossal environmental cost, leaving the world in a dangerous position with a narrow window for action (Henry, 2020). Biodiversity is damaged, oceans and marine life are endangered, forests ravaged, air and water polluted, and the climate is gravely threatened. If we fail to act decisively this decade, the damage to our climate, oceans, and biodiversity could be irreversible. To combat these challenges, there has been a proliferation of new regulations from the European Union (EU) to support the transition to a low-carbon, more resource-efficient and sustainable economy (Arvidsson & Dumay, 2022). The number of public companies in Europe reporting on Environmental, Social, and Governance (ESG) information grew from fewer than 20 in the early 1990s to 8,500 by 2014 (Kotsantonis, Pinney & Serafeim, 2016). This was partly due to the first European Union regulation to address public disclosure of non-financial information: the Non-Financial Reporting Directive (NFRD), published in 2013 (Raith, 2023). The NFRD aimed to enhance corporate transparency and accountability by requiring companies to report on their ESG performance, thus providing stakeholders with better information (European Commission, 2023a). Initially, the NFRD applies to large public-interest entities, including publicly traded companies, banks, and insurance companies. It covered approximately 11,700 large companies and corporate groups across the EU, mandating the disclosure of information on environmental impacts, social issues, employee treatment, human rights, and anti-corruption measures (European Commission, 2023a). The Corporate Sustainability Reporting Directive (CSRD) is the successor of the NFRD and came into effect in 2023. This new directive enhances and updates the regulations related to the social and environmental information that companies are obligated to report. Over 50,000 companies, including listed small and medium enterprises, are now mandated to report on sustainability (European Parliament, 2024). One important change is that many of these companies will be required to report on their carbon emission, assessment of climate risk, and policies related to climate change mitigation and adaptation for the first time (PwC, 2024). Companies subject to the CSRD must report according to the European Sustainability Reporting Standards (ESRS). The ESRS will establish a reporting framework that enables companies to systematically, credibly, and comparably disclose their sustainability performance (European Parliament, 2024).

ESRS mandates managers to disclose information necessary for understanding the company's sustainability impacts and how these matters influence its development, performance, and

position (European Parliament, 2022). Specifically, one main change, compared to the previous reporting directive, is the emphasis on double materiality, which requires companies to report on both the impacts of their activities on people, such as society and workers, and the environment, as well as how sustainability matters affect the company itself. The European Commission (2023, p. 266) clarifies that a sustainability matter meets the criterion of double materiality if it is material from either the impact perspective, the financial perspective, or both. Thus, double materiality entails a comprehensive assessment that encompasses both social and environmental impacts alongside financial considerations (European Commission, 2023).

The double materiality assessment (DMA) process aims to identify the issues affecting both the company and its stakeholders (Dragomir, et al., 2024). However, critics argue that the DMA exhibits weak evidence and suffers from gaps, such as lack of clarity regarding double materiality as a concept and unclear metrics (Chui, 2022). The CSRD also lacks clear directives on conducting materiality analysis, creating uncertainty regarding the practical application of the principle of double materiality (Baumüller & Grbenic, 2021). Additionally, CSRD introduces expanded reporting mandates for material topics, including objectives, strategies, timelines, and governance issues, without offering precise definitions or instructions on meeting these obligations (Baumüller & Grbenic, 2021).

The DMA will become mandatory in 2025 when firms submit their sustainability information for 2024 (European Commission, 2022). However, several companies have now voluntarily decided to proceed with the early adoption of double materiality in their sustainability reports (Correa-Mejía, et al,. 2024).

The DMA could affect investment decisions as there is increasing evidence that shows that asset owners, such as pension funds and banks, evade adverse sustainability impacts in their investments (Chui, 2022). Smaller firms could be subject to less prescriptive policy but should still disclose how they manage double materiality, allowing for public scrutiny and accountability (Chui, 2022).

Shareholder engagement and corporate disclosures primarily address the agency problem, aiming to hold companies accountable to shareholders who have their own financial interests (Chui, 2022) This private governance approach may not align fully with public sustainability goals, as private incentives are often focused on financial returns. Although there is evidence that investing in sustainable practices can be financially rewarding, trade-offs between financial returns and sustainable behavior can occur (Chui, 2022).

If the market responds clearly and disciplines the investment management industry, such market-driven discipline can be more effective than regulatory compliance (Chui, 2022). However, the bifurcation in mandatory disclosure requirements for larger and smaller investment intermediaries means investors do not have a level playing field, resulting in mixed signals regarding market discipline. Conventional investment firms, like banks, tend to filter information according to their interests, often emphasizing non-financial achievements like gender diversity on boards or employee welfare. This behavior indicates that even with mandated double materiality evaluations, market choices will prioritize certain metrics over others, influencing investment decisions (Chui, 2022). Banks are widely acknowledged as playing a crucial role in achieving the sustainable development goals (SDGs) (Zimmermann, 2019). Therefor this study aims to explore the connection between the DMA and investment decisions by banks.

2. THEORY

While the aim of CSRD is to help stakeholders evaluate sustainable performance of companies (European Commission, n.d), little is known about how ESG data disclosed in those corporate sustainability reports will affect investment decisions. Namely, according to the signaling theory, companies' disclosures in CSRD reports should act as signals influencing institutional investors in their sustainable investment decisions (Connelly, Certo, Ireland, & Reutzel, 2011). In signaling theory, information asymmetry refers to a situation where one party in a transaction possesses more or better information than the other party. This imbalance of information can lead to challenges in decision-making and interactions between the two parties. In the context of sustainable investments and corporate disclosures like CSRD reports, reducing information asymmetry is crucial. Signaling theory posits that companies use signals, such as specific disclosures or actions, to communicate information about their true underlying characteristics (e.g., commitment to sustainability) to external stakeholders, including investors. By doing so, they aim to mitigate information asymmetry and build trust, influencing stakeholders' perceptions and decisions. In the case of sustainable investments, effective signaling through comprehensive and transparent reporting helps bridge the information gap between companies and investors, fostering more informed and aligned decision-making (Connelly, et al., 2011).

Investors, alongside various stakeholders, are increasingly calling for the disclosure of non-financial information that extends beyond what is currently provided in financial statements

(Bose, 2020). Critics claim ESG data lacks qualitative aspects such as value relevance, comparability, and credibility and that nothing about it helps them make a financial decision (Arvidsson & Dumay, 2022). According to research, barriers to weighing ESG data in decision-making include a lack of materiality, accuracy, and reliability (Jonsdottir, Sigurjonsson, Johannsdottir, & Wendt, 2022). Moreover, mandatory disclosure of material sustainability risks and principal adverse sustainability impacts will impact investment decisions only if asset owners and beneficiaries consider this information valuable (Chui, 2022). To support that, research shows that an ESG report that evaluates efforts based on their impact on the firm's cash flows generally elicits a more robust price reaction compared to an ESG report that solely focuses on the ESG impact itself (Friedman, Heinle & Luneva, 2021). For the scope of this research, the European market is investigated. Research indicates that EU policies on ESG reporting have yielded positive outcomes for what is termed "sustainable finance" (Ahlström & Monciardini, 2021). Sustainable finance means integrating environmental, social, and governance (ESG) factors into investment decisions within the financial sector, fostering long-term investments in sustainable economic activities and projects (European Commission, n.d). Environmental considerations encompass climate change mitigation and adaptation, as well as broader concerns such as biodiversity preservation, pollution prevention, and the circular economy. Social factors encompass issues of inequality, inclusivity, labor relations, investments in human capital and communities, and human rights. Governance, pertaining to both public and private institutions, including management structures, employee relations, and executive compensation, is crucial for incorporating social and environmental considerations into the decision-making process. The heightened focus on sustainable finance is evident in the significant increase in signatories to the UN-backed Principles for Responsible Investment (PRI). In 2006, there were 63 investment companies with $6.5 trillion in assets under management (AUM), and by 2018, the number of signatories had surged to 1,715, representing $81.7 trillion in AUM (Ahlström & Monciardini, 2021).

A consensus among studies criticizing the effect of ESG reporting points to the significant barrier of inadequate data regarding companies' performance on their material ESG factors. This scarcity is attributed to the absence of standards for measuring ESG performance (Eccles, et al., 2017). Existing studies are inconclusive about the role that the information contained in ESG reports plays in investment decisions. There is criticism of its value relevance, comparability and credibility which makes making investment decisions difficult if they are to be based on the information contained in the ESG reports (Arvidsson & Dumay,

2022; Chui, 2022). More specifically, we still don't know what and how signals within the CSRD reporting will influence investor perceptions and, consequently, how the market reacts to the signals from the DMA.

The result of this research contributes to the debate over the effects of ESG reporting on sustainable finance and uncovers whether the DMA enhances decision-making, or whether the information disclosed fits the narrative of the critiques. Also, the research reveals the perceived significance of CSRD and DMA, disclosures among institutional investors, shedding light on the factors that weigh most heavily in their decision processes. Finally, by evaluating the effectiveness of different signals, the research provides recommendations for companies to enhance the impact of their sustainability disclosures.

3. AIM AND OBJECTIVES

The research question is: *how does the double materiality assessment influence sustainable investment decisions by banks?*

This study aims to investigate how banks consider the data derived from the double materiality assessment (DMA), as a mandatory form of ESG reporting from CSRD, in their sustainable investment decisions.

This study aims to achieve the following objectives:

a) Understand the existing risk-assessment framework employed by banks for making sustainable investment decisions.

b) Investigate the perception of investors regarding the DMA and assess its strengths and weaknesses in influencing overall decision-making, like whether to invest or lend.

c) Propose recommendations for increasing implementation and/or enhancement of the DMA.

4. METHODS

4.1 Data collection

Interviews are highlighted as a valuable method for collecting qualitative data opportunistically to chase new insights that emerge during the research process. The iterative nature of interviews allows for the exploration of interesting ideas as they arise, contributing to the development of new insights and theories (Edmondson & McManus, 2007). A total of eight participants were interviewed, representing various roles within the ESG domain in a bank operating in Europe. The selection criteria ensured that each participant possessed

relevant knowledge of DMA and held positions where they could influence or make recommendations regarding investment or lending decisions. The participants encompassed a spectrum of roles, including those involved in sustainable finance advisory, responsible for determining lending decisions, such as sustainability-linked loans[1], as well as portfolio managers and analysts responsible for investment decisions. For list of participants, see table 1. Participants were contacted through email and interviewed during a period from March to June 2024. Due to time constraints, only eight interviews were conducted, chosen as the most feasible method for data collection. Due to the geographic locations of some participants, certain interviews were conducted via Teams, while others were held face-to-face. Participants were asked about several aspects, including the integration of ESG factors in investment analysis, ESG-related risk assessment, the frameworks they utilize, their approach to materiality assessment, and their perspectives on the importance of DMA. Additionally, participants were invited to share their opinions on DMA, including its strengths and weaknesses. For the interview guide, please see Appendix A. The interviews lasted between 30 minutes to an hour.

Table 1. List of participants

Role	Professional Sustainability Experience	Department
Sustainable Finance Advisory	2 years	Lending
Sustainable Finance Advisory	10 years	Lending
Sustainable Finance Advisory	3 years	Lending
Sustainable Finance Advisory	3 years	Lending
Senior ESG Analyst	2 years	Investing
Senior ESG Analyst	3 years	Investing
ESG Analyst	2 years	Investing
ESG Portfolio Manager	3 years	Investing

[1] Lending dependent on environmental criteria for the planned use of funds. Typically tied to predefined sustainability/ESG objectives (Loumioti & Serafeim 2022).

4.2 Data analysis

The interviews were recorded, transcribed, and analyzed using thematic coding. Participants' statements were initially coded with first-order codes, then grouped into second-order themes, and ultimately aggregated into theoretical dimensions. Different themes and codes were applied according to each objective. Coding was done deductively and is found in Appendix D, and key quotations found in Appendix E.

For Objective a), the theme was the general decision-making process within the two different departments (lending and investing). The subsequent coding was categorized into various steps and requirements necessary for making informed decisions, such as due diligence, credit or liquidity risk and market risk. The third layer focused on the relevance of ESG data and what specific information was sought. For Objective b), the first theme was the purpose of the double materiality assessment. The subsequent code addressed the different purposes of the DMA and its strengths and weaknesses. For Objective c), the theme centered on the implementation of the DMA in decision-making, with subsequent themes focusing on its pros and cons resulting in Table 3.

4.3 Ethical considerations

Adherence to ethical standards, as outlined in the Rijksuniversiteit of Groningen (RUG) guide for ethical research, is important due to the human participation in this research. Interviewees provided informed consent through a prior explanation of the research's topic and purpose, along with explicit consent via a consent form. Appendix B presents the information sheet and consent form. To maintain confidentiality, all collected data was anonymized at transcription. The data will be deleted after the submission of this thesis.

5. RESULTS

The results section is divided into findings from two groups: those involved in lending operations, such as sustainable finance advisory, who determine if a company should receive loans, and those working with investing or asset allocation, who decide whether to buy shares in the company.

5.1 The current risk-assessment framework for sustainable investments assessed in the bank.

5.1.1 Investing

As an initial step, the bank employs norm-based screening filters to pinpoint companies allegedly involved in violations of international law and norms concerning environmental protection, human rights, labor standards, and anti-corruption. These filters highlight impacts related to select principal adverse impact (PAI) indicators such as greenhouse gas emissions (GHG), share of non-renewable energy consumption and production and board gender diversity. To comprehensively assess the impact of their investment decisions across all mandatory and additional PAI indicators, the bank has devised a proprietary PAI monitoring system, referred to as the PAI engine.

The PAI engine utilizes data sourced from third-party providers and investee companies. Through ranking investee companies' performance across each indicator, the bank aims to delineate each company's adverse impact on climate and social issues as per the PAI metrics, both intrinsically and relative to industry peers. The bank assesses the overall exposure at the entity level as well as the impact at the product level, contingent upon data availability.

In order to ensure that investment decisions are well-informed and comprehensive, the bank integrates Environmental, Social, and Governance (ESG) factors into its investment analysis. For examples of ESG factors, see figure 2. Recognizing that ESG factors can both positively and negatively impact investment outcomes, they serve as crucial indicators for identifying both opportunities and sustainability risks.

Figure 2. ESG Risk

In their Responsible Investment Policy, the bank delineates the framework governing their approach to responsible investments and ESG/sustainability. Their ESG strategy identifies four core areas: **climate, human rights, good corporate governance and biodiversity/water.** These areas are deemed critical due to the potential long-term consequences of adverse impacts. The bank has formulated specific ESG positions around these core areas to outline the expectations they have for investee companies. The principal adverse impact (PAI) indicators considered align with their ESG positions and are contingent upon data quality and availability. By considering the principal adverse impact of investment decisions, encompassing both the environmental and social impact of their activities, and sustainability risk, which pertains to the material negative impact of ESG issues on investment value, the bank addresses the full spectrum of the double materiality concept. Utilizing an internal measurement system, the bank incorporates various factors into its assessment, including:

- Greenhouse gas (GHG) emissions
- The average unadjusted gender pay gap of investee companies
- Emissions to water generated by investee companies
- The impact on biodiversity resulting from investment decisions
- The ratio of hazardous waste and radioactive waste generated by investee companies

Companies identified by the PAI engine as outliers on specific indicators, or those exhibiting high adverse impacts across multiple indicators, are further analyzed by the Responsible Investment team. Based on their findings, a recommendation is made to the Responsible Investment Committee (RIC). Then, the bank is left with three possible actions.

The range of possible actions includes:

1. No Action: If the PAI indicator level of the investee company is deemed acceptable or not reflective of the actual ongoing performance, no further action is taken. The investee company will continue to be assessed on an ongoing basis.
2. Engagement: Companies flagged for high adverse impact on one or several PAI indicators may be identified as candidates for engagement. Engagement may also be initiated due to other reasons, such as the issuer's overall PAI performance, material exposure to one of the bank's four core areas of interest, identification in norms-based screening, or low data coverage compared to the benchmark. The Responsible Investment team engages with the investee company, tracks performance based on relevant engagement key performance indicators, and monitors progress.

3. Exclusion: The investee company is deemed ineligible for investments across the bank's portfolios and is added to the bank's exclusion list. This may be due to high negative adverse impacts on sustainability factors identified by the PAI engine or because the investee company's sector is incompatible with the banks ESG strategy. Exclusion is considered a last resort, as the bank believes engagement is more effective in positively influencing the issuer to move in the right direction.

5.1.2 Lending

The interviews with bank representatives highlighted the application of the Sustainability Linked Loan Principles (SLLP), which establish a framework that guides market participants in understanding the characteristics of a Sustainability Linked Loan (SLL). SSLs were highlighted as the most relevant product offered by the bank where the DMA is applied.

As an initial step, the customer approaches the bank with the desire for a loan or a bond, then the discussions are initiated. SLLs are designed to support borrowers in improving their sustainability profile over the loan term by linking loan terms to the borrower's performance on selected key performance indicators (KPIs). The bank emphasized the importance of clearly communicating the rationale behind selecting specific KPIs to measure. These KPIs must be relevant, material, and integral to the borrower's overall business strategy. Additionally, the motivation for setting sustainable performance targets (SPTs), including their ambition level and benchmarking approach, must be articulated. This information is positioned within the context of the borrower's overarching sustainability strategy, policy, commitments, and processes. For examples of KPIs and STPs, see figure 3.

The process of calibrating SPTs for each KPI is critical for structuring SLLs. The interviews revealed that SPTs must be set in good faith, remain relevant, and maintain ambition throughout the loan term. The bank representatives recommended setting annual SPTs for each year of the loan term, with exceptions only when justified by strong rationale. SPTs should represent a material improvement, be benchmarked against peers or external references, and align with the borrower's overall sustainability strategy.

Figure 3. Key Performance Indicators and Sustainable Performance Targets

Impact Objectives	Description of KPIs included
Climate Change Mitigation	Climate Change Mitigation covers activities focused on actions to combat climate change and its impacts. KPIs considered may include, but are not limited to: ▪ reduction of GHG Scope emissions ▪ reduction of energy consumption ▪ reduction of direct or use-phase GHG emissions ▪ reduction of activities with significant indirect GHG emissions ▪ increase in products or services with significant substitution effects To the extent feasible, preference will be given to KPIs defined in absolute terms, but intensity measures may also be considered. Similarly, 'internal' KPIs (that is, measured by the companies themselves) will be given priority over 'external' KPIs (such as ESG ratings or assessments) unless where the external KPI is considered material.

The credibility of SLL products hinges on selecting appropriate KPIs that are core and material to the borrower's business and ESG challenges in their sector. Key factors impacting SPT achievement beyond the borrower's control should also be highlighted. The bank representatives mentioned that appropriate KPIs and SPTs are determined through agreements between the borrower and lender group for each transaction. Borrowers often engage "Sustainability Coordinators" to provide market insights on KPIs and SPTs, and to facilitate dialogue with the lender group. This collaboration ensures the substantiation of SPTs and addresses ESG-related queries from prospective lenders.

5.2 Investigate the use of double materiality assessment (DMA) and assessment of its strengths and weaknesses in influencing overall decision-making.

5.2.1 Investing

When in dialogue with an investee company, it was considered beneficial for the company to have conducted a DMA. This process initiates critical thinking within the company about relevant operational matters, impacts, opportunities, and risks. Most importantly, it marks the beginning of a comprehensive data collection process. While many companies already gather data on employee satisfaction and work-related incidents, a DMA encourages them to expand their focus to include their environmental footprint, such as energy and water usage and emissions. This holistic approach helps companies better understand and manage their overall sustainability impact.

The need for a DMA was deemed not necessary by analysts and portfolio managers as third party ESG Corporate Raters such as ISS-Corporate ESG include a materiality perspective that is included in the PAI engine. Drawing on an overall pool of more than 700 indicators, ISS

ESG applies approximately 100 social, environmental, and governance-related indicators per rated entity, covering topics such as employee matters, supply chain management, business ethics, corporate governance, environmental management, eco-efficiency, and others. Differentiated weighting scenarios ensure that the topics most material for a given line of business/industry are duly taken into account. The ESG Corporate Rating integrates a detailed assessment of the sustainability impact of operations based on risk exposure and an assessment of management approaches regarding material sustainability risks along the entire value chain ("do no harm"). Meanwhile, positive and adverse sustainability impacts of product portfolios, assessed based on the share of net sales generated from products/services contributing to or obstructing the achievement of global sustainability objectives, are also considered ("find impact/opportunity"). These ratings primarily use publicly available information, including reports (with DMAs if available), proxy statements, media sources, and data from governmental and institutional organizations and databases. In addition, the company may be contacted for comments and to share internal ESG documents.

The findings indicate that the DMA played a limited role in shaping investment decisions. A significant contributing factor to its limited relevance was the relatively low number of companies that had conducted comprehensive DMAs. None of the participants had researched the number of investee companies that had conducted double materiality assessments, but there was a consensus that the percentage was small, with estimates dipping as low as 25%. Moreover, even when companies had undertaken the assessment, the results often failed to align with the relevant data required for decision-making purposes. This aspect will be investigated in the subsequent discussion section. All participants emphasized that the DMA was too nascent and its outcomes insufficiently relevant to be regarded as a decisive metric. Given that only a few major companies have undertaken the assessment ahead of schedule, the DMA was perceived merely as an optional feature in those instances.

5.2.2 Lending

For lending related decisions, the DMA proved valuable in identifying relevant KPIs when it was accessible as clients already had mapped out material topics to improve upon. This was particularly relevant for investment bankers involved in issuing SSL. SSL entails issuing bonds or loans with a reduced interest rate contingent upon meeting specific criteria and sustainable performance targets (SPT). For larger companies (over 5000 employees), nearly every client had conducted a materiality assessment, however not in alignment with ESRS requirements. One participant noted that none of the current DMAs were conducted

according to the European Sustainability Reporting Standards (ESRS), leading to varying results. This variability was particularly evident in medium-sized enterprises (30 to 250 employees), which often lack the resources to perform comprehensive DMAs. Since companies are not yet required to meet ESRS requirements, discussing the potential strengths and weaknesses of these assessments remains challenging. Nevertheless, this misalignment wasn't problematic since the primary goal of the assessment was to pinpoint key performance indicators (KPIs) for the sustainable supply chain. Furthermore, companies that had outlined an Environmental, Social, and Governance (ESG) strategy in their double materiality assessment found it easier to delineate SPTs and KPIs. While portfolio managers in investment circles considered this data irrelevant, Sustainable Finance Advisory (SFA) lenders focused on whether the data had undergone limited assurance, indicating verification by a third party such as PwC, among others. In both lending and investing scenarios, data sourced from MSCI, ISS other third-party providers played a crucial role in decision-making. Another highlight mentioned by the interviewees was the necessity of a robust set of minimum three years of historical data for setting effective SPTs and KPIs. Participants noted that smaller companies often lack this historical dataset, making it challenging to compare future KPIs and SPTs. As a result, these companies may need to rely on other parameters, such as peer performance or external benchmarks, to calibrate their targets effectively. Participants were asked to describe the perceived importance of conducting a double materiality assessment before decision-making. The results showed variance in responses and is displayed in Table 2. Notably, lenders generally considered these assessments more important than investors, a point that will be further explored in the discussion section.

Table 2. Importance of DMA

	Low importance	**Slightly Important**	**Moderately Important**	**Very important**	**Extremely Important**
Sustainable Finance advisory			x		
Sustainable Finance Advisory				x	

Sustainable Finance Advisory			x		
Sustainable Finance Advisory			x		
ESG Portfolio Manager	x				
ESG Analyst		x			
ESG Analyst			x		
ESG Analyst		x			

5.3 Recommendations for increasing implementation and/or enhancement of the DMA.

To increase the implementation and enhancement of DMA, companies should first ensure they have a comprehensive understanding of both material sustainability risks and adverse impacts their operations have on society and the environment. Participants have noted that the current lack of standardized guidelines for DMAs hinders their effectiveness. However, this gap is expected to improve with the introduction of the CSRD, which will provide a more structured framework. Integrating third-party ESG ratings, such as those provided by ISS-Corporate, can offer a robust framework that includes a materiality perspective and leverages extensive indicators across social, environmental, and governance domains.

Companies should invest in training and capacity-building initiatives to enhance internal expertise in conducting materiality assessments. One participant recommended that companies engage consultants to bridge knowledge gaps and employing standardized guidelines which can ensure consistency and accuracy in evaluations. Additionally, setting relevant targets and mandatory data sets, as required by the European Sustainability Reporting Standards (ESRS), will be beneficial for achieving long-term progress and standardizing data. Enhancing transparency by clearly disclosing the materiality assessment process and the criteria for determining material issues can build stakeholder trust and ensure accountability. Adopting advanced data analytics and technology solutions can also streamline the materiality assessment process, making it more efficient and comprehensive. Lastly, organizations should

regularly review and update their materiality assessments to reflect evolving risks and stakeholder expectations, ensuring their sustainability strategies remain relevant and effective. Findings indicate that inconsistent data and presentation remain significant issues. One participant remarked that with the implementation of the CSRD, there will likely be more consistency in data points, methodologies, and the calculation and communication of KPIs. Additionally, selecting material topics can be challenging for companies. One example given by a participant was, a retail company did initially prioritize greenhouse gas emissions as the most pressing issue, but upon further discussion, determined recycling packaging could be more critical and more relevant to measure. Current DMAs lack a general framework and clear communication guidelines, but this is expected to improve with the adoption of the CSRD. Importantly, companies must be transparent and honest about how they conclude their impacts and risks. This requires collecting data on the thought process, including meeting notes and transcripts, to ensure proper documentation. This level of transparency not only enhances the credibility of their assessments but also fosters trust among stakeholders.

6. DISCUSSION

The implementation of DMA marks a significant advancement in the domain of sustainable finance, aiming to provide a holistic view of both the impacts of corporate activities on society and the environment, and the financial implications of sustainability issues on the company itself. This research was conducted before the implementation of the CSRD, meaning it relied on premature DMAs. This comprehensive approach is essential for fostering transparency and accountability in corporate reporting, as mandated by the CSRD (European Parliament, 2024).

Dragomir, et al., (2024) found that most companies provide reports on their materiality assessment processes, focusing on direct, inside-out, and positive impacts, as well as environmental risks, opportunities, and social impacts. However, they pay less attention to financial materiality. Engagement is primarily with social stakeholders rather than financial capital providers. The stakeholder engagement process tends to be episodic, relying on isolated events rather than being continuous. However, this is contrary to Adams, et al., (2021) which concluded that companies tend to prioritize financial materiality in their DMA. This shows the variation in DMAs and its inconsistency in results and presentation, which could be one of the reasons for the low influence of DMAs in decision-making.

The findings show that the bank had already mapped out material ESG indicators in the banks Responsible Investment Policy, focusing on climate, human rights, good corporate governance, and biodiversity/water. This contrasts with the findings of Correa-Mejía et al. (2024), which indicated that the most frequent topics reported by companies were social commitment, employee engagement, and health and safety. A reason for this mismatch could be the data availability. Finding accurate and credible data to show impact on biodiversity, greenhouse gas emissions could prove to be a difficult task for most companies.

As pointed out by the findings of this research and Schoenmaker (2018), investors are increasingly using ESG ratings and indices to integrate social and environmental considerations into their investment processes. These ratings offer a quick approximation of a firm's ESG quality, which can be advantageous. However, it is worth mentioning that ESG ratings have several inherent limitations.

Firstly, ESG ratings often focus insufficiently on material issues—those relevant to the investee companies—which are crucial for investment decisions (Schoenmaker, 2018). This can result in a materially negative and potentially critical issue being offset by high scores on immaterial items, leading to significant mistakes. Secondly, ESG ratings are primarily based on reported data and policies, representing only a fraction of what is necessary for a thorough assessment and sometimes presenting contradictory information which could lead to information asymmetry.

This reliance on reported data introduces biases in scores, often favoring large companies with extensive sustainability departments. Smaller firms might receive lower ratings due to insufficient public information about their policies or misclassification, resulting in unfair comparisons with inappropriate peers. Thirdly, ESG scores are typically 'industry neutral' and focus mainly on operations, neglecting the products and services of the companies. This can lead to intuitively incorrect ratings, where companies in highly unsustainable industries (such as coal or tobacco) receive high scores and are labeled as sustainability leaders simply because they are the least harmful within their sector.

To further strengthen this Dimson, et al., (2020) found that there is minimal correlation between ESG ratings from different agencies. This lack of consistency can create challenges for investors trying to assess a company's sustainability performance accurately. Data is essential for making investment decisions, and most institutions rely wholly or partly on external providers of ESG data.

However, many of these problems are directly what the double materiality assessment is trying to fix. Evidently, the DMA carried out prior to CSRD are too nascent, with highly

variable results. Companies that do the DMA are uncertain about what to signal due to a lack of standardization. While Baumüller, et al., (2021) argues that the CSRD lacks standardization for conducting a DMA, the ESRS is expected to improve this by increasing the number of topics and subtopic. Additionally, the ESRS requires companies to document their progress and set targets and goals. As these standardizations continue to develop, we will likely see the emergence of best market practices and the full utilization of the DMA. The findings of this study and existing literature highlight several challenges associated with DMA implementation. Critics argue that the DMA process currently lacks standardization, leading to inconsistencies and inefficiencies in its application (Chui, 2022; Baumüller & Grbenic, 2021). This lack of standardization undermines the credibility and effectiveness of DMAs, as companies often struggle with the clarity and application of double materiality concepts (Adams, et al., 2021). Also, companies want to signal their best practices and often showcase positive performance, downplay negative aspects, manipulate data, and use reports to justify actions or mislead stakeholders (Adams, 2004) meaning there is a risk of greenwashing.

The introduction of the DMA enhances transparency and compels companies to address their environmental impacts, which is highly beneficial for society. Despite the current problems with premature DMAs, the exercise itself holds significant value when taken seriously. This increased transparency leads to greater accountability. Moreover, the ESRS mandates both mandatory and topical topics, requiring companies to justify why certain topics may not be material. Additionally, the requirement to set short, medium, and long-term targets pushes companies to take concrete actions towards a more sustainable future, all while maintaining transparency. This aspect makes double materiality intriguing, and despite its current flaws, the adoption of ESRS could foster collaboration between companies for the common good. Table 3 displays the perceived pros and cons of current DMAs by literature and participants, which could contribute valuable insights to the sustainable finance research field.

Table 3. Pros and Cons of DMA

Pros	**Cons**
Increases transparency by compelling companies to disclose both financial and	Risk of using DMAs for greenwashing without rigorous standards and can mislead

non-financial impacts, fostering greater accountability.	stakeholders and undermine sustainability goals.
The start of comprehensive data collection, allowing concrete targets and sustainability goals to be implemented.	Collecting comprehensive and accurate data can be challenging. Incomplete or inaccurate data can lead to flawed assessments.
Thought exercise for defining the most material impacts, risks and opportunities could support the company's sustainable strategies and decision-making.	Requires significant time and expertise, and smaller companies may struggle to allocate sufficient resources.
Gain a more comprehensive understanding of material issues through stakeholder interaction	Lack of standards leading to highly variable results, this is seen in the initial unreliability of today's DMAs.

While the ESRS aims to improve standards and provide more concise results, the most crucial step companies can take to create a valuable DMA is to initiate a data collection process for data which has previously not been collected, such as water usage. Data is essential for decision-making; without it, a DMA remains merely a thought exercise with limited relevance. Boiral (2013) argues that sustainability reports can be used to camouflage negative events and project corporate images detached from reality. However, with the evolution of the CSRD, this research suggests that companies will aim to reduce information asymmetry. Transparency and accountability are likely to increase in the coming years.

This paper suggests several steps to facilitate a successful DMA in the future. Firstly, transparency is crucial; companies should be transparent about every aspect of the process to reduce information asymmetry, in line with signaling theory. This involves documenting and sharing data collection methods and findings. Secondly, comprehensive data collection is essential; companies should gather extensive data, such as meeting notes, stakeholder dialogues, kilograms of waste, and energy usage, for detailed analyses like life cycle assessments and end-of-life responsibility exercises. Thirdly, sustainable strategies should be developed and implemented, considering the entire lifecycle of products and services, using concrete datasets to ensure accuracy and relevance. Fourthly, companies should set relevant targets that are specific, measurable, and aligned with broader sustainability goals, focusing on material topics and industry standards. Lastly, utilizing ESG rating methodologies for

metrics will ensure consistency and comparability, helping to benchmark performance and identify areas for improvement.

By following these steps, companies can enhance the effectiveness and relevance of their DMAs, ultimately leading to better-informed decision-making and improved sustainability outcomes. Using the example of the bank, the most critical data collection should focus on climate-related factors, including greenhouse gas emissions (GHG), water usage, biodiversity, and governance.

For GHG emissions, companies should measure and document Scope 1, 2, and 3 emissions, encompassing both direct and indirect emissions in the value chain, and track reductions in carbon footprint through energy efficiency initiatives or renewable energy adoption. For water usage, companies should monitor and report water consumption across operations and implement water-saving technologies and practices, documenting their impact. Regarding biodiversity, companies should assess and record the impact of business activities on local ecosystems and develop initiatives aimed at preserving or restoring biodiversity, such as habitat conservation projects. In terms of governance, companies should collect data on corporate governance practices, including board diversity and executive compensation linked to sustainability goals, and document policies and procedures related to ethical business conduct, transparency, and stakeholder engagement.

By prioritizing these areas, companies can create a robust DMA that addresses the most critical aspects of their environmental and governance impact, thereby supporting a more sustainable and responsible business model.

Despite the existing flaws highlighted in the literature and findings regarding the current DMA, banks should still integrate it into their decision-making criteria. While it may appear unreliable and subjective, providing financial capital providers such as banks with insights into companies' self-defined material aspects and areas for improvement can be beneficial. Developing comprehensive data sets and gaining a holistic understanding of their environmental impact are crucial steps towards a sustainable future. Even though third-party raters already consider publicly available information and the bank view these signals as credible without information asymmetry, banks should consider incorporating DMA into their investment decisions due to the numerous benefits outlined in this thesis to and the limitations of solely relying on signals from third party providers. Furthermore, it is advantageous for companies to conduct DMAs, even if they are not mandated by the CSRD, as they help identify material aspects and signal this information, providing banks with insights beyond publicly available data.

6.1 Limitations

The study is limited by its singular focus on a single bank and the early stage of DMAs, potentially not fully capturing their potential impact. The restricted number of participants could limit the generalizability of the findings. Furthermore, some participants may lack sufficient experience with DMAs to provide in-depth insights into their strengths and weaknesses. Additionally, the narrow geographic and industry scope of the study may hinder the broader applicability of the results and confine them to a specific global context.

7. Conclusion

The DMA represents a significant step towards a more comprehensive and transparent sustainability reporting. However, its current implementation faces challenges that need to be addressed to realize its full potential. By adopting standardized guidelines, investing in capacity building, and enhancing transparency, companies can improve the effectiveness of their DMAs, thereby supporting more informed and sustainable investment decisions.
Banks and other investors can incorporate the DMA into their criteria by interacting with companies to reduce information asymmetry and assess how the company tackles material issues concerning the bank's key areas: climate, human rights, good corporate governance, and biodiversity/water. Comparing results with third-party ESG ratings can serve as a benchmark for evaluating the company's performance, but investors should not solely rely on external ESG data providers. This approach enables investors to obtain a comprehensive perspective and access insights that may not be publicly disclosed.
Overall, the findings and literature conclude that the DMA is too nascent and its results too variable to be considered highly influential for investment decision-making processes. This is expected to improve as thousands of companies will do the double materiality assessment in the upcoming years and best practices will emerge.

7.1 Future Research

Future research could involve interviewing a broader range of stakeholders to gain a wider perspective on the utilization of double materiality. Additionally, once the CSRD is adopted and the DMA becomes mandatory, this research could be repeated to assess whether its influence on decision-making has changed. It would also be valuable to explore the perspectives of other types of investors, such as individual investors, impact investors, and

pension funds. This broader approach could provide deeper insights into how different investor groups perceive and utilize double materiality assessments in their investment strategies.

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Appendix A.

Interview
What is your role and how long have you been doing it?
Do you have a background with ESG or sustainability work? Like consultancy, compliance etc?
Please describe the process of evaluation ESG risk ?
Do you know the materiality assessment?
- How do you use it?
Do you view financial materiality different than impact materiality (environmental & social materiality) and if yes, how so?
In your view: What is missing? What are some weaknesses?
Overall, how much does double materiality matter in overall decision-making ?

Appendix B

Appendix B: Information Sheet and Consent Form
INFORMATION SHEET
Sustainable Entrepreneurship Project (master thesis):
how does the double materiality assessment influence sustainable investment decisions by banks?
Dear participant,
Thank you for your interest in participating in this research. This letter explains what
the research entails and how the research will be conducted. Please take time to
read the following information carefully. If any information is not clear kindly ask
questions using the contact details of the researchers provided at the end of this
letter.
WHAT THIS STUDY IS ABOUT?
● This study is being conducted to understand the influence of double materiality
In investment decisions
● You are asked to participate in this study as an individual with influence over
Investment decisions for a bank
● This research is not funded by any other party.
WHAT DOES PARTICIPATION INVOLVE?
● Your participation involves one online interview, no longer than 30 to 60
minutes in length.
DO YOU HAVE TO PARTICIPATE?
● You are welcome to participate but it is not required. Your participation is
strictly voluntary and consent is required.
● If you decide to participate, you may withdraw your participation up until 10
May 2024 by informing the researcher via email, without needing to explain
and without consequences to you. In the event this occurs, all the data
provided by you will be destroyed. Please note that once the data is being
analyzed and/or results documented it may not be possible to remove all your
data from the study.
ARE THERE ANY RISKS IN PARTICIPATING?
● There are no risks in participating in this study.
ARE THERE ANY BENEFITS IN PARTICIPATING?

● There are no direct benefits of participating in the study. The research hopes
to contribute to further knowledge on the topics of circularity, industry
transition and sustainable entrepreneurship.
HOW WILL INFORMATION YOU PROVIDE BE RECORDED, STORED AND
PROTECTED?
● The interviews will be recorded and transcribed for coding and analysis
purposes. None of your individual information will be disclosed to anyone
outside of the researcher.
● The information provided will only be used for this study and the thesis directly
related to this.
● The data from this study (consent forms, recordings, interview transcripts) will
be retained on the University of Groningen Google Drive server for the
maximum of 5 years, in correspondence with the university GDPR legislation.
WHAT WILL HAPPEN TO THE RESULTS OF THE STUDY?
● The information provided will be used in conjunction with other participant
data for thesis research and paper for a Sustainable Entrepreneurship
master's program. A research translation will also be created about the
findings. The thesis research and findings will be presented at the Campus
Fryslan Conference. The document will be uploaded and available through
the UG library catalogue.
ETHICAL APPROVAL
● This research study has obtained ethical approval from the Campus Fryslân
Ethics Committee.
● The researcher will uphold themselves to relevant ethical standards.
INFORMED CONSENT FORM
● Please sign the informed consent form below. This means you have the
intention to participate and you may withdraw at any time.
WHO SHOULD YOU CONTACT FOR FURTHER INFORMATION?
Contact Erik Gaarder, researcher of this study, at m.k. E.Gaarder@student.rug.nl
The academic supervisor of this study is Mariana Cardoso Chrispim,
m.cardoso.chrispim@rug.nl.
INFORMED CONSENT FORM

Study Title: The Materiality of Double Materiality
Name participant:
Assessment
● I have read the information sheet and was able to ask any additional
questions to the researcher.
● I understand I may ask questions about the study at any time.
● I understand I have the right to withdraw from the study up to 10 May 2024
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 University of Groningen Google Drive for the maximum of 5
years, in correspondence with the university GDPR legislation.
Future involvement (circle)
● I wish to receive a copy of the scientific output of the project. YES NO
● I consent to be re-contacted for participating in future studies. YES NO
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 the research study.
Date

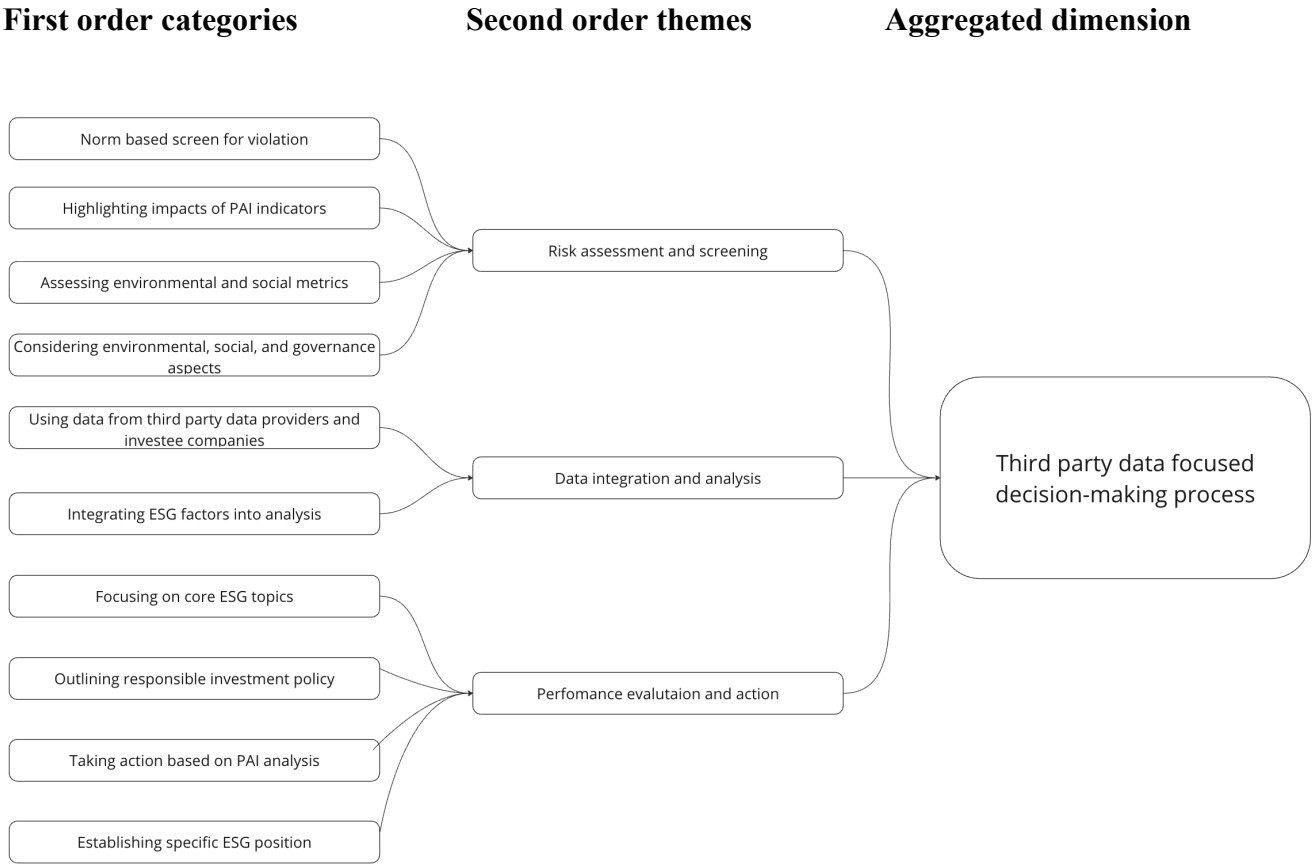
Signature

Appendix C

Abbreviation	Meaning	Page
AuM	Assets under Management	6
CSRD	Corporate Sustainability Reporting Directive	3
DMA	Double Materiality Assessment	4
ESG	Environmental, social, and governance.	3
ESRS	European Sustainability Reporting Standards	3
EU	European Union	3
GHG	Greenhouse Gas Emissions	10
KPI	Key Performance Indicators	13
NFRD	Non-Financial Reporting Directive	3
PAI	Principle Adverse Impact	10
PRI	Principles for Responsible Investing	6
RIC	Responsible Investment Committee	12
SFA	Sustainable Finance Advisory	15
SDG	Sustainable Developent Goals	5
SSL	Sustainable Linked Loans	13
SSLP	Sustainable Linked Loans Principles	12
STP	Sustainable Performance Targets	13

Appendix D

Objective A & B



Objective C