Chapter 2 Sustainable Finance Instruments and Support – One Size Does Not Fit All –

Understanding Companies' Individual Sustainable Finance Needs and Providing Tailored Support

Isabelle Cathérine Hinsche[*]

Abstract

The financial sector is taking on a crucial role in advancing the transition towards a sustainable economy and society. In particular, banks advise companies and investors on sustainable finance and sustainable finance instruments. This study conducted an online survey with 700 invited companies to assess how companies differ in their sustainable finance interests and needs, using a mixed method approach, and to subsequently determine how banks can improve and tailor their sustainable finance support accordingly. The study analyzes market relevant factors and company characteristics that can drive and simplify sustainable finance instrument use. Moreover, it determines barriers and motivational factors regarding the implementation, as well as companies' evaluation of their banks' support. The survey results show that sustainable finance interests and needs differ particularly for company sizes and that companies view their banks as potential sparring partners who help them acquire the necessary financial resources for their sustainability transition. Based on these findings, the paper formulates three recommendations on how to improve the effectiveness of banks' sustainable finance support, including how banks can provide a tailored sustainable finance support to their customers.

JEL Classification: C83, G21, G23, G28, G32, G38, H23, Q01, Q58

Keywords: Sustainable Finance, Sustainable Finance Instruments, Sustainable Finance Support, Bank Advisory, Corporate Customers

* I would like to thank Rainer Klump, Tim Buchholz and Marcus Pratsch for intriguing discussions, valuable input and support. Furthermore, I thank DZ BANK Stiftung for providing the funds to implement the research project. The usual disclaimer applies.

2.1 Introduction

We are currently on a climate path that can lead to a temperature increase of as much as 4.4 °C by the end of the century and have missed the potential path of 1.5 °C global warming (Intergovernmental Panel on Climate Change (IPCC), 2021). To have a chance yet at achieving our climate targets and to limit global warming to at least 2°C, investments and economic activities urgently need to be directed towards a successful sustainability transformation. The financial sector is expected to contribute substantially by redirecting capital flows into sustainable activities. This process is termed sustainable finance and entails the inclusion of sustainability criteria in investment and credit decisions (European Commission, 2023a). To strengthen sustainable finance investments, the European Union (EU) adopted the European Green Deal Investment Plan, which is set to mobilize €1 trillion of public and private investments into sustainable activities (European Commission, 2020a), and developed the Action Plan on Sustainable Finance (European Commission, 2020b). The action plan includes several sustainability disclosure regulations with the aim to increase transparency in regard to companies' sustainability performance and to foster the integration of sustainability criteria into risk management. This regulatory background has fueled the development of sustainable finance instruments (SFIs), which can either be used to finance a classified sustainable project or can be linked to a company's sustainability targets.

Banks are taking on a crucial role in advancing the sustainability transition by advising companies on sustainable finance and SFIs. However, the aforementioned sustainability disclosure regulations do not apply to all companies equally and the increased transparency regarding their sustainability performance can affect companies differently. Therefore, companies' interest in sustainable finance and their needs regarding SFIs likely differ as well. Consequently, banks should provide a tailored sustainable finance support to their corporate customers, to foster an efficient use of sustainable finance. *But how do companies differ in their sustainable finance interests and needs, and*

how can banks provide a tailored sustainable finance (instrument) support to their credit customers accordingly?

In order to answer this research question, this study implemented an online survey together with DZ BANK AG, Germany's second largest bank. In June 2023, 700 corporate customers of the bank were invited to an anonymous survey based on a mailing list that was generated by the bank's client supervisors. The survey consists of four parts. Firstly, respondents were introduced to the concept of sustainable finance instruments and were subsequently asked about their sustainable finance instrument use. Secondly, the survey questioned companies about their promotional loan use and their desired form of support through their financing partners. Thirdly, the survey included questions about the companies' perceived transformation risk, regulatory pressure, financing access and financing conditions. Finally, the survey concluded by collecting company characteristics and personal information. Of the 700 addressed companies, 123 responses were recorded, yielding a response rate of 17.6 %.

In order to assess companies' individual sustainable finance interests and needs, this study uses a mixed method research approach, including both quantitative and qualitative questions in the survey. The quantitative variables are analyzed using correlation and logistic regression analysis to test for the strength and direction of association between variables. The qualitative questions are evaluated using thematic content analysis based on Kuckartz (2014) and the final categorical system can be interpreted together with the quantitative results using quantification.

Furthermore, the study divides respondents into respective company size, company sector and company capital market groups. The defined company groups provide a foundation to analyze companies' sustainable finance instrument use and interest, as a company's size, sector and capital market activity influence whether and how sustainability transparency regulations affect a company's financing access and conditions. Indeed, survey results show that SFI use is particularly

high for companies that have a large revenue and for companies that are active in capital markets.

Based on the survey questions, the study subsequently studies four push factors and three pull factors that could affect companies' sustainable finance instrument use and likely vary for the defined company size, sector and capital market groups respectively. The four defined push factors, which could drive companies to use SFIs, are a company's perceived regulatory pressure, transformation risk, risk to lose financing access and likelihood that sustainability criteria and credit conditions will be linked. The survey results demonstrate a higher share of SFI users for companies that perceive a strong regulatory pressure and a slightly higher share of SFI users for companies that perceive a strong transformation risk. Moreover, all four push factors vary among the different company group sizes. The three defined pull factors, which could make it easier for companies to use SFIs, are a company's sustainability awareness, action and knowledge. The survey results demonstrate a higher share of SFI users for all companies that have a high sustainability awareness, sustainability action or sustainability

knowledge. Furthermore, all three pull factors vary statistically significantly between the defined company group sizes, with smaller companies showing a lower level of sustainability awareness, action and knowledge.

To fully understand companies' individual sustainable finance needs and to provide tailored support, the survey continues by analyzing companies' barriers and motivational factors to use SFIs. Almost half of the respondents state that they perceive barriers to SFI use and this observation does not vary for the different company size groups. However, the type of barriers differ between the company size groups, as for instance only medium-sized and large medium-sized companies state applicability in terms of company characteristics and financing needs as a barrier. Furthermore, the ranking of barriers to SFI use do not differ for the defined company size groups. Ranked as the most influential reason for not using a SFI is an insufficient SFI knowledge, followed by insufficient sustainability data, additional costs

of implementing a SFI and potential greenwashing accusations. In contrast, the ranking of motivational reasons for SFI use differs between company size groups, as large medium-sized and large companies rank a potential pricing advantage as the most influential reason, compared to multinational companies that rank communication of their sustainability strategy to investors as the most influential factor.

Based on these insights and additional survey results, the study proceeds by defining companies' desired role for banks in providing sustainable finance support. Half of the respondents believe that their bank can support them in their sustainability transition, but there is also a high share (32 %) of respondents that are unsure whether their bank can support them. Nevertheless, companies view their bank as a potential sparring partner and would like to see a clear commitment from their bank to sustainable finance. Furthermore, companies primarily would like to receive information on the sustainable finance market, sustainable finance mechanisms and sustainable finance use, as well as consultation regarding KPI choice, reporting, rating optimization and promotional loans. In regard to promotional loan programs, the survey results additionally show that whilst almost half of the respondents know programs connected to sustainable finance, only 9 % have used a promotional loan. However, the interest in these programs is very high for all company sizes and supports the potential of promotional loans to support investments in companies' sustainability transition.

The aim of this paper is to assess how companies differ in regard to their sustainable finance interests and needs, and to develop a recommendation on how banks can improve their tailored sustainable finance support accordingly. Based on the survey results, this paper formulates three recommendations that could improve banks' sustainable finance support. Firstly, the survey results indicate that companies are insufficiently aware of how sustainability disclosure regulations and the subsequent increase in transparency can impact their financing access and conditions, as well as that companies do not have sufficient knowledge on sustainable finance and how sustainable finance

instruments work. Consequently, banks should improve companies' awareness and knowledge regarding the sustainable finance market and instruments. Secondly, the analysis results emphasize the need for banks to advance their support regarding the implementation of SFI, as companies are asking for best practice examples and more standardized processes. Moreover, banks should clearly communicate their expectations regarding the required sustainability measures for respective company industries and sizes. Thirdly, banks need to tailor their sustainable finance support to their corporate customers, particularly to a company's size. For instance, smaller companies tend to require a more fundamental consultation and benefit from cost-sensitive sustainability measures. Overall, there is a significant potential for banks to support their corporate customers in acquiring the necessary funds to invest in their sustainability transition and to thereby strengthen the impact of sustainable finance.

This study contributes to the existing literature by identifying companies' individual sustainable finance interests and needs, with a particular focus on company size differences. Small and medium-sized companies (SMEs) make up 99 % of Germany's companies (Bundesverband mittelständische Wirtschaft (BVMW), 2023) and need to invest in their sustainability transition in the same manner as large and multinational companies. However, their respective financing needs and regulatory environment differ and can lead to varying sustainable finance interests and needs. This study highlights how banks can tailor their sustainable finance support accordingly.

The paper is structured as follows: section 2 gives an overview of the current sustainability regulatory framework and how these regulations drive companies' and banks' interest in sustainable finance (instruments). Section 3 explains the survey design and methodology, presents the data summary and analyzes the representativeness of the data sample. Based on the survey results, section 4 divides respondents into respective company size, company sector and company capital market activity groups, and subsequently evaluates how SFI use differs within these groups. Section 5 depicts companies' individual sustain-

able finance interests and needs by defining the current push and pull factors in the sustainable finance market and how this might differ between the defined company groups. Moreover, the study analyzes whether these factors translate into different challenges and barriers for companies' sustainable finance use and how these vary for the different company groups. Based on these insights and on the survey results, section 6 identifies companies' desired role for banks in providing sustainable finance support, as well as companies' promotional loan interest and use. Finally, based on the findings, section 7 outlines three recommendations to provide an improved and tailored sustainable finance support for companies and section 8 concludes by summarizing the paper's results and by suggesting further sustainable finance research potentials.

2.2 Sustainable Finance: Regulatory Framework, Motivation and Instrument Use

Before explaining the survey design and analyzing the survey results, the following section gives an overview of the current regulatory framework and how these regulations fuel banks' and companies' interest in sustainable finance (instruments). Based on these insights, the research question is formulated.

2.2.1 Regulatory Framework

In order to achieve its Paris Agreement targets, the European Union needs additional yearly investments of up to €290 billion (European Commission, 2019). Estimated required global annual investments to limit global warming to below 2°C even reach up to $8.1 trillion (Buchner et al., 2023). The necessary investments cannot be delivered entirely by the public sector, but significantly rely on private sector investments (Georgieva & Adrian, 2022). Consequently, the European Green Deal, which was published in 2019, includes the European Green Deal Investment Plan, with the aim to mobilize €1 trillion of sustainable

investments through both, public and private investments (European Commission, 2020a).

The process of incorporating sustainability criteria into investment decisions and thereby redirecting capital flows towards more sustainable economic activities is called sustainable finance (European Commission, 2023a). To facilitate sustainable finance growth, the European Commission has developed an action plan, with three main objectives (European Commission, 2020b). Firstly, the action plan aims to redirect capital flows towards a more sustainable economy, which includes a unified classification system for sustainability activities called EU Taxonomy, as well as green financial product labels and the inclusion of sustainability in financial advice (European Commission, 2020b). Secondly, it involves the integration of sustainability into risk management through establishing sustainability-related disclosures in the financial services sector, such as the sustainable finance disclosure regulation (SFDR[8]). Finally, the action plan fosters transparency by developing guidelines on climate-related information reporting. The most prominent example is the corporate sustainability reporting directive (CSRD[9]).

2.2.2 Why Do Companies and Banks Care About Sustainable Finance?

The sustainability disclosure regulations apply to both, companies and financial institutions, increasing the transparency regarding their sustainability performance and risk. This in turn leads to varying effects and motivations for companies and banks respectively. Financial institutions for instance need to adhere to the SFDR, as well as the CSRD,

8 The SFDR entered into force January 2021 and requires financial institutions to report on their products' sustainability risk, both in terms of how climate risk affects the product and how the product affects the climate (European Commission, 2023b).

9 The CSRD entered into force January 2023 and requires companies to report on how sustainability risk affects their company and how their company impacts society and the environment, starting for the financial year 2024 (European Commission, 2023c).

and new measures such as the green asset ratio[10] are introduced as a comparable sustainability measure among lenders. Currently, the increased transparency has no impact on banks' business operations (Deutsche Bank, 2022). However, banks are preparing for potential further regulations that, for example, link a bank's capital requirements to its green asset ratio or that introduce other forms of penalties for having a low green asset ratio.

Furthermore, financial supervisory institutions, such as the European Central Bank (ECB), have started to analyze and test banks' exposure and resilience to climate-related risks in the form of climate stress tests (ECB, 2022). So far, the assessment does not include any consequences for banks' capital requirements, but the ECB urges banks to comply with their supervisory expectations on climate and environmental risk by the end of 2024 (Walther, 2023). Finally, banks are interested in sustainable finance, as they can strengthen and expand their customer relations by providing guidance and helping their customers to seize the opportunities of sustainable finance (Coleton et al., 2020).

Companies also have to adhere to the CSRD and potentially further national sustainability disclosure regulations, such as the Supply Chain Act (LkSG) in Germany (Federal Ministry of Labour and Social Affairs (BMAS), 2023). The increased transparency on a company's sustainability performance can affect their financing access and conditions. Firstly, as investors are increasingly using exclusion criteria in their investment decisions, a company's sustainability performance can affect its financing access (Bogmans et al., 2023). Secondly, financial instruments are increasingly being linked to a company's sustainability performance or are restricted to financing a predetermined sustainable project, thereby affecting the issuer's financing conditions (Berrada et al., 2022; Kölbel & Lambillon, 2022; Kapraun et al., 2021).

10 The green asset ratio (GAR) measures the percentage of a lender's assets invested in sustainable activities. As small and medium-sized companies (SMEs) predominantly do not have to adhere to CSRD-level reporting yet, they cannot be included in the ratio. This prompted a second measure called banking book taxonomy alignment ratio (BTAR), which also includes SMEs through a bilateral data exchange (Deutsche Bank, 2022).

Financial instruments with a sustainable finance structure are called sustainable finance instruments (SFIs) and can either be use-of-proceeds or sustainability-linked instruments. Use-of-proceeds instruments restrict the allocation of their proceeds to a predetermined environmentally or socially beneficial project (International Capital Market Association (ICMA), 2021). The most commonly known use of proceeds instrument is a green bond, which allocates all proceeds to an environmentally focused investment project (Hinsche & Klump, 2023). In contrast, sustainability-linked instruments take a company-level view by allowing their proceeds to be used for general purposes. They are linked to company-level sustainability targets and require a penalty in case of failure to meet these targets, for instance in the form of a coupon step-up (ICMA, 2023). SFI structures can be applied to any form of credit instruments, such as for example a bond, schuldscheindarlehen (SSD) or loan.

Research on the pricing of SFIs suggest a pricing premium for SFIs compared to an equal conventional instrument. A potential pricing premium is most commonly known as a Greenium and indicates that investors are willing to accept a lower yield for a green instrument compared to an equivalent conventional instrument, which leads to a negative pricing premium and thus lower financing costs for the issuer (Hinsche, 2021). The estimations vary greatly, for instance in the green bond market from -2 basis points to -48 basis points (Gianfrate & Peri, 2019; Zerbib, 2019; Partridge & Medda, 2020; Kapraun et al., 2021; Climate Bonds Initiative (CBI), 2023), but in general imply that a company's sustainability performance and SFI use can affect its financing conditions. Beyond a company's financing, SFIs allow companies to communicate their sustainability transition strategy and can have effects, for example, on the stock market and employer attractiveness (Deschryver & De Mariz, 2020; Flammer, 2020; Maltais & Nykvist, 2020; Tang & Zhang, 2020).

Overall, looking at the company-bank relation from a sustainable finance point of view, companies are interested in sustainable finance, as well as SFIs, to receive attractive financing and banks are interest-

ed in sustainable finance to maintain their customer relations and to strengthen their business model by providing high-quality advisory services and support for companies. However, the regulatory framework differs for companies, creating varying environments for sustainable finance and SFI use. For instance, the CSRD, which entered into force January 2023, currently only applies to companies that fulfil two out of the following three criteria; the company must have a minimum of €20 million in total assets, €40 million in turnover or 250 employees (European Commission, 2023c). Furthermore, the CSRD applies to all listed SMEs. Consequently, SMEs that do not fulfil these criteria so far do not have to adhere to the CSRD, but might be affected by increased transparency requirements through the supply chain. Therefore, companies are facing different regulatory environments and can subsequently be expected to have varying sustainable finance interests and needs.

These differing regulatory environments can be narrowed down to three distinct company characteristics. Sustainability disclosure regulations apply to a company depending on its company size and whether it is listed. Furthermore, an increased transparency regarding a company's sustainability performance can affect its financing differently, depending on the company's industry, as for instance companies from the oil and gas industry are more often subject to exclusion criteria and subsequent divestment (Bogmans et al., 2023). Consequently, banks should recognize these potential differences and provide sustainable finance support tailored to companies' individual needs. ***But how do companies differ in their sustainable finance interests and needs, and how can banks provide a tailored sustainable finance (instrument) support to their credit customers accordingly?*** To answer this question, this research paper develops and conducts a survey with a large population of corporate customers from Germany's second largest bank, DZ BANK AG. Subsequently, the paper defines companies' individual sustainable finance interests and needs, and develops an action plan to customize sustainable finance (instrument) support for the identified company groups.

2.3 Sustainable Finance Survey

2.3.1 Survey Design

As explained above, this study aims to investigate companies' individual sustainable finance needs by conducting a survey. In June 2023, 700 corporate customers of DZ BANK AG were invited to participate in an online survey. The survey consists of four parts, an overview of the survey can be found in Appendix C. The first part shortly introduces and explains the concept of sustainable finance instruments and subsequently poses questions about companies' sustainable finance instrument use. The second part includes questions regarding companies' promotional loan use, as well as the desired advisory and support of their respective banks. The third part asks companies about their perceived transformation risk, regulatory pressure, as well as financing access and financing conditions. The survey concludes with questions concerning company characteristics and personal information. The survey was conducted anonymously, in order to enable a true assessment, particularly for questions that included the evaluation of their financing partners, as well as companies' sustainability knowledge and awareness. Consequently, self-reported answers could not be linked to publicly available administrative data. Companies were able to voluntarily state their company name, in order to receive the survey results, however, only 34 out of 93 companies chose to submit their company name.

2.3.2 Methodology

This study follows a mixed method approach using both quantitative and qualitative research methods. The survey predominantly consists of quantitative questions, with some qualitative open questions. This denotes a convergent parallel design, as both quantitative and qualitative methods are employed within the same survey and subsequent analysis (Creswell & Creswell, 2018). Moreover, the survey uses a concurrent embedded strategy (Creswell & Creswell, 2018), as qualitative questions

are integrated to allow for a deeper complementary understanding of the quantitative results (Greene et al., 1989) and to generate additional knowledge (Morgan, 2014). The quantitative variables are studied using correlation analysis, applying Fisher's exact test to check the existence of an association and Cramér's V to test the strength of association. Additionally, a logistic regression for each association is run, to gain a deeper understanding of the direction of association based on the resulting odds ratios.

In regard to the qualitative analysis, a thematic content analysis is performed using the seven steps of Kuckartz (2014). Using this method, all qualitative answers are first translated, main thematic categories developed and all qualitative answers coded accordingly. Subsequently, using the existing material, subcategories for each main thematic category are developed inductively and all answers are coded in line with the advanced categorical system (Kuckartz, 2014). The final categorical system is interpreted together with the quantitative results using quantification (Fakis et al, 2014; Kuckartz, 2014), which enables the statistical analysis of qualitative data.

2.3.3 Data

The participants of the survey are corporate customers of DZ BANK AG, Germany's second largest bank, with total assets of €628 billion as of 31.12.2022 (DZ BANK, 2023a). Together with DZ BANK AG, a mailing list of corporate customers was developed and the survey link was sent out via the bank's mailing system, in order to avoid any data privacy concerns.[11] The mailing list was generated by contacting the bank's corporate client supervisors and asking them to take part in the survey project by providing their corporate customers' email addresses. The contact email emphasized that the provision is voluntary, as well as the anonymity of the survey, and highlighted the potential benefits for

11 At no point in time was the author of this paper provided with any contact details or personal information of corporate customers by DZ BANK AG.

an improved customer support. The company-wide collection yielded a final mailing list containing 700 direct corporate customers[12], which were subsequently invited by email to participate in the survey. Of the 700 addressed companies, 123 responses were recorded, resulting in a 17.6 % response rate, with 93 fully completed surveys. Table 1 and Table 2 present the summary statistics of the 93 companies that fully answered the survey.

First, looking at the company characteristics in Table 1, we find that the largest share of respondents is from the industrials sector (31.2 %), followed by the consumer discretionary (9.7 %), utilities (9.7 %), consumer staples (9.7 %) and materials (7.5 %) sector.[13] Companies from the financial, health care, information technology, communication services and real estate sector make up a share of less than 5 % respectively. Furthermore, 18 companies stated "no answer" for the company sector. Regarding companies' size, respondents were asked to state the company revenue. The data shows that the majority (50.5 %) has a company size of €50 million to €499 million in revenue, followed by 24.7 % that have a company size of €500 million to €5 billion, 10.8 % that have a company size larger than €5 billion and 9.7 % that have a company size of €10 million to €49 million. Only one respondent has a company size of up to €9 million and three companies stated "no answer" for their company size. Finally, the majority of respondents (62.4 %) are not active in capital markets[14].

12 The survey was only distributed to DZ BANK AG's direct corporate customers and not to corporate customers of the credit unions, which are also part of the DZ BANK GROUP and provide financial services to smaller companies and commercial customers.

13 The survey used the Global Industry Classification Standard (GICS) by MSCI (2023) and allowed respondents to select their industry. The responses were then aggregated to the respective sectors as defined by the GICS.

14 A company is defined as active in capital markets if it acquires financing through capital markets.

Table 1. Summary Statistics – Company Characteristics

	Survey Sample Characteristics		Population Characteristics	
	Observations	**Percent of Data**	**Count**	**Percent of Data**
Number of Companies	93	100 %	1,973	100 %
Company Sector				
Industrials	29	31.2 %	530	26.9 %
Consumer Discretionary	9	9.7 %	566	28.7 %
Utilities	9	9.7 %	212	10.8 %
Consumer Staples	9	9.7 %	119	6.0 %
Materials	7	7.5 %	133	6.7 %
Financials	4	4.3 %	55	2.8 %
Health Care	4	4.3 %	93	4.7 %
Information Technology	2	2.2 %	-	-
Communication Services	1	1.1 %	193	9.8 %
Real Estate	1	1.1 %	-	-
No Answer	18	19.4 %	-	-
Other	-	-	72	3.6 %
Company Size				
Up to €9 million	1	1.1 %	-	-
€10 mm to €49 million	9	9.7 %	786	39.8 %
€50 mm to €499 million	47	50.5 %	497	25.2 %
€500 mm to €5 billion	23	24.7 %	550	27.9 %
Bigger than €5 billion	10	10.8 %	140	7.1 %
No Answer	3	3.2 %	-	-
Company Capital Market Activity				
Yes	34	36.6 %	1,085	55 %
No	58	62.4 %	888	45 %
I don't know	1	1.1 %	-	-

Source: This table presents the company summary statistics of the 93 survey respondents, as well as the population characteristics of the 1,973 direct corporate customers of DZ BANK AG. The companies' sector is classified based on the Global Industry Classification Standard by MSCI and the companies' size in terms of revenue is rounded to millions and divided into five respective revenue groups.

Looking at the sustainability characteristics in Table 2, we find that slightly more than half of the respondents (55.9 %) have a carbon footprint, whilst only 22.6 % have an ESG rating. In fact, 9.7 % of all respondents are unfamiliar with the term ESG. Moreover, whilst a large share of respondents (69.9 %) has company-level sustainability targets, only 12.9 % have an additional commitment scheme, for instance in the form of board management compensation that is linked to sustainability criteria. Finally, 14 % of respondents have used a SFI and 6.5 % are currently underway to implement a SFI, whilst 12.9 % of companies were unfamiliar with SFIs before the survey, as seen in Appendix A, Table 6.

Table 2. Summary Statistics – Company Sustainability Characteristics

	Observations	Percent of Data
Number of Companies	93	100 %
Carbon Footprint		
Yes	52	55.9 %
No	33	35.5 %
I don't know	8	8.6 %
ESG Rating		
Yes	21	22.6 %
No	53	57.0 %
I don't know	10	10.8 %
Unfamiliar with ESG term	9	9.7 %
Company-Level Sustainability Targets		
Yes	65	69.9 %
No	25	26.9 %
I don't know	3	3.2 %
Sustainability Target Commitment Scheme		
Yes	12	12.9 %
No	65	69.9 %
I don't know	16	17.2 %

Source: This table presents companies' sustainability characteristics of the 93 survey respondents.

Lastly, looking at the recorded respondent information, we find that 94.5 % of respondents are working in the finance division, which was the intended target group of the survey (see Appendix A, Table 3). Furthermore, 87.9 % of respondents are male and the highest share of respondents are age 40 to 49 (30.8 %) and 50 to 59 (30.8 %) respectively, followed by 23.1 % that are age 30 to 39. Moreover, the majority of respondents (52.7 %) have neither study nor work experience in the field of sustainability, whilst 29.7 % have work experience and only 8.8 % have both, work and study experience in the field of sustainability.

2.3.4 Representativeness

In order to assess the sample's representativeness, the following section compares the survey sample characteristics to DZ BANK AG's total direct corporate customer population, as seen in Table 1.[15] DZ BANK AG has a total of 1,973 direct corporate customers, as of July 2023. The highest share of corporate customers are from the consumer discretionary (28.7 %) and industrials (26.9 %) sector. This also hold true for the survey sample, however, the share of respondents from the consumer discretionary sector is significantly smaller, as seen in Table 1. In regard to company size, the total corporate customer population has equal shares of companies with a revenue of €10 to €49 million, €50 to €499 million and €500 million to €5 billion respectively, but only 7.1 % have a revenue larger than €5 billion. The survey sample demonstrates a similar share for companies with a revenue of €500 million to €5 billion and a revenue larger than €5 billion, but a higher share of companies that have a revenue of €50 to €499 million and a lower share of companies that have a revenue of €10 to €49 million. Finally, whilst approximately 55 % of the total corporate customer population is active in capital markets, only 36.6 % of the survey sample are active in capital markets.

15 DZ BANK AG's population characteristics are based on administrative data, whilst the survey sample characteristics are based on self-reported data, because the survey cannot be linked to administrative data, as explained in section 3.1.

2.4 Realizing That One Size Does Not Fit All

As explained in section 2, sustainability-related disclosure regulations apply to companies depending on the company's size and whether the company is listed. Furthermore, the increased transparency regarding a company's sustainability performance leads to varying effects on a company's financing access and conditions, depending on a company's sector. Consequently, companies face very different regulatory and market environments that in turn can influence their sustainable finance needs, as well as SFI use, and are therefore divided into company size, company sector and capital market groups.

2.4.1 Identifying Company Groups

Firstly, respondents are split into four company size groups based on their respective revenue group, as reported in the survey. Companies with a revenue of €10 to €49 million are considered "medium-sized companies", companies with a revenue from €50 to €499 million are called "large medium-sized companies", companies with a revenue from €500 million to €5 billion are called "large companies" and companies with a revenue larger than €5 billion are called "multinationals". This division is based on the internal allocation used by DZ BANK AG, as it reflects the different financing needs in the conventional finance market and is therefore a good baseline to analyze how it translates to the sustainable finance market. The sample only includes one respondent with a revenue smaller or equal to €9 million, which is excluded as an outlier for the company size group division. The sample does not include more companies with such a small revenue, as the survey was only distributed to DZ BANK AG's direct corporate customers and not to corporate customers of the credit unions, which are also part of the DZ BANK GROUP and provide financial services to smaller companies and commercial customers.

Secondly, respondents are split into two capital market groups, differentiating between companies that are active in capital markets and companies that are not active in capital markets, as reported in the

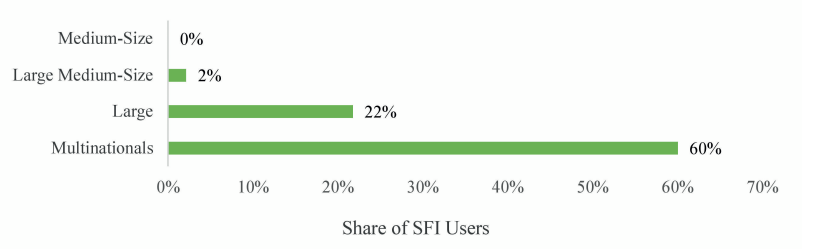
survey. A company is defined as active in capital markets if it acquires financing through capital markets. Finally, respondents are split into ten sector groups, based on companies' reported industries and in line with the Global Industry Classification Standard by MSCI (2023).

2.4.2 Sustainable Finance Instrument Use

Having defined the three respective company groups, the following section analyzes whether a difference in SFI use can be observed for the individual company groups. In general, 13 companies state that they have used a SFI before and 6 companies state that they are currently underway to implement a SFI. The reported SFIs used and being implemented are predominantly forms of loans and credits (69 %), followed by schuldscheindarlehen (27 %) and one bond.

Regarding SFI use among the respective company groups, the survey results show a significant difference between the four company size groups. As seen in Figure 1, SFI use increases with company size. This correlation is statistically significant at the 1 % level (see Appendix A, Table 4) and the positive association is confirmed by running a logistic regression, resulting in significant and larger than one odds ratios for large and multinational company groups compared to the baseline group of large medium-sized companies (see Appendix A, Table 5).

Figure 1. Sustainable Finance Instrument Use by Company Size

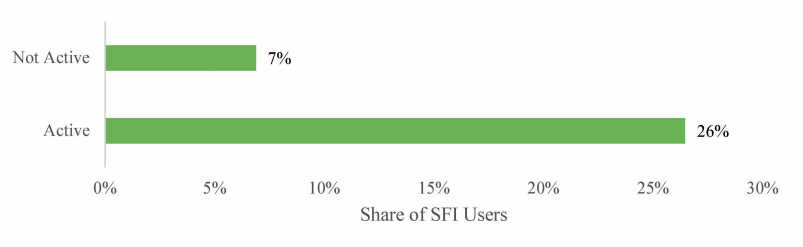


Source: This figure presents the share of SFI users for the four defined company size groups, based on the survey data reported in Appendix A, Table 6.

Whilst none of the medium-sized companies and only 2 % of large medium-sized companies have used a SFI, 22 % of large companies and 60 % of multinational companies have used a SFI. This is in line with a study by DZ BANK (2023b), which shows that companies' willingness to invest in sustainability increases with company size. Moreover, this pattern also holds when looking at the share of companies that have not used a SFI so far, but have considered it already. Whilst the share of companies is less than 50 % for medium-sized, large medium-sized and large companies, 75 % of multinational companies have considered using a SFIs (see Appendix A, Table 6). Overall, these results demonstrate that SFI use significantly differs between smaller and larger companies.

Secondly, a significant difference in SFI use can also be found looking at the two capital market groups. The percentage of companies which have used a SFI is more than three times as high (26 %) for companies which are active in capital markets, compared to companies which are not active in capital markets (7 %), as seen in Figure 2.

Figure 2. Sustainable Finance Instrument Use by Capital Market Activity



Source: This figure presents the share of SFI users for the two defined capital market activity groups, based on the survey data reported in Appendix A, Table 6.

This result shows that SFI use significantly differs with a company's capital market activity. The association between capital market activity and SFI use is statistically significant at the 5 % level (see Appendix A, Table 4). Moreover, the logistic regression results (see Appendix A, Table 5) confirm higher odds for companies active in capital markets to

be SFI users compared to the baseline group of companies not active in capital markets.

Finally, the survey results demonstrate a difference in SFI use between the company sectors as well (see Appendix B, Figure 3), even though no statistically significant association between company sectors and SFI use can be found (see Appendix A, Table 4 and Table 5). The highest share of SFI users can be observed for the financials (25 %) and health care sector (25 %), followed by the consumer discretionary (22 %) and utilities (22 %) sector. In contrast, only 11 % of the consumer staples and 10 % of the industrials sector use SFIs and none of the companies from the communication services, information technology, materials and real estate sector. Interestingly, the results do not indicate a higher SFI use among more carbon-intensive sectors.

2.5 Companies' Individual Sustainable Finance Interests & Needs

The survey results suggest that companies' different regulatory and market environments indeed might lead to varying SFI use. The following section investigates how push and pull factors, as well as barriers, in regard to SFI use vary within the respective company groups. Moreover, the different desired roles for the financial sector and the use of alternative financial instruments in the form of promotional loans are discussed.

2.5.1 What Are Current Push and Pull Factors in the Sustainable Finance Market?

In the case at hand, push factors are aspects or circumstances that drive companies to use SFIs, whilst pull factors make it easier for companies to use SFIs. Based on the survey results, the following section studies four identified push and three identified pull factors that particularly capture how companies are affected by sustainability disclosure regulations, as well as companies' sustainability characteristics. The four push factors are perceived regulatory pressure, perceived transformation

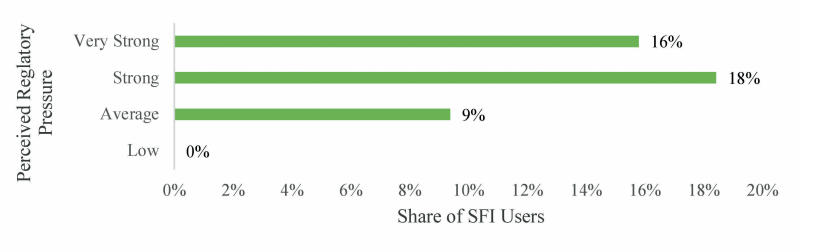
risk, perceived risk to lose financing access and perceived likelihood that sustainability criteria and credit conditions will be linked. The three pull factors are a company's sustainable awareness, sustainability action and sustainable finance knowledge. The individual push and pull factor's effect on SFI use is discussed, as well as how the push and pull factors vary with different company sizes, company sectors and with being active in capital markets.

2.5.1.1 Perceived Regulatory Pressure

The first push factor is a company's perceived regulatory pressure. As explained in section 2, a significant number of sustainability-related disclosure regulations have been introduced in recent years, increasing the transparency regarding a company's sustainability risk and performance. As sustainability criteria are progressively incorporated in investment and credit decisions, as well as risk management, the higher transparency increases a company's stake to communicate their sustainability transition strategy to investors and financing partners. Thus, a perceived strong regulatory pressure could drive companies towards an increased SFI use.

Indeed, the survey results show a higher share of SFI users among companies that also perceive a stronger regulatory pressure, as seen in Figure 4. The logistic regression results show, albeit not statistically significant, higher odds for companies with strong or very strong perceived regulatory pressure to be SFI users compared to the baseline of average perceived regulatory pressure (see Appendix A, Table 7a).

Figure 4. Sustainable Finance Instrument Use by Perceived Regulatory Pressure

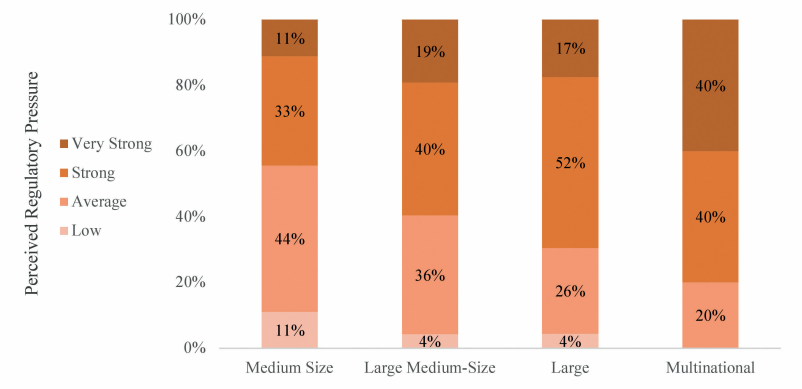


Source: This figure presents the share of SFI users for different levels of perceived regulatory pressure, based on the survey data reported in Appendix A, Table 8.

Of the companies which perceive regulatory pressure to be low, none have used a SFI. In contrast, of the companies which perceive regulatory pressure to be very strong, 16 % have used a SFI and the effect is strongest for companies which perceive strong regulatory pressure, of which 18 % have used a SFI. This observation suggests that the push factor of regulatory pressure mainly comes into action for companies with perceived strong or very strong regulatory pressure, compared to companies with perceived low or average regulatory pressure, and does not differentiate between varying levels of strong or very strong regulatory pressure.

Taking a closer look at perceived regulatory pressure by company size in Figure 5, it can be observed that perceived regulatory pressure on average increases with company size, albeit no statistically significant association is found (see Appendix A, Table 9). The share of companies which perceive a low regulatory pressure decreases from 11 % for medium-sized companies to none for multinational companies. In contrast, the share of companies which perceive a very strong regulatory pressure increases from 11 % for medium-sized companies to 40 % for multinational companies. In regard to capital market and company sector groups, no statistically significant relation with perceived regulatory pressure is found (see Appendix A, Table 9).

Figure 5. Perceived Regulatory Pressure by Company Size



Source: This figure presents the respective share of different levels of perceived regulatory pressure by the four defined company size groups, based on the survey data reported in Appendix A, Table 10.

Based on Figure 5, the survey results suggest that larger companies perceive on average a stronger regulatory pressure than smaller companies. This difference in perception is expected, as a lot of sustainability regulations have so far been focused on large companies, such as the NFRD[16] and the Supply Chain Act[17]. However, sustainability regulations are evolving to apply to smaller and medium-sized companies as well, such as the CSRD, which replaced the NFRD in January 2023 and which will also apply to SMEs that are active in capital markets (European Commission, 2023c), as well as the Supply Chain Act which will be mandatory for a larger set of companies as of 2024 (BMAS, 2023). Therefore, regulatory pressure can be expected to be increasing for smaller companies in the future as well.

16 The Non-Financial Reporting Directive (NFRD) applied to public-interest companies with an employee count of more than 500 employees (European Commission, 2023c).

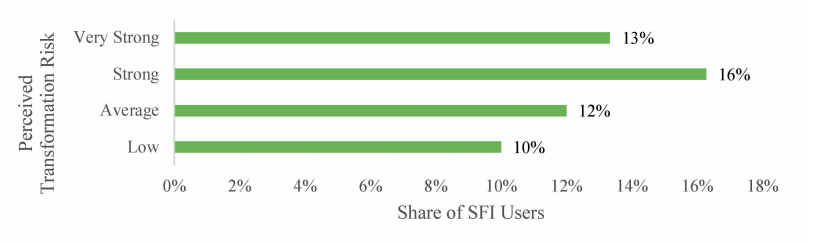
17 The Supply Chain Act is mandatory for companies with at least 3,000 employees as of 01.01.2023, but will be mandatory for companies with at least 1,000 employees starting 2024 (BMAS, 2023).

2.5.1.2 Perceived Transformation Risk

The second push factor is a company's perceived transformation risk. A company's line of business, sustainability performance, transformation strategy and financing likely affect how strongly a company perceives to be affected by the economy's overall sustainability transition. If a company perceives to be strongly affected by the economy's sustainability transition, the higher transformation risk could push a company to use SFIs to communicate and to finance its sustainability transition strategy.

The survey results indicate only a slightly higher share of SFI users for companies with a perceived stronger transformation risk, as seen in Figure 6. This is confirmed by the correlation and logistic regression analysis results (see Appendix A, Table 4 and 7a), which indicate higher odds for companies that perceive an average, strong or very strong transformation risk to be SFI users, compared to the baseline of companies that perceive a low transformation risk, but find no statistical significance. Of the companies which state that their business is only little affected by the economy's sustainability transition, 10 % have used a SFI, whilst of the companies which state that their business is very strongly affected, 13 % have used a SFI. The observed difference is strongest for companies which perceive to be strongly affected, of which 16 % have used a SFI.

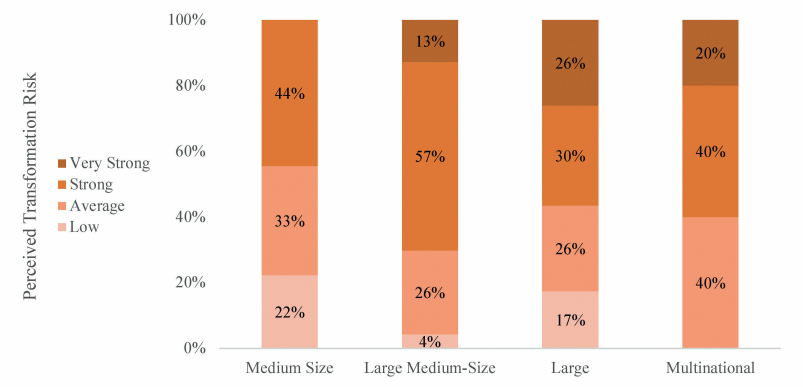
Figure 6. Sustainable Finance Instrument Use by Perceived Transformation Risk



Source: This figure presents the share of SFI users for different levels of perceived transformation risk, based on the survey data reported in Appendix A, Table 8.

As seen in Figure 7, companies' perceived transformation risk substantially varies between company size groups, albeit not statistically significantly (see Appendix A, Table 9). The most pronounced difference can be found between medium-sized companies and multinational companies. Whilst 22 % of medium-sized companies perceive their business to be little affected by the economy's sustainability transition, none of multinationals perceive their business to be little affected. In contrast, none of medium-sized companies perceive their business to be very strongly affected, compared to 20 % of multinational companies. On average, larger companies appear to perceive a stronger transformation risk than smaller companies. A potential explanation could be that larger companies might experience more public pressure to transition, as they are more in the public eye, and thus perceive a stronger transformation risk.

Figure 7. Perceived Transformation Risk by Company Size



Source: This figure presents the respective share of different levels of perceived transformation risk by the four defined company size groups, based on the survey data reported in Appendix A, Table 10.

Furthermore, perceived transformation risk does not vary statistically significantly between the respective company capital market and sector groups, as seen in Appendix A, Table 9. Nevertheless, it should be noted that predominantly carbon-intensive sectors have a share of companies

that perceive transformation risk as very strong. The largest share is observed for the utilities sector (44 %), followed by the consumer staples (33 %), materials (17 %), consumer discretionary (11 %) and industrials (10 %) sector (see Appendix A, Table 12). This is expected, as carbon-intensive industries are more affected by the economy's sustainability transition and thus perceive a stronger transition risk for their company.

2.5.1.3 Perceived Risk to Lose Financing Access

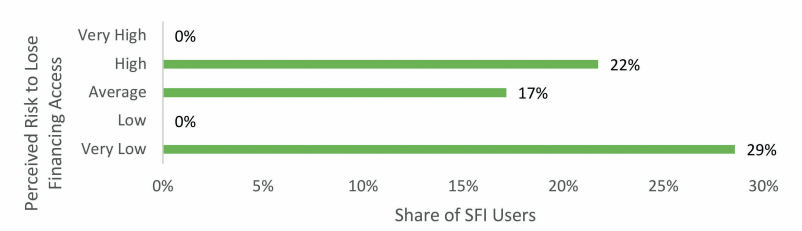
The third push factor is a company's perceived risk of losing its financing access should the company fail to achieve certain sustainability targets. An increasing number of financial institutions are already using negative screening as part of their sustainable investment methods, actively excluding certain companies or industries from their portfolios (United Nations Principles of Responsible Investment (UN PRI), 2020). Moreover, sustainability and ESG funds, which often include an ESG integration in the form of a cut-off value, are growing (PwC, 2022). As these developments suggest the potential of losing financing access in the case of failure to meet certain sustainability targets, SFIs can offer the opportunity to maintain financing access by making, for some instruments even binding[18], sustainability commitments. Consequently, a company's perceived risk of losing its financing access could affects its use of SFI. More precisely, if a company perceives a high risk of losing its financing access, it could incentivize a company to use SFIs.

However, according to the survey results seen in Figure 8, the share of SFI users is not higher among companies with a higher perceived risk to lose financing access. This is supported by the lack of associa-

18 An example for binding sustainability commitments are sustainability-linked instruments, which connect a financial characteristic of the instrument, most commonly the coupon, to the achievement of predetermined sustainability targets. Should the company fail to achieve the targets, the company is punished in form of a coupon step-up and thus higher financing costs (ICMA, 2023).

tion[19] between level of perceived risk to lose financing access and SFI use (see Appendix A, 7a). Interestingly, none of the companies that perceive the risk to lose financing access to be very high have used a SFI so far. A potential explanation could be that overall, the majority of companies (63 %) perceive the risk of losing financing access as low or average, only 25 % as high and only 4 % as very high (see Appendix A, Table 8), suggesting that the perceived risk of losing financing access itself is too low to show any significant effect on companies' SFI use.

Figure 8. SFI Use by Perceived Risk to Lose Financing Access



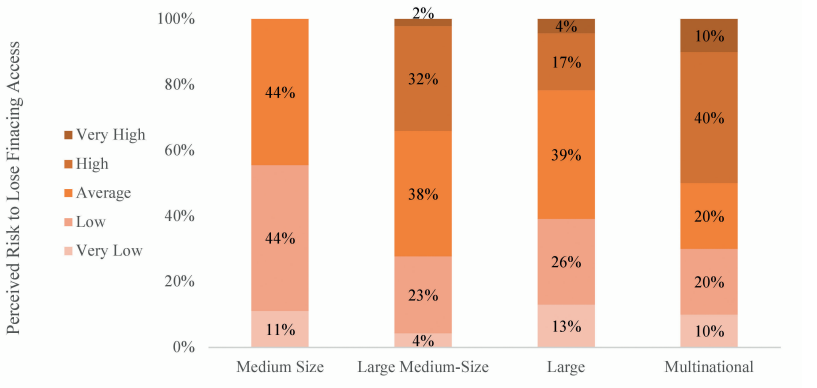
Source: This figure presents the share of SFI users for different levels of perceived risk to lose financing access, based on the survey data reported in Appendix A, Table 8.

Looking at the perceived risk to lose financing access by company size groups in Figure 9, the observed difference between company size groups is very small and statistically insignificant (see Appendix A, Table 9). Nevertheless, an increasing relation can be found for a very high perceived risk to lose financing access, as seen in Figure 9. Whilst none of medium-sized companies perceive the risk of losing their financing access due to failure to achieve certain sustainability targets as very high, the share increases with company size up to 10 % for multinational companies.

19 In fact, Fisher's exact test indicates a significant correlation (see Appendix A, Table 4). However, when looking at the logistic regression results in Appendix A, Table 7a, one can see that the correlation is driven by perfect predictions and that any association is in fact statistically insignificant.

Furthermore, half of multinational companies perceive the risk of losing financing access as high or very high, compared to none of medium-sized companies. Consequently, the observations of Figure 9 indicate that perceived risk to lose financing access differs particularly for medium-sized companies and is on average lower than for all other company size groups. This could potentially be caused by a lower awareness of smaller companies regarding how their financing access might be affected by their sustainability performance and is further analyzed in sections 5.1.5 to 5.1.7.

Figure 9. Perceived Risk to Lose Financing Access by Company Size



Source: This figure presents the respective share of different levels of perceived risk to lose financing access by the four defined company size groups, based on the survey data reported in Appendix A, Table 10.

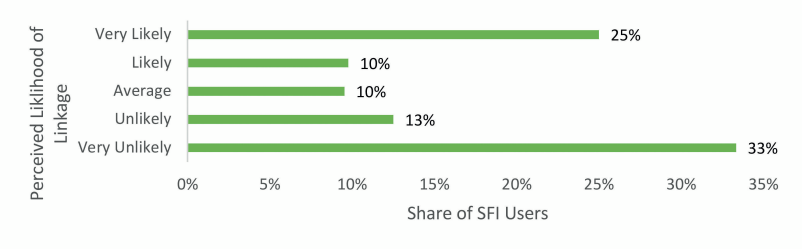
In regard to company capital market groups, no significant relation with perceived risk to lose financing access can be found, whilst the correlation analysis indicates an association between company sector groups and perceived risk to lose financing access, statistically significant at the 1 % level (see Appendix A, Table 9). In fact, only more carbon-intensive sectors perceive the risk to lose financing access as high or very high as seen in Appendix B, Figure 10. This suggests that the perceived risk to lose financing access is on average higher among more carbon-intensive companies.

2.5.1.4 Perceived Likelihood of Sustainability & Credit Condition Linkage

The fourth push factor is a company's perceived likelihood that sustainability criteria and credit conditions will be linked. With the advancing integration of sustainability criteria into investment and credit decisions, as well as risk management methods, companies are preparing for financing conditions to be linked to sustainability criteria (LBBW, 2022). As sustainability-linked financing instruments are demonstrating a potential pricing advantage in the current market (Berrada et al., 2022; CBI, 2022; Kölbel & Lambillon, 2022), a perceived higher likelihood of linkage could go hand in hand with a higher SFI use.

As seen in Figure 11, the share of SFI users is not higher among companies with a higher perceived likelihood that sustainability criteria and credit conditions will be linked. Even though overall, the majority of companies (66 %) think that a link between sustainability criteria and credit conditions is likely or very likely (see Appendix A, Table 8), the expectation does not appear to translate into a higher use of SFI. This is supported by the lack of any statistically significant association as seen in Appendix A, Table 4 and 7a.

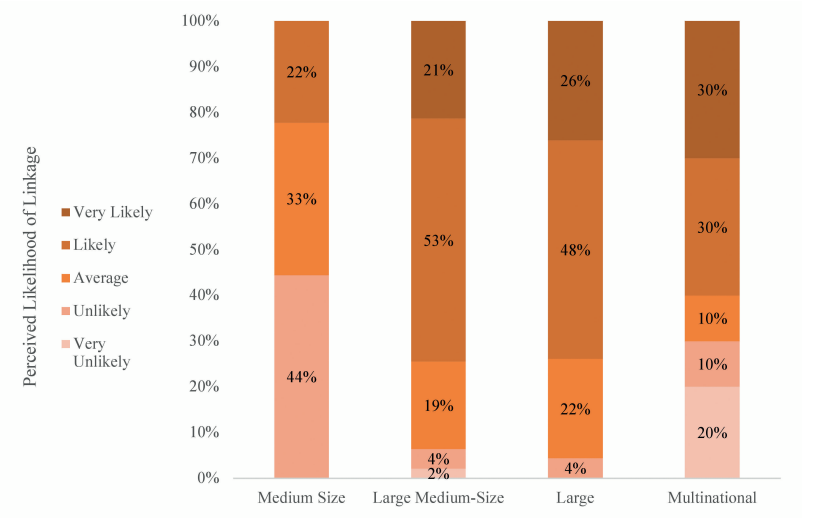
Figure 11. Sustainable Finance Instrument Use by Perceived Likelihood of Linkage



Source: This figure presents the share of SFI users for different levels of perceived likelihood that sustainability criteria and credit conditions will be linked, based on the survey data reported in Appendix A, Table 8.

Looking at the perceived likelihood of linkage among the different company size groups in Figure 12, the survey results indicate that the perceived likelihood on average increases with company size. This is supported by the correlation analysis results, which demonstrate a relation between levels of perceived likelihood of linkage and the four company size groups, statistically significant at the 5 % level (see Appendix A, Table 9). The variation among company size groups is most pronounced for companies which perceive the likelihood that sustainability criteria and credit conditions will be linked as likely or very likely, as seen in Figure 12. In fact, none of the medium-sized companies perceive the likelihood of linkage to be very likely, compared to 21 % of large medium-sized companies, 26 % of large companies and 30 % of multinational companies.

Figure 12. Perceived Likelihood of Linkage by Company Size



Source: This figure presents the respective share of different levels of perceived likelihood that sustainability criteria and credit conditions will be linked by the four defined company size groups, based on the survey data reported in Appendix A, Table 10.

Thus, on average, larger companies perceive the likelihood that sustainability criteria and credit conditions will be linked to be higher than smaller companies. The perceived higher likelihood of linkage for larger companies is likely caused by the more advanced sustainability disclosure regulations and measures for larger companies. For instance, banks need to report their green asset ratio (GAR) representing the sustainability of their lending activities, as explained in section 2.2. However, the GAR currently excludes lending to SMEs, as they cannot provide sustainability data in line with CSRD requirements yet. In contrast, larger companies already have to report their sustainability performance and therefore perceive a higher likelihood that this sustainability data might affect their financing conditions. Finally, in regard to perceived likelihood of linkage between company capital market and sector groups, no significant relation is found (see Appendix A, Table 9).

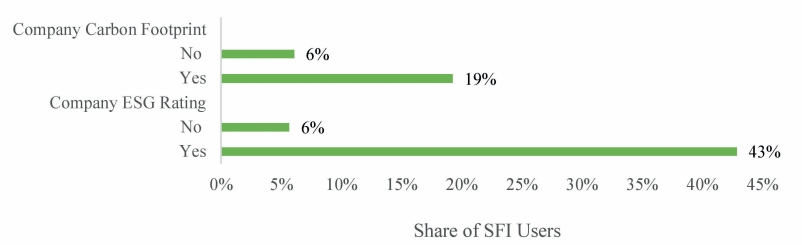
2.5.1.5 Company's Sustainability Awareness

The first pull factor is a company's sustainability awareness. In order to use a SFI, companies need to define company-level or project-level sustainability targets. Consequently, the hurdle to use a SFI is lower, if companies are already aware of their own sustainability performance. The survey measured companies' sustainability awareness through two measures. Firstly, respondents are asked whether the company is already determining its carbon footprint and secondly, whether the company has an ESG rating. Whilst the carbon footprint is a more fundamental measure and only captures a company's generated greenhouse gases, the ESG rating is a more complex indicator, measuring a company's environmental, social and governance performance, thus providing a more detailed understanding of a company's sustainability performance beyond its carbon footprint (UN PRI, 2023). A company does not need an ESG rating in order to use a SFI, but it reflects a company's more advanced awareness of its own sustainability performance. Therefore, one can expect to observe a higher share of SFI users

amongst companies that have a carbon footprint and an even more pronounced difference for companies that have an ESG rating.

As seen in Figure 13, the survey results confirm a higher share of SFI users for companies with a higher sustainability awareness in terms of having a carbon footprint or ESG rating. In fact, 19 % of companies that have a carbon footprint have used a SFI, compared to only 6 % of companies that do not have a carbon footprint.

Figure 13. Sustainable Finance Instrument Use by Sustainability Awareness

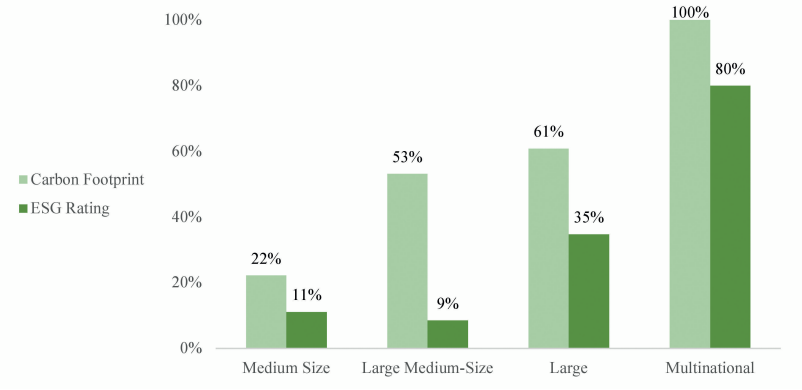


Source: This figure presents the share of SFI users for two indicators of sustainability awareness, namely having a carbon footprint and having an ESG rating, based on the survey data reported in Appendix A, Table 8.

This is supported by the logistic regression results as seen in Appendix A, Table 7b, which indicate higher odds, albeit not statistically significant, for companies with a carbon footprint to use a SFI compared to companies without a carbon footprint. As expected, the effect is more pronounced for having an ESG rating. In fact, 43 % of companies that have an ESG rating have used a SFI, compared to only 6 % of companies that do not have an ESG rating. The positive association between having an ESG rating and using a SFI is statistically significant at the 1 % level (see Appendix A, Table 7b).

Looking at sustainability awareness among the four defined company size groups in Figure 14, sustainability awareness appears to vary significantly amongst the four company size groups. In fact, only 22 % of medium-sized companies have a carbon footprint, which increases for larger medium-sized companies to 53 %, for large companies to 61 % and to 100 % for multinational companies.

Figure 14. Sustainability Awareness by Company Size



Source: This figure presents two indicators of sustainability awareness, namely having a carbon footprint and having an ESG rating, by the four defined company size groups, based on the survey data reported in Appendix A, Table 10.

The observed difference is similar for having an ESG rating, as a pronounced difference can be found for medium-sized and large medium-sized companies, of which 11 % and 9 % respectively have an ESG rating, compared to 35 % of larger companies and 80 % of multinational companies. Running Fisher's exact test confirms an association between company size and having a carbon footprint, as well as between company size and having an ESG rating. Both relations are statistically significant at the 1 % level (see Appendix A, Table 9). Thus, larger companies appear to have on average a higher sustainability awareness. This supports earlier assumptions that as larger companies have to adhere to more extensive sustainability disclosure regulations and since a longer time period, they have a higher sustainability awareness than smaller companies.

Regarding the defined company capital market groups, no significant variation for having a carbon footprint, but a significant variation for having an ESG rating is found. This is confirmed by the correlation results in Appendix A, Table 9, which indicate a statistically significant association between having an ESG rating and being active in capital markets. In fact, the share of companies that have an ESG rating (35 %)

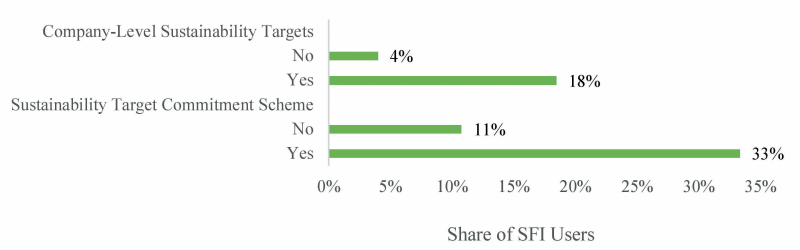
is more than twice as high for capital market active companies, compared to companies that are not active in capital markets (16 %), as seen in Appendix A, Table 11. This is expected, as companies that are active in capital markets have a higher use case for an ESG rating, because for instance fund managers increasingly use ESG ratings in their investment strategies (Stackpole, 2021) and some ESG funds even only include companies with an existing ESG rating. Finally, regarding the company sector groups, no statistically significant variation in sustainability awareness between the different company sectors is found, as seen in Appendix A, Table 9.

2.5.1.6 Company's Sustainability Action

The second pull factor is a company's sustainability action, capturing whether a company has defined company-level sustainability targets and whether their achievement is ensured by a form of commitment scheme, such as board compensation being linked to sustainability target achievements. Similar to a company's sustainability awareness, implementing a SFI is easier if the company already has set company-level sustainability targets. Moreover, a company which has additionally already ensured its achievement by implementing a commitment scheme could be less inclined to refrain from using SFIs out of fear of not achieving the set sustainability targets. Therefore, a higher share of SFI users might be observed among companies with a more advanced sustainability action.

The survey results confirm a higher share of SFI users among companies that have company-level sustainability targets, as well as for companies that have a commitment scheme. As seen in Figure 15, 18 % of companies with company-level sustainability targets use SFIs, compared to only 4 % of companies without company-level sustainability targets.

Figure 15. Sustainable Finance Instrument Use by Sustainability Action

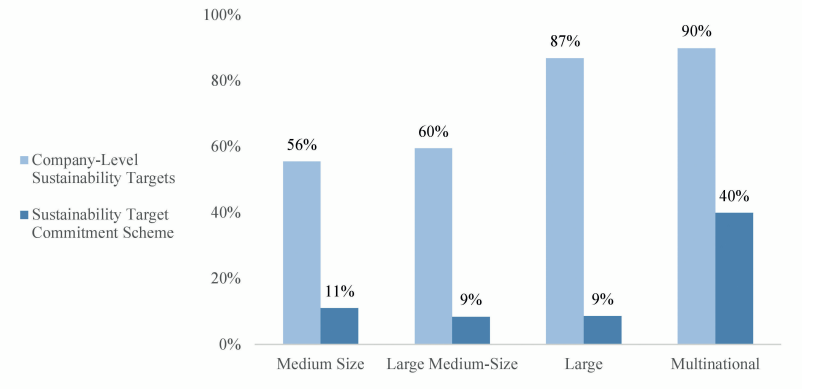


Source: This figure presents the share of SFI users for two indicators of sustainability action, namely having company-level sustainability targets and having a sustainability target commitment scheme, based on the survey data reported in Appendix A, Table 8.

The effect is even stronger for having an additional commitment scheme, as 33 % of companies with a commitment scheme in place have used a SFI, compared to only 11 % of companies without a commitment scheme, as seen in Figure 15. This observation is in line with the logistic regression results, which show statistically significant higher odds for companies that have a commitment scheme to be a SFI user, compared to companies that do not have a commitment scheme (see Appendix A, Table 7b).

Furthermore, sustainability action varies significantly between the four company size groups. As seen in Figure 16, medium-sized companies have the lowest share (56 %) of companies with company-level sustainability targets, which is continuously increasing for large medium-sized companies (60 %), large companies (87 %) up to 90 % for multinational companies. The difference is less pronounced for having an additional commitment scheme in place, for which medium-sized, large medium-sized and large companies have a similar share with 11 %, 9 % and 9 % respectively, compared to 40 % of multinational companies. This is reflected by the correlation results in Appendix A, Table 9, which demonstrate a statistically significant association between company size and having company-level sustainability targets, but no statistically significant association between company size and having an additional commitment scheme.

Figure 16. Sustainability Action by Company Size



Source: This figure presents two indicators of sustainability action, namely having company-level sustainability targets and having a sustainability target commitment scheme, by the four defined company size groups, based on the survey data reported in Appendix A, Table 10.

Overall, it can be concluded that larger companies demonstrate on average a higher sustainability action. This is in line with advanced sustainability regulations for larger companies and the assumption that they are more likely to be in the public eye, which incentivizes them to set sustainability targets, as well as commitment schemes to achieve these targets. Finally, the survey results do not demonstrate a statistically significant variation in sustainability action among the different company capital market and company sector groups, as seen in Appendix A, Table 9.

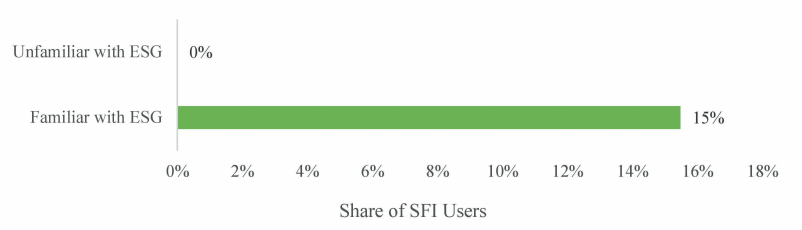
2.5.1.7 Company's Sustainable Finance Knowledge

The third pull factor is a company's sustainable finance (instrument) knowledge. This pull factor is measured through two aspects. Firstly, whether the respondent is familiar with the term ESG. Secondly, whether the respondent is familiar with sustainable finance instruments. A company which has a basic understanding of sustainable

finance and is familiar with SFIs is more likely to use SFIs, as the barrier of knowledge and implementation is lower.

The survey results support this hypothesis, as none of the companies that are unfamiliar with the term ESG have used a SFI, compared to 15 % of companies that are familiar with the term ESG, as seen in Figure 17. Moreover, 13 % of all respondents state that they did not know about SFIs prior to the survey, indicating that there is a significant number of companies that are lacking any SFI knowledge (see Appendix A, Table 6). Consequently, it can be said that companies with a higher sustainable finance (instrument) knowledge demonstrate a higher share of SFI users.

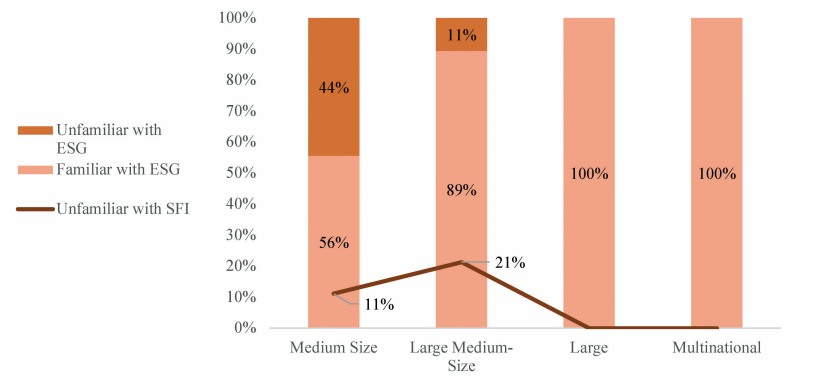
Figure 17. Sustainable Finance Instrument Use by Sustainable Finance Knowledge



Source: This figure presents the share of SFI users for an indicator of sustainable finance knowledge, namely being familiar with the term ESG, based on the survey data reported in Appendix A, Table 8.

Furthermore, the results demonstrate a statistically significant variation in sustainable finance (instrument) knowledge amongst the four company size groups and the two company capital market groups, but no significant variation among the company sector groups (see Appendix A, Table 9). Whilst 44 % of medium-sized companies are unfamiliar with the term ESG, the share decreases for large medium-sized companies to 11 % and for large and multinational companies to 0 %, as seen in Figure 18.

Figure 18. Sustainable Finance Knowledge by Company Size



Source: This figure presents two indicators of sustainable finance knowledge, namely being familiar with the term ESG and being familiar with SFIs, by the four defined company size groups, based on the survey data reported in Appendix A, Table 6 and Table 10.

A similar pattern can be observed for companies being unfamiliar with SFIs, with a share of 11 % for medium-sized companies and 21 % for large medium-sized companies, compared to none for large and multinational companies. Again a potential explanation could be that larger companies are more exposed to the topic of sustainable finance due to higher sustainability regulatory requirements.

For the defined company capital market groups, the results show that companies which are active in capital markets have a higher sustainable finance instrument knowledge. In fact, only 3 % of companies that are active in capital markets were unfamiliar with SFIs before the survey, compared to 17 % of companies that are not active in capital markets (see Appendix A, Table 11). In contrast, there is no variation in regard to ESG term knowledge. A potential explanation for the higher SFI knowledge among capital market active companies could be that capital market SFIs, for example a green bond, are more well-known and more advanced in terms of standardization and processing than for example a green loan. Overall, larger companies and companies that

are active in capital markets demonstrate a higher sustainable finance (instrument) knowledge.

2.5.2 Does This Translate Into Different Challenges & Barriers for Companies?

In order to fully understand the different sustainable finance needs and to subsequently provide tailored support to companies, one also has to understand the varying barriers that companies face in using SFIs, as well as the motivational factors. Therefore, the survey directly asks companies to state any barriers that might hinder them to use SFIs, as well as to rank provided reasons for and against the use of SFIs. As the pull and push factors differ most significantly for the four company size groups, the reported barriers will be analyzed in regard to their variation amongst the company size groups as well.

2.5.2.1 Companies' Reported Perceived Barriers to SFI Use

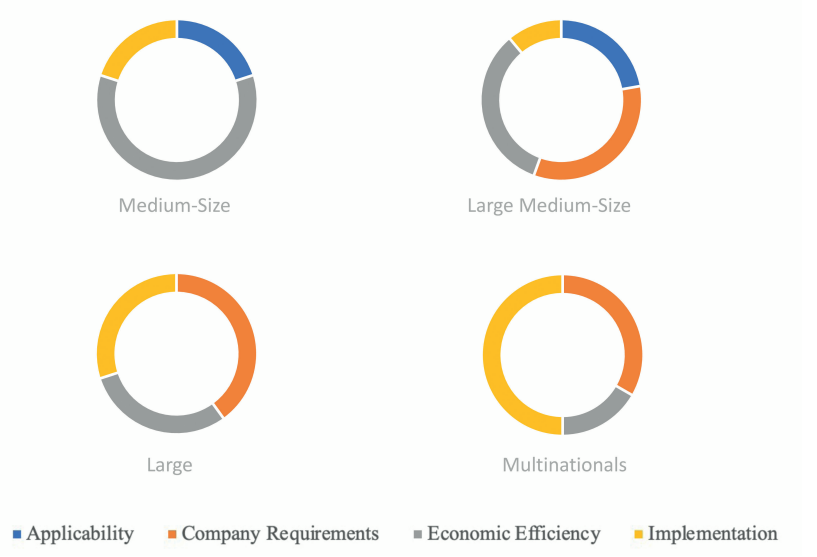
All companies were asked to state any potential perceived barriers regarding the use of SFIs, regardless of whether they have used a SFI before or not. Almost half of all companies (41 %) state that they perceive barriers to use a SFI, as seen in Appendix A, Table 13. Interestingly, the share of companies that perceive barriers is not significantly different for companies that have used SFIs before (31 %), companies that have not (45 %) and even companies that are unfamiliar with SFIs (33 %). Moreover, the share of companies that perceive barriers does not vary significantly between the four company group sizes, as seen in Appendix B, Figure 19. This is supported by the correlation analysis and logistic regression results which do not show any statistical significance (see Appendix A, Table 9 and Table 18).

In order to gain a deeper understanding of companies' perceived barriers, the survey used a mixed method approach and employed open questions, as explained in section 3.2. The answers were analyzed using a thematic content analysis framework (for further details,

see section 3.2). The main thematic categories developed based on companies' stated barriers are applicability, company requirements, economic efficiency and implementation. Subsequently, subcategories for each main thematic category were developed inductively, following Kuckartz (2014), resulting in a categorical system reported in Appendix A, Table 14. The most often stated barriers are general additional efforts, reporting, KPI choice & tracking and risk of failure to achieve targets (see Appendix A, Table 14).

Using quantification (Kuckartz, 2014), the qualitative answers can be analyzed in regard to their variation among the four defined company size groups, as seen in Figure 20. The stated barriers differ between the respective company size groups and are discussed in the following section.

Figure 20. Stated Barriers by Company Size



Source: This figure presents the defined five groups of stated barriers by company size, based on the survey data reported in Appendix A, Table 13.

Applicability

As seen in Figure 20, smaller companies view applicability as a barrier to SFI use, whilst large and multinational companies do not state any applicability barriers. The applicability of SFIs to company characteristics, including company purpose, financing structure and industry, is a barrier for both, medium-sized and large medium-sized companies. In contrast, applicability to financing needs, including insufficient flexibility of SFIs and no use cases, is only stated as a barrier by large medium-sized companies.

Company Requirements

Company requirements is a barrier that is perceived by all companies, except medium-sized companies. All three company size groups perceive administrative work as a barrier, including general additional effort and work capacities, as well as reporting. Knowledge, which includes insufficient experience, consulting and regulatory uncertainty, is only reported as a barrier by large medium-sized and large companies. Interestingly, medium-sized companies did not state knowledge as a barrier, even though they demonstrated on average a lower sustainable finance (instrument) knowledge than larger companies, as described in section 5.1.7. A potential explanation could be that they have not advanced beyond the consideration of SFI use yet, to have been confronted with company requirement barriers.

Economic Efficiency

Regarding economic efficiency, the results show a more similar perception amongst the company size groups. All company groups view economic efficiency as a barrier, with costs being the most often stated barrier, followed by risk. Only large medium-sized and large companies state costs as a barrier, including higher implementation costs and insufficient promotional loans. In contrast, risk is stated as a barrier

by all four company size groups. The reported risk barriers include regulatory risk, greenwashing risk and the risk of failure to achieve sustainability targets (see Appendix A, Table 14). The risk of failure to achieve sustainability targets is mentioned by medium-size, large and multinational companies, emphasizing that companies independent of their size are confronted with this barrier. This is an important observation, as it demonstrates an undesirable adverse effect of the SFI mechanism, which aims to incentivize companies to invest in their sustainability transition, rather than hindering companies to use SFI due to fear of failure to achieve their sustainability targets.

Implementation

Finally, all four company size groups report implementation as a barrier to SFI use. Both, small and large companies view the implementation of a SFI, in the form of size, KPI choice & tracking and data collection as a barrier to use SFIs. Moreover, large medium-sized, large and multinational companies state standards & regulations regarding data comparability, availability and investor requirements as a perceived barrier to SFI use. Overall, all four main reported barriers vary between company size groups and underline that companies face different barriers when considering the use of or implementing a SFI.

2.5.2.2 Ranking of Barriers and Motivations to Use SFIs

Subsequently, the survey asked respondents, which had stated that they have not used SFIs before, to rank potential reasons for not using SFIs, and companies that have used SFIs or are currently underway to use a SFI, to rank potential reasons for using SFIs, employing a display logic.

Barriers to SFI use

Firstly, looking at the ranking of reasons why companies have not used a SFI so far, but have considered using a SFI, we find that there

is no difference among the various company size groups, as seen in Appendix A, Table 15. Ranked as the most influential reason is an insufficient SFI knowledge, followed by insufficient sustainability data, additional costs of implementing a SFI and the potential negative public reaction, for instance in the form of greenwashing accusations. However, medium-sized and large medium-sized companies state no financing needs as an additional reason for not using SFIs and large medium-sized companies additionally state low promotional loans, regulatory uncertainty, insufficient consultation and limited financing offers as further barriers.

Looking at companies which have not used SFIs and also have not considered using a SFI so far, the results also show no difference between the company size groups, as seen in Appendix A, Table 15. Moreover, the ranking order is the same as for companies which have considered using a SFI. Medium-sized, large medium-sized and large companies mention no financing needs as an additional reason for not using SFIs, large medium-sized companies additionally mention the lack of identified potential projects and multinational companies mention insufficient incentives. Overall, the results do not indicate a difference regarding potential barriers to SFI use among the four company size groups. For all company size groups, an insufficient knowledge about SFIs and insufficient sustainability data are ranked as the most prominent barriers to SFI use.

Motivations to use SFIs

In contrast, we do find differing patterns for motivation among those companies that have used SFIs. Whilst large medium-sized and large companies rank a potential pricing advantage compared to conventional financing as the most influential reason to use SFIs, multinational companies rank communication of their sustainability strategy to investors and customers as the most influential factor (see Appendix A, Table 15). Moreover, large medium-sized and multinational companies rank the recommendation of SFIs through their financing partner as

a more influential factor than using SFIs because their competition is using SFIs as well. Both company size groups additionally mention the alignment of SFI use with the overall company strategy as an influential factor, as well as attracting a broader investor base, which is mentioned by large companies. The analysis does not include small medium-sized companies, as there were no respondents that have used a SFI so far. Overall, the results show a small difference in motivational factors to use SFIs amongst the four company size groups. For all company size groups, a potential pricing advantage and the opportunity to communicate their sustainability strategy are ranked as the most prominent motivational reasons to use SFIs.

2.6 Individual Sustainable Finance Support

Having gained a more profound understanding of companies' individual sustainable finance needs, as well as the individual barriers to SFI use, the study proceeds by using these insights to evaluate the role of banks in providing a fitting form of support. As explained in section 2, banks play a crucial role in the successful use and implementation of sustainable finance (instruments). However, as demonstrated in the previous sections, companies vary greatly in their sustainable finance needs and behavior. Consequently, this section analyzes whether banks are currently already fulfilling their role in providing effective and tailored support to their corporate customers in regard to sustainable finance, as well as potential improvements. Moreover, promotional loan programs are discussed as an additional approach to support companies in their sustainability transition.

2.6.1 The Desired Role of Banks in Providing Sustainable Finance Support

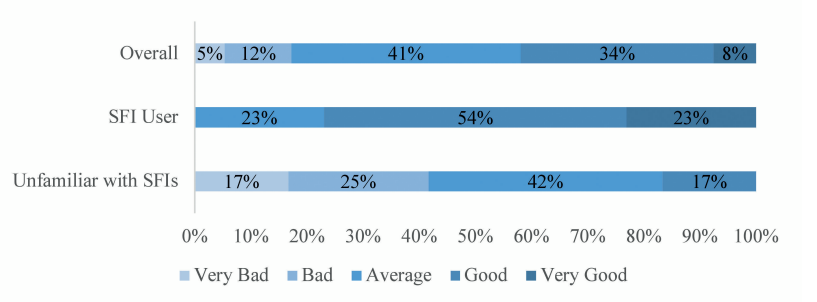
In order to evaluate whether banks are currently providing an effective and satisfactory level of support, the survey asked respondents to evaluate their banks' and financing partners' support regarding sustainability

and whether they have ever suggested using a SFI. Furthermore, taking the point of view of the corporate customers themselves, the survey asked whether the respondents believe that their banks and financing partners can provide support regarding the company's sustainability transition and what form of support they would like to receive.

2.6.1.1 Bank Sustainability Support Rating

Firstly, banks' sustainable finance support quality is analyzed, as a good consultation regarding sustainable finance is crucial in regard to an effective use of SFIs. Only if companies understand the regulatory requirements that they have to adhere to, as well as the opportunities that sustainable finance can offer, will it enable them to effectively use SFIs for a successful sustainability transition. As seen in Figure 21, the majority of companies rate their banks' sustainability support as average (41 %) or good (34 %), but 12 % rate the support as bad and 5 % even as very bad. However, companies might be influenced in their rating by their SFI use and knowledge. Indeed, companies that have used SFIs rate their banks' sustainability support significantly better, with the majority giving a rating of good (54 %) and none giving a rating of very bad or bad. This relation is supported by the logistic regression results, which show that the odds of a company, which rates their bank's support as very good, being a SFI user are more than 8 times higher than the baseline of an average support rating (see Appendix A, Table 18). The positive association is significant at the 5 % level.

Figure 21. Rating of Banks' Sustainable Finance Support



Source: This figure presents the companies' bank support ratings of the overall sample, of only companies that used SFIs and of only companies that were unfamiliar with SFIs before the survey, based on the survey data reported in Appendix A, Table 16.

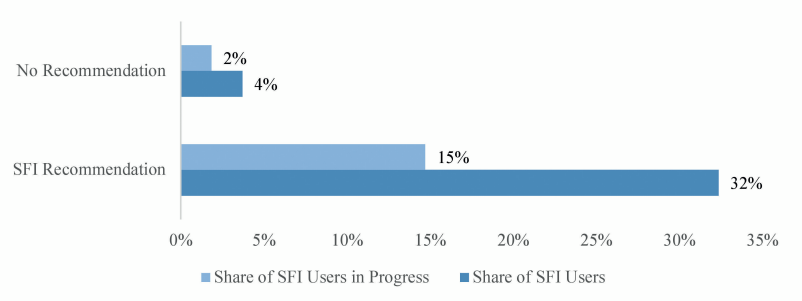
Furthermore, looking only at companies' ratings that were unfamiliar with SFIs, the opposite effect can be observed. The share of companies that rate their banks' sustainability support as very bad or bad increases to 17 % and 25 % respectively. Based on the survey results it is not possible to evaluate whether companies' rated their banks' support on their past experience, for example as good because they successfully implemented a SFIs, or whether banks' support affected companies' SFI behavior, for instance in the form of a bad bank support leading to companies' being unfamiliar with SFIs. Nevertheless, these results indicate that a significant relation between banks' sustainability support and SFI use, as well as SFI knowledge, exists, and that banks generally still have room to improve their sustainability support.

2.6.1.2 Bank SFI Recommendation

Apart from a good level of support, banks also have the opportunity to actively suggest the use of sustainable finance structures to their corporate customers. This indicates a more precise sustainable finance consultation that goes beyond the general sustainability support in terms of sustainability awareness and regulations, and could subsequently be expected to lead to a higher use of SFIs. Indeed, the survey results

indicate an increasing SFI use alongside a bank's sustainable finance suggestion. In fact, as seen in Figure 22, 32 % of companies that have been recommended SFI use also report that they have used a SFI, compared to only 4 % of companies that have not been recommended SFI use.

Figure 22. Sustainable Finance Instrument Use by Banks' SFI Recommendation



Source: This figure presents the share of SFI users and SFI users in progress based on whether companies have been recommended to use SFIs by their banks, based on the survey data reported in Appendix A, Table 16.

This is confirmed by the logistic regression results, which demonstrate higher odds for companies to be a SFI user, if their bank has recommended SFI use, statistically significant at the 1 % level (see Appendix A, Table 18). Furthermore, the share of companies that are currently implementing a SFIs is also significantly higher for companies that have been recommended SFI use (15 %), compared to companies that have not been recommended SFI use (2 %).

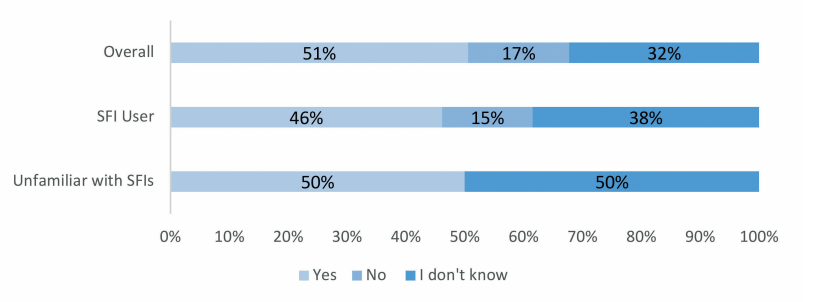
It should be noted that, as the timing of the SFI suggestion cannot be retrieved from the survey data, one cannot draw any conclusions on how close to the suggestion the SFI use was and whether this was indeed a significant driver to use SFIs. Instead, it should be interpreted as a more advanced sustainable finance consultation, as the suggestion of a sustainable finance structure entails a detailed explanation of the process, costs and opportunities. This is supported by the fact that having been recommended the use of SFIs reduces the share of com-

panies that were unfamiliar with SFIs before the survey from 22 % to, as to be expected, zero (see Appendix A, Table 16). Therefore, it can be concluded that a more advanced SF consultation in the form of a SFI recommendation can increase SFI knowledge and likely also can increase companies' SFI use.

2.6.1.3 Bank's Role in Sustainability Transformation

Providing a good level of support regarding the use of SFIs is not sufficient, if the target group of corporate customers does not accept and use this support. Consequently, the survey asked respondents whether they believe that banks and financing partners can support them in their sustainability transition. Figure 23 shows that only a slight majority (51 %) thinks that their banks can support them in their sustainability transition and that a high share (32 %) is uncertain.

Figure 23. Banks' Support Potential



Source: This figure presents companies' evaluation of banks' potential to support them in their sustainability transition for the whole sample, for only SFI users and for only companies that were unfamiliar with SFIs before the survey, based on the survey data reported in Appendix A, Table 16.

Interestingly, the distribution does not change for companies that have used a SFI before, with a remaining high share (38 %) of uncertainty. For companies that were unfamiliar with SFIs before the survey, the share of companies that is uncertain about their banks' role even

increases to 50 %, as seen in Figure 23. The uncertainty amongst all respondents suggests that companies do not have a clear understanding of their bank's role in regard to their sustainability transformation, but that the majority believes that there is a potential that could be used.

In order to gain a deeper understanding of companies' expectations regarding their banks' potential support, the survey included open questions asking respondents to state what form of support they would like to receive from their respective banks and financing partners. The qualitative answers were analyzed using thematic content analysis as described in section 3.2, specifying main thematic categories, inductively developing subcategories and coding all answers accordingly. The final categorical system of expectations, as seen in Appendix A, Table 17, is evaluated as follows.

Of the 47 companies which believe that their bank or financing partner can support them in their sustainability transition, 24 stated that they would like to receive consultation and 17 stated that they would like to receive information. Regarding consultation, the mentioned aspects are KPI choice, reporting, rating optimization, and promotional loans, as seen in Appendix A, Table 17. Furthermore, the information that companies would like to receive beyond general information can be divided into three areas, namely sustainable finance market, sustainable finance mechanism and sustainable finance use. Firstly, the information that companies would like to receive regarding the sustainable finance market includes a market overview and an insight into the expectations of banks and capital market participants, as seen in Appendix A, Table 17. Secondly, information on the sustainable finance mechanisms entails information on the impact of sustainability on a company's rating and financing, financing conditions and comparisons to conventional finance instruments. Finally, companies would like to receive information regarding sustainable finance use, particularly best practice examples and use cases built on experience with previous corporate customers.

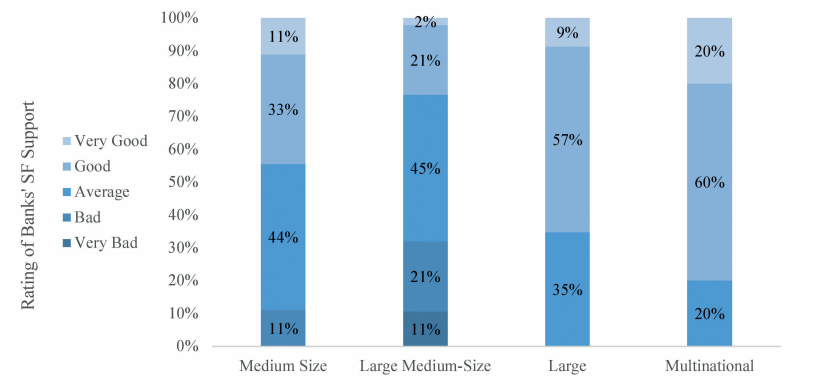
Additionally, six companies stated their expectations regarding their bank's role and three companies shared their preferred modes of infor-

mation. Regarding the bank's role, companies view their bank as a sparring partner and would like to see a clear commitment from their bank to sustainable finance, for instance through corresponding strategic asset allocations, as well as to receive concrete sustainable finance offers. Furthermore, the mentioned modes of information are personal talks, questionnaires, presentations, workshops and events around the topic of sustainable finance, as seen in Appendix A, Table 17.

2.6.2 Variation in Sustainable Finance Support Based On Company Size

Taking a closer look at banks' sustainable finance support for different company size groups in Figure 24, the survey results show that smaller companies on average rate their banks' financing support as lower than larger companies. This is supported by the correlation analysis results, which indicate an, at the 1 % level statistically significant, association between company size and bank financing support rating (see Appendix A, Table 20).

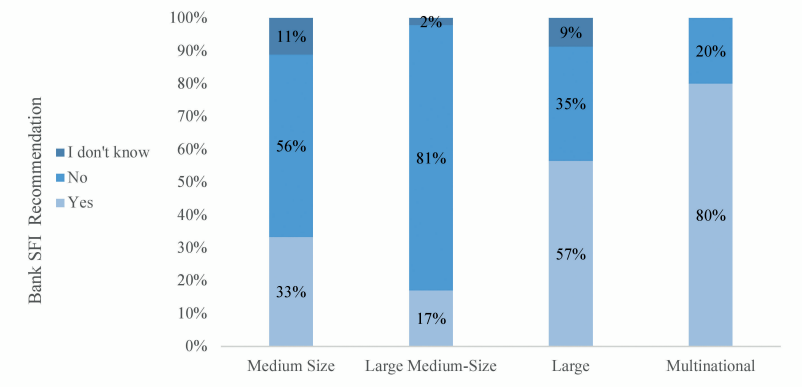
Figure 24. Rating of Banks' Sustainable Finance Support by Company Size Groups



Source: This figure presents companies' bank support ratings by company size groups, based on the survey data reported in Appendix A, Table 16.

Nevertheless, the survey results also indicate that, even though smaller companies rate their banks' support lower than larger companies, they still believe that their banks and financing partners can provide the necessary support (see Appendix A, Table 16). However, medium-sized and large medium-sized companies also have a large share, 44 % and 34 % respectively, that is unsure about the role of their bank in supporting their sustainability transition (see Appendix A, Table 16). Moreover, as seen in Figure 25, the survey results show that a large share of medium-sized and large medium-sized companies state that their banks so far have never proposed the use of sustainable finance instruments. This could be due to smaller financing needs, but in combination with the lower sustainable finance knowledge and use among smaller companies, as pointed out in section 5.1.7, also demonstrates the need for an improved sustainable finance and sustainability disclosure regulation education.

Figure 25. Bank SFI Recommendation by Company Size Groups



Source: This figure presents banks' SFI use recommendation by company size groups, based on the survey data reported in Appendix A, Table 16.

Overall, these observations indicate that the current level of sustainable finance support differs significantly with company size. Whilst section 6.1 discussed companies' desired role for banks in supporting them in their sustainability transition, this section demonstrates that

medium-sized and large medium-sized companies experience a different sustainable finance support, both in terms of perceived quality and measurable SFI recommendations, compared to large and multinational companies. This suggests that banks should improve their sustainable finance support particularly for smaller companies, which is further discussed in section 7.

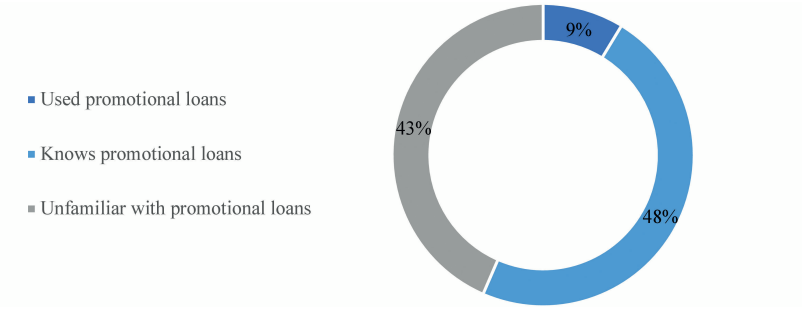
2.6.3 The Role of Promotional Loans

In order to further support companies' sustainability transition, alternative financing instruments such as promotional loans and grants are being offered through public financial institutions like the European Investment Bank (EIB, 2023) and Kreditanstalt für Wiederaufbau (KFW, 2023). The primary objective of these programs is to strengthen companies' investments into climate protection and resource efficiency by lowering financial barriers for companies to establish and implement their transition strategy. Potential financing instruments can be promotional loans, which have a lower interest rate than a conventional bank loan, partial risk coverage or include a repayment grant.

These alternative instruments can offer a great opportunity particularly to smaller and medium-sized companies. Acquiring a carbon footprint and developing a transition strategy are cost-intensive measures, which are relatively more expensive for smaller companies than larger companies. Consequently, some promotional loan and grant programs are especially targeted towards smaller and medium-sized companies. For instance, the Federal Ministry of Economic Affairs and Climate Action (BMWK, 2023) has established an energy efficiency grant program that among other things includes a transformation grant for smaller and medium-sized companies to finance the assessment and certification of their carbon footprint, as well as the commissioning of a professional energy efficiency consultant. Additionally, the program contains the option to apply for a promotional loan at the public financial institution KFW to strengthen investments into improved electricity and heat efficiency (BMWK, 2023).

As promotional loan programs provide an important financial support for companies to finance their sustainability transition, the survey asked respondents whether they are familiar with or have used any promotional loan programs, as well as whether they would be interested in these programs. As seen in Figure 26, the results show that whilst 48 % of respondents know promotional loan programs connected to sustainable finance, only 9 % have used such a promotional loan. Moreover, 43 % are not familiar with sustainable finance promotional loans yet.

Figure 26. Promotional Loan Interest and Use



Source: This figure presents companies' promotional loan interest, knowledge and use, based on the survey data reported in Appendix A, Table 16.

Regarding promotional loan use among company size groups, a pronounced difference can be found for medium-sized companies, as no company with a revenue of €10 to €49 million has used a promotional loan compared to on average 10 % for all other company size groups (see Appendix A, Table 16). Moreover, medium-sized companies also have the highest share (55.6 %) of companies that are unfamiliar with sustainable finance promotional loans.

Even though a significant number of companies is not familiar with sustainable finance related promotional loan programs, the majority of respondents are interested in using these programs. This holds true among all company size groups, even though multinational companies demonstrate a comparatively high share (20 %) of companies that state they are not interested in sustainable finance promotional loans (see

Appendix A, Table 16). This is in line with a study by KFW (2022), which shows that SMEs use a higher share of promotional loans (20 %) to finance their sustainability transition compared to large companies (4 %). Consequently, promotional loan programs are an important lever to advance SMEs' sustainability transition, which is supported by the findings that insufficient financial resources are one of the biggest barriers for sustainable investments by SMEs (KFW, 2022).

Additionally, promotional loan programs can also provide the opportunity to connect traditional promotional loans with the elicitation of sustainability criteria. For instance, the L-Bank (2022), a public financial institution, offers an interest rate reduction for their innovation and growth promotional loan, if the company can prove the assessment of their carbon emissions and even a further reduction if the company has additionally defined carbon emission reduction goals and established a plan to achieve these. The program particularly targets smaller companies which have not assessed their carbon footprint yet and provides companies with a tool and personal support to assess their carbon emissions to receive the promotional loan interest rate reduction (L-Bank, 2022). Consequently, banks and public financial institutions can work together to increase the use and application of sustainability-related promotional loan programs, as well as to incentivize companies to collect the desired sustainability measures. This would not only lower companies' financial barrier to finance their sustainability transformation, but could also improve the sustainability data assessment and exchange, particularly between smaller companies and their banking partners.

2.7 Discussion

The aim of this paper is to identify companies' individual sustainable finance interests and needs, and to subsequently develop recommendations on how banks can provide better and tailored sustainable finance (instrument) support to their corporate customers, to thereby foster sustainability transition investments.

The survey results show that SFI use can be strengthened by improving sustainable finance support, with 41 % of companies rating their bank's support as average, 12 % as bad and 5 % even as very bad. Nevertheless, companies predominantly believe that banks can support them in their sustainable finance use and have clear expectations for their banks as a sparring partner, who provides consultation and information on sustainable finance and SFIs. So how can banks provide better and tailored support based on the research findings?

2.7.1 Improve Sustainable Finance Awareness and Knowledge

Firstly, banks can improve companies' awareness and knowledge regarding the sustainable finance market and sustainable finance instruments. The survey results show that 13 % of respondents were unfamiliar with SFIs prior to the survey and that 10 % were even unfamiliar with the term ESG. In order to efficiently use SFIs, companies need to understand how sustainability transparency regulations can impact their financing access and conditions, as well as how sustainable finance and SFIs work.

Whilst the survey results indicate a higher share of SFI users for companies that perceive a strong regulatory pressure, only a slightly higher share of SFI users is found for companies that perceive a strong transformation risk. Moreover, the majority of companies perceive an average or low risk to lose their financing access and even though the majority perceives a link between a company's sustainability performance and financing conditions to be likely or very likely, they do not demonstrate a higher SFI use. These results indicate that whilst companies do experience regulatory and transformative pressure,

1. they are not sufficiently aware how this can impact their financing access and conditions, and
2. they do not have sufficient knowledge on sustainable finance and how sustainable finance instruments work.

This is supported by the fact that companies ask their banks to provide information on the sustainable finance market, particularly on market expectations and a market overview, as well as on sustainable finance mechanisms. They want to understand what their financing partners require from them in terms of sustainability performance, as well as measures, and how this can affect their financing offers.

2.7.2 Simplify the Implementation and Communicate Expectations

Secondly, banks can provide more extensive support regarding the implementation of a SFI. Among the most often stated barriers to SFI use are the choice of sustainability targets, lack of sustainability data, implementation costs and bureaucracy. By providing corporate customers with clear-cut best practice examples as well as concise expectations and recommendations regarding their sustainability measures, the process of using a SFI could become simpler and more standardized.

Moreover, the survey results show that 56 % of companies already have a carbon footprint and that 23 % even have an ESG rating. Both are important sustainability measures and can be used as a foundation for a SFI. However, in the long run, all companies will be required to provide sustainability measures as part of mandatory sustainability disclosure regulations, their supply chain or their financing. Consequently, banks can prepare and support their corporate customers by explaining the need for sustainability performance measures, formulating clear expectations on what sustainability measures are required for future financing offers and by providing, for instance, industry examples. This is in line with the demand of companies for more information on SFI use and hands-on use cases. Furthermore, the survey results show that proactively suggesting a sustainable finance structure to companies can also likely increase SFI use.

2.7.3 Provide Tailored Sustainable Finance Support

Thirdly, banks need to tailor their sustainable finance information and support to their customer groups. The survey results show that smaller companies, in the case at hand medium-sized and large medium-sized companies, perceive lower regulatory pressure and transformation risk, as well as a lower likelihood to lose finance access and that the sustainability performance will be linked to their credit conditions. This indicates that smaller companies have a lower awareness and knowledge regarding the impact of sustainability disclosure regulations on a company's financing conditions and access, as well as the mechanisms of sustainable finance. This is supported by the fact that 44 % of medium-sized companies are not aware of the term ESG and that 11 % were unfamiliar with SFIs prior to the survey. For large medium-sized companies even 21 % were unfamiliar with SFIs prior to the survey. Furthermore, they particularly perceive the applicability of SFIs as a barrier, as well as insufficient consulting and low promotional loan funds.

Consequently, banks might need to provide a more fundamental consultation to smaller companies. As sustainability disclosure regulations predominantly do not apply to these companies yet, it is important to explain how sustainability measures, such as a carbon footprint, which only 22 % of medium-sized companies have, can still be required for financing offers or can be demanded by larger companies as part of their supply chain. It is particularly crucial, that clear expectations regarding the necessary sustainability measures are formulated and that the required measures are kept simple to minimize costs. For example, a complex ESG rating might not be necessary for a smaller company, but can be very cost-intensive to acquire. Finally, sustainable finance literature has been focused a lot on bonds as a SFI, but schuldscheindarlehen and loans also allow for a sustainable finance structure, which should be highlighted particularly to smaller companies.

2.8 Conclusion

In order to assess companies' individual sustainable finance interests and needs, and to subsequently develop recommendations for an improved and tailored sustainable finance support, this study conducted an online survey with 700 invited corporate customers of DZ BANK AG. Based on the recorded 93 answers, the study finds that SFI use significantly varies between the four defined company size groups. In fact, the survey results show a larger SFI use for large and multinational companies, as well as for companies that are active in capital markets.

In regard to identified and analyzed push and pull factors, as well as potential barriers in the sustainable finance market, the study finds a variation for both, SFI use and between company sizes. The share of companies that use SFIs increases with a higher perceived regulatory pressure and increases very slightly with a higher perceived transformation risk. Furthermore, smaller companies on average perceive regulatory pressure and transformation risk to be lower and demonstrate a lower level of sustainability awareness, sustainability action and sustainability knowledge than larger companies. Among the most often stated barriers to SFI use are the achievement of sustainability targets, lack of sustainability data, higher implementation costs, bureaucracy and choice of sustainability targets. The majority of respondents think that their bank can provide valuable support to overcome these barriers and view their bank as a sparring partner that provides information and consultation on sustainable finance. Furthermore, the results indicate that a bank's higher quality of sustainable finance support and actively suggesting the use of SFIs can potentially increase SFI use among all company size groups. Finally, promotional loan programs can function as an additional support to increase investments in companies' sustainability transition.

Based on these results, the study formulates three recommendations on how banks can improve their sustainable finance support to strengthen SFI use. Firstly, the study demonstrates that companies which are not using SFIs yet tend to be insufficiently aware of how regulatory requirements and an increase in sustainability transparency

can potentially impact their financing access and conditions. Moreover, they tend to have insufficient knowledge regarding sustainable finance and on how sustainable finance instruments work. Consequently, banks can improve their corporate customers' sustainable finance awareness and knowledge. Secondly, companies view bureaucracy and high implementation costs as some of the biggest barriers to SFI use and are asking for best-practice examples, which suggests that banks can support their corporate customers' SFI use by simplifying the implementation and by communicating their expectations particularly regarding necessary sustainability measures clearly. Thirdly, the study results confirm that smaller companies have different sustainable finance interests and needs than larger companies. Therefore, banks should tailor their sustainable finance support, especially for smaller companies, but more generally by understanding and catering to companies' individual levels of sustainable finance awareness and knowledge.

This study analyzes companies' individual sustainable finance interests and needs using a mixed method approach to gain a deeper understanding of the detected relations. Regarding limitations, the results in respect to potential push and pull factors, as well as barriers in the sustainable finance market, cannot be interpreted as causal relations. Furthermore, a larger survey sample could allow for a better analysis of potential company sector differences, as in the case at hand the large variety of company sectors meant a lower number of respondents per sector. Moreover, further research could include respondents from various banks, including regional savings and cooperative banks, to better assess the difference in sustainable finance support between financial institutions, as well as it could elaborate how SMEs' general financing needs to achieve their sustainability transition differ compared to large companies.

Overall, the study's recommendations aim to increase SFI use and to thereby strengthen investments into companies' sustainability transitions. In regard to policy recommendations, the study results emphasize the importance of recognizing the difference in implications of sustainability regulations for SMEs compared to larger companies.

Therefore, regulatory requirements need to be adapted to SMEs and allow for simplified implementations to minimize costs and the administrative burden. Additionally, the study suggests how banks and public financial institutions could cooperate to increase the use and application of sustainability-related promotional loan programs, by simultaneously improving the sustainability data exchange between SMEs and their financing partners.

References

Berrada, T., Engelhardt, L., Gibson, R., & Krueger, P. (2022). The economics of sustainability linked bonds. *Swiss Finance Institute Research Paper No. 22–26*. https://dx.doi.org/10.2139/ssrn.4059299

Bogmans, C., Pescatori, A., & Prifti, E. (2023). The impact of climate policy on oil and gas investment: evidence from firm-level data. *International Monetary Fund Working Paper No. 2023/140*. https://dx.doi.org/10.5089/9798400247736.001

Buchner, B., Naran, B., Padmanabhi, R., Stout, S., Strinati, C., Wignarajah, D., Miao, G., Connolly, J., & Marini, N. (2023). *Global landscape of climate finance 2023.* Climate Policy Initiative. https://www.climatepolicyinitiative.org/wp-content/uploads/2023/11/Global-Landscape-of-Climate-Finance-2023.pdf

Bundesverband mittelständische Wirtschaft. (2023). *Der Mittelstand ist Garant für Stabilität und Fortschritt.* Retrieved November 21, 2023, from https://www.bvmw.de/de/der-verband/über-uns/zahlen-fakten

Climate Bonds Initiative. (2022). *Green bond pricing in the primary market: H1 2022.* https://www.climatebonds.net/files/reports/cbi_pricing_h1_2022_02g.pdf

Climate Bonds Initiative. (2023). *Green bond pricing in the primary market: H2 2022.* https://www.climatebonds.net/files/reports/cbi_pricing_h2_2022_01c.pdf

Coleton, A., Font Brucart, M., Gutierrez, P., Le Tennier, F., & Moor, C. (2020). Sustainable finance: market practices. *European Banking Authority Research Paper*, (6). https://dx.doi.org/10.2139/ssrn.3749454

Creswell, J. D., & Creswell, J. W. (2018). *Research design. qualitative, quantitative, and mixed methods approaches* (fifth edition). SAGE.

Deschryver, P., & De Mariz, F. (2020). What future for the green bond market? How can policymakers, companies, and investors unlock the potential of the green bond market?. *Journal of Risk and Financial Management, 13(3),* 61. https://doi.org/10.3390/jrfm13030061

Deutsche Bank. (2022). *Green Asset Ratio: die Nachhaltigkeits-Kennziffer für Banken.* Retrieved November 21, 2023, from https://www.deutsche-bank.de/ms/results-finanzwissen-fuer-unternehmen/zahlungsverkehr/09-2022-green-asset-ratio-die-nachhaltigkeits-kennziffer-fuer-banken.html

DZ BANK. (2023a). *First half of 2023: DZ BANK Group reports a profit before taxes of €1.95 billion.* Retrieved November 21, 2023 from https://www.dzbank.com/content/dzbank/en/home/we-are-dz-bank/press/news_archive/2023/first-half-of-2023dzbankgroupreportsaprofitbeforetaxesof195billi.html

DZ BANK. (2023b). *Research-Publikation der DZ BANK AG 3. Sonderumfrage Nachhaltigkeit.* Retrieved November 21, 2023, from https://firmenkunden.dzbank.de/content/firmenkunden/de/homepage/research/sonderumfrage-nachhaltigkeit3.html

European Investment Bank. (2023). *How to get help for your climate project.* Retrieved November 21, 2023, from https://www.eib.org/en/about/priorities/climate-action/get-support/index.htm

European Central Bank. (2022). *2022 climate stress test.* https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.climate_stress_test_report.20220708~2e3cc0999f.en.pdf

European Commission. (2019). *Financing sustainable growth*. https://finance.ec.europa.eu/system/files/2020-01/200108-financing-sustainable-growth-factsheet_en.pdf

European Commission. (2020a). *Financing the green transition: The European Green Deal Investment Plan and the Just Transition Mechanism.* https://ec.europa.eu/commission/presscorner/detail/en/ip_20_17

European Commission. (2020b). *Renewed sustainable finance strategy and implementation of the action plan on financing sustainable growth*. https://finance.ec.europa.eu/publications/renewed-sustainable-finance-strategy-and-implementation-action-plan-financing-sustainable-growth_en

European Commission. (2023a). *Overview of sustainable finance*. Retrieved November 21, 2023, from https://finance.ec.europa.eu/sustainable-finance/overview-sustainable-finance_en

European Commission. (2023b). *Sustainability-related disclosure in the financial services sector.* Retrieved November 21, 2023, from https://finance.ec.europa.eu/sustainable-finance/disclosures/sustainability-related-disclosure-financial-services-sector_en

European Commission. (2023c). *Corporate sustainability reporting*. Retrieved November 21, 2023, from https://finance.ec.europa.eu/capital-markets-union-and-financial-markets/company-reporting-and-auditing/company-reporting/corporate-sustainability-reporting_en

Fakis, A., Hilliam, R., Stoneley, H., & Townend, M. (2014). Quantitative analysis of qualitative information from interviews: A systematic literature review. *Journal of Mixed Methods Research, 8(2),* 139–161. https://doi.org/10.1177/1558689813495111

Federal Ministry for Economic Affairs and Climate Action. (2023). *Energy consulting and funding for companies.* Retrieved November 21, 2023, from https://www.bmwk.de/Redaktion/EN/Artikel/Energy/energy-consulting-and-funding-for-companies.html

Federal Ministry of Labour and Social Affairs. (2023). *Gesetz über die unternehmerischen Sorgfaltspflichten in der Lieferkette.* Retrieved November 21, 2023, from https://www.bmas.de/DE/Service/Gesetze-und-Gesetzesvorhaben/Gesetz-Unternehmerische-Sorgfaltspflichten-Lieferketten/gesetz-unternehmerische-sorgfaltspflichten-lieferketten.html

Flammer, C. (2020). Green bonds: effectiveness and implications for public policy. *Environmental and Energy Policy and the Economy, 1(1),* 95–128. https://doi.org/10.1086/706794

Georgieva, K. & Adrian, T. (2022). *Public sector must play major role in catalyzing private climate finance.* International Monetary Fund. https://www.imf.org/en/Blogs/Articles/2022/08/18/public-sector-must-play-major-role-in-catalyzing-private-climate-finance

Gianfrate, G., & Peri, M. (2019). The green advantage: exploring the convenience of issuing green bonds. *Journal of cleaner production, (219),* 127–135. https://doi.org/10.1016/j.jclepro.2019.02.022

Greene, J. C., Caracelli, V. J., & Graham, W. F. (1989). Toward a conceptual framework for mixed-method evaluation designs. *Educational evaluation and policy analysis, 11(3*), 255–274. https://doi.org/10.3102/01623737011003255

Hinsche, I. C. (2021). A greenium for the Next Generation EU Green Bonds analysis of a potential green bond premium and its drivers. *Center for Financial Studies Working Paper,* (663). https://dx.doi.org/10.2139/ssrn.3965664

Hinsche, I. C., & Klump, R. (2023). Mirror, mirror on the wall, who is transitioning amongst them all?. *Center for Financial Studies Working Paper*, (712). https://dx.doi.org/10.2139/ssrn.4464312

Intergovernmental Panel on Climate Change. (2021). Summary for policymakers. In: *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. https://www.ipcc.ch/report/ar6/wg1/chapter/summary-for-policymakers/

International Capital Market Association. (2021). *Green Bond Principles.* https://www.icmagroup.org/assets/documents/Sustainable-finance/2022-updates/Green-Bond-Principles-June-2022-060623.pdf

International Capital Market Association. (2023). *Sustainability-Linked Bond Principles*. https://www.icmagroup.org/assets/documents/Sustainable-finance/2023-updates/Sustainability-Linked-Bond-Principles-June-2023-220623.pdf

Kapraun, J., Latino, C., Scheins, C., & Schlag, C. (2021). (In)-credibly green: which bonds trade at a green bond premium?. In *Proceedings of Paris December 2019 Finance Meeting EUROFIDAI-ESSEC*. https://dx.doi.org/10.2139/ssrn.3347337

Kölbel, J. F., & Lambillon, A. P. (2022). Who pays for sustainability? An analysis of sustainability-linked bonds. *Swiss Finance Institute Research Paper No. 23–07*. https://dx.doi.org/10.2139/ssrn.4007629

Kreditanstalt für Wiederaufbau. (2022). *KfW-Klimabarometer 2022.* KfW Research. https://www.kfw.de/PDF/Download-Center/Konzernthemen/Research/PDF-Dokumente-KfW-Klimabarometer/KfW-Klimabarometer-2022.pdf

Kreditanstalt für Wiederaufbau. (2023). *Förderprodukte für Energie und Umwelt.* Retrieved November 21, 2023, from https://www.kfw.de/inlandsfoerderung/Unternehmen/Energie-Umwelt/Förderprodukte/Förderprodukte-(S3).html

Kuckartz, U. (2014). *Mixed Methods: Methodologie, Forschungsdesigns und Analyseverfahren.* Springer-Verlag. https://doi.org/10.1007/978-3-531-93267-5

L-Bank. (2022). *Neues Förderprogramm ebnet Südwest-Unternehmen den Weg in eine nachhaltigere Wirtschaft: Nachhaltigkeitsbonus startet am 1. Juli.* Retrieved November 21, 2023 from https://www.l-bank.info/fuer-die-presse/presseinformationen/2022/pi2022_44_nachhaltigkeitsbonus.html

LBBW. (2022). *Ergebnisse Mittelstandsradar.* https://www.lbbw.de/konzern/research/2022/mittelstandsradar/lbbw-mittelstandsradar-2022_aezn797ua5_m.pdf

Maltais, A., & Nykvist, B. (2020). Understanding the role of green bonds in advancing sustainability. *Journal of Sustainable Finance & Investment,* 1–20. https://doi.org/10.1080/20430795.2020.1724864

Morgan, D. L. (2014). *Integrating qualitative and quantitative methods: A pragmatic approach.* SAGE. https://doi.org/10.4135/9781544304533

MSCI. (2023). *The global industry classification standard (GICS).* Retrieved November 21, 2023 from https://www.msci.com/our-solutions/indexes/gics

Partridge, C., & Medda, F. R. (2020). The evolution of pricing performance of green municipal bonds. *Journal of Sustainable Finance & Investment, 10(1),* 44–64. https://doi.org/10.1080/20430795.2019.1661187

PwC. (2022). *The growth opportunity of the century.* Retrieved November 21, 2023, from https://www.pwc.lu/en/sustainable-finance/esg-report-the-growth-opportunity-of-the-century.html

Stackpole, B. (2021). *Why sustainable business needs better ESG ratings.* Massachusetts Institute of Technology. Retrieved November 21, 2023, from https://mitsloan.mit.edu/ideas-made-to-matter/why-sustainable-business-needs-better-esg-ratings

Tang, D. Y., & Zhang, Y. (2020). Do shareholders benefit from green bonds?. *Journal of Corporate Finance, 61*, 101427. https://dx.doi.org/10.2139/ssrn.3259555

United Nations Principles of Responsible Investment. (2020). *Introductory guides to responsible investment – screening.* Retrieved November 21, 2023, from https://www.unpri.org/introductory-guides-to-responsible-investment/an-introduction-to-responsible-investment-screening/5834.article

United Nations Principles of Responsible Investment. (2023). *ESG in credit ratings and ESG ratings.* Retrieved November 21, 2023, from https://www.unpri.org/credit-risk-and-ratings/esg-in-credit-ratings-and-esg-ratings/11071.article#:~:text=ESG%20ratings%20are%20typically%20produced,address%20the%20needs%20of%20shareholders

Walther, U. (2023). *Climate stress tests: are banks fit for the green transition?.* Deutsche Bank Research. https://www.dbresearch.com/PROD/RPS_EN-PROD/PROD0000000000526206/Climate_stress_tests%3A_Are_banks_fit_for_the_green_.PDF?undefined&realload=OpesygUtqtzxvMXKvNDVo9yjgsFjYIVfbufAWIgtjioHB6L3/fB2U1mmG9haip1m

Zerbib, O. D. (2019). The effect of pro-environmental preferences on bond prices: evidence from green bonds. *Journal of Banking & Finance, (98),* 39–60. https://doi.org/10.1016/j.jbankfin.2018.10.012

Appendix A: Tables

Table 3. Summary Statistics – Respondents' Additional Information

	Observations	Percent of Data
Numer of Companies	93	100 %
Company Department		
Finance	86	94.5 %
Other Deparment	5	5.5 %
Gender		
Male	80	87.9 %
Female	9	9.9 %
Diverse	1	1.1 %
No Answer	1	1.1 %
Age Group		
20 to 29 years	2	2.2 %
30 to 39 years	21	23.1 %
40 to 49 years	28	30.8 %
50 to 59 years	28	30.8 %
60 years or older	12	13.2 %
Study / Work Experience in Sustainability		
Yes, study and work experience in sustainability	8	8.8 %
Yes, work experience in sustainability	27	29.7 %
No, neiter study nor work experience in sustainability	48	52.7 %
No Answer	8	8.8 %

Source: This table presents additional information regarding the 93 survey respondents, based on survey questions 26, 27, 28 and 29. Differences in the number of observations are due to the fact that the response was voluntary and not all survey participants answered these questions.

Table 4. Correlation Analysis Results SFI Use

	SFI Use		
	Fisher's Exact P-Value	Significance	Cramér's V
Company Size	.000	***	.5456
Capital Market Activity	.013	**	-.2712
Company Sector	.782		.2346
Regulatory Pressure	.697		.1425
Transformation Risk	.969		.0662
Financing Access	.067	*	.2789
Financing Link	.307		.2054
Carbon Footprint	.204		.1774
ESG Rating	.001	***	.4545
CLST	.168		.1979
STCS	.138		.2156
Barriers	.549		.0828

Source: Fisher's exact test and Cramér's V calculation run in Stata using the data from Table 6 and Table 8. The number of observations for company size groups is 89, for capital market activity groups 92 and for company sector groups 75, as recorded "no answer" options were excluded. Note: "CLST" denotes company level sustainability targets. "STCS" denotes sustainability target commitment scheme. Significance levels are denoted as follows: *** p<.01, ** p<.05, * p<.1.

Table 5. Logistic Regression Analysis Results – Company Groups

Logistic Regression: SFIUse – Company Size

SFIUser	Odds Ratio	Robust Std. Err.	z	P >| z|	95 % Confidence Interval		Significance/ Comment
Medium-Sized	1	.	.	.	.	.	PFP
Large Medium-Sized	1	.	.	.	.	.	Baseline
Large	12.778	14.532	2.24	.025	1.375	118.721	**
Multinationals	69	83.276	3.51	0	6.479	734.792	***
Constant	.022	.022	-3.76	0	.003	.16	***
Number of obs	*=*	*80*			*Log pseudol.*	*=*	*-23.612035*
Wald chi2(2)	*=*	*12.69*			*Pseudo R2*	*=*	*.3018*
Prob > chi2	*=*	*.0018*					

Logistic Regression: SFIUse – Capital Market Activity

SFIUser	Odds Ratio	Robust Std. Err.	z	P >| z|	95 % Confidence Interval		Significance/ Comment
Capital Market Active	4.86	3.166	2.43	.015	1.356	17.42	**
Not Capital Market A.	1	.	.	.	.	.	Baseline
Constant	.074	.039	-5.00	0	.027	.206	***
Number of obs	*=*	*92*			*Log pseudol.*	*=*	*-34.20472*
Wald chi2(1)	*=*	*5.89*			*Pseudo R2*	*=*	*.0872*
Prob > chi2	*=*	*.0152*					

Logistic Regression: SFIUse – Company Sector

SFIUser	Odds Ratio	Robust Std. Err.	z	P >| z|	95 % Confidence Interval		Significance/ Comment
Communication S.	1	.	.	.	.	.	PFP
Consumer Disc.	2.476	2.514	0.89	.372	.339	18.112	
Consumer Staples	1.083	1.336	0.06	.948	.097	12.145	
Financials	2.889	3.802	0.81	.42	.219	38.108	
Health Care	2.889	3.802	0.81	.42	.219	38.108	
Industrials	1	.	.	.	.	.	Baseline
Information Tech.	1	.	.	.	.	.	PFP
Materials	1	.	.	.	.	.	PFP
Real Estate	1	.	.	.	.	.	PFP
Utilities	2.476	2.514	0.89	.372	.339	18.112	
Constant	.115	.071	-3.51	0	.035	.385	***
Number of obs	*=*	*64*			*Log pseudol.*	*=*	*-26.818114*
Wald chi2(5)	*=*	*1.77*			*Pseudo R2*	*=*	*.0331*
Prob > chi2	*=*	*.8801*					

Source: Logistic regression analysis with robust standard errors run in Stata using data from Table 6. The dependent variable is a binary variable for which 1 denotes SFI use and 0 no SFI use. The independent variables are the respective company groups. The notation "PFP" means "predicts failure perfectly" and indicates that the respective group level 100 % predicts no SFI use. Significance levels are denoted as follows: *** p<.01, ** p<.05, * p<.1.

Table 6. Sustainable Finance Instrument Use

	Implementation					Consideration		
	Yes	No	In Process	Unfamiliar with SFIs	I don't know	Yes	No	I don't know
All Companies	13	60	6	12	2	25	33	4
Company Size								
€10 million to €49 million	0	7	0	1	1	3	4	1
€50 million to €499 million	1	34	2	10	0	12	21	1
€500 million to €5 billion	5	14	4	0	0	6	7	1
Bigger than €5 billion	6	4	0	0	0	3	1	0
Company Capital Market Activity								
Active	9	22	1	1	1	11	11	1
Not Active	4	38	5	10	1	14	22	3
Company Sector								
Communication Services	0	0	1	0	0	0	0	0
Consumer Discretionary	2	5	0	2	0	1	4	0
Consumer Staples	1	7	0	0	1	2	5	1
Financials	1	2	0	0	1	2	0	1
Health Care	1	1	2	0	0	1	0	0
Industrials	3	17	2	7	0	5	12	0
Information Technology	0	0	1	1	0	0	0	0
Materials	0	5	0	2	0	1	4	0
Real Estate	0	1	0	0	0	1	0	0
Utilities	2	7	0	0	0	5	2	0

Source: This table presents the recorded data based on survey questions 1 and 3 by company groups. The difference in number of observations between SFI implementation and consideration is due to the fact that question 3 is a follow-up question for all respondents that answered question 1 with "No" or "I don't know", thus only recording 62 answers.

Table 7a. Logistic Regression Analysis Results – Push Factors

Logistic Regression: SFIUse – Regulatory Pressure

SFIUser	Odds Ratio	Robust Std. Err.	z	P >| z|	95 % Confidence Interval		Signifi-cance / Comment
Low	1	.	.	.	.	.	PFP
Average	1	.	.	.	.	.	Baseline
Strong	2.183	1.617	1.05	.292	.511	9.327	
Very Strong	1.812	1.593	0.68	.499	.324	10.147	
Constant	.103	.063	-3.72	0	.031	.342	***
Number of obs	*=*	*89*			*Log pseudol.*	*=*	*-36.396517*
Wald chi2(2)	*=*	*1.12*			*Pseudo R2*	*=*	*.0165*
Prob > chi2	*=*	*.5718*					

Logistic Regression: SFIUse – Transformation Risk

SFIUser	Odds Ratio	Robust Std. Err.	z	P >| z|	95 % Confidence Interval		Signifi-cance / Comment
Low	1	.	.	.	.	.	Baseline
Average	1.227	1.506	0.17	.867	.111	13.601	
Strong	1.75	1.992	0.49	.623	.188	16.291	
Very Strong	1.385	1.809	0.25	.803	.107	17.916	
Constant	.111	.118	-2.07	.038	.014	.887	**
Number of obs	*=*	*93*			*Log pseudol.*	*=*	*-37.417624*
Wald chi2(3)	*=*	*.40*			*Pseudo R2*	*=*	*.0055*
Prob > chi2	*=*	*.9405*					

Logistic Regression: SFIUse – Financing Access

SFIUser	Odds Ratio	Robust Std. Err.	z	P >| z|	95 % Confidence Interval		Signifi-cance / Comment
Very Low	1	.	.	.	.	.	Baseline
Low	1	.	.	.	.	.	PFP
Average	.517	.495	-0.69	.491	.079	3.373	
High	.694	.684	-0.37	.711	.101	4.788	
Very High	1	.	.	.	.	.	PFP
Constant	.4	.337	-1.09	.277	.077	2.088	
Number of obs	=	*65*			*Log pseudol.*	=	*-32.265419*
Wald chi2(2)	=	*.53*			*Pseudo R2*	=	*.0080*
Prob > chi2	=	*.7684*					

Logistic Regression: SFIUse – Financing Link

SFIUser	Odds Ratio	Robust Std. Err.	z	P >| z|	95 % Confidence Interval		Signifi-cance / Comment
Very Unlikely	1	.	.	.	.	.	Baseline
Unlikely	.286	.467	-0.77	.443	.012	7.034	
Average	.211	.303	-1.08	.279	.013	3.544	
Likely	.216	.29	-1.14	.253	.016	2.99	
Very Likely	.667	.891	-0.30	.762	.049	9.15	
Constant	.5	.616	-0.56	.574	.045	5.586	
Number of obs	=	*93*			*Log pseudol.*	=	*-35.882057*
Wald chi2(4)	=	*3.59*			*Pseudo R2*	=	*.0463*
Prob > chi2	=	*.4649*					

Source: Logistic regression analysis with robust standard errors run in Stata using data from Table 8. Further details see Table 5. Note: "PFP" = predicts failure perfectly. Significance levels: *** p<.01, ** p<.05, * p<.1.

Table 7b. Logistic Regression Analysis Results – Pull Factors

Logistic Regression: SFIUse – Carbon Footprint

SFIUser	Odds Ratio	Robust Std. Err.	z	P >|z|	95 % Confidence Interval		Significance/ Comment
Yes	3.69	3.005	1.60	.109	.748	18.209	
No	1	.	.	.	.	.	Baseline
I don't know	2.214	2.881	0.61	.541	.173	28.372	
Constant	.065	.047	-3.74	0	.015	.272	***
Number of obs	=	*93*			*Log pseudol.*	=	*-36.015712*
Wald chi2(2)	=	*2.63*			*Pseudo R2*	=	*.0428*
Prob > chi2	=	*.2689*					

Logistic Regression: SFIUse – ESG Rating

SFIUser	Odds Ratio	Robust Std. Err.	z	P >|z|	95 % Confidence Interval		Significance/ Comment
Yes	12.5	9.307	3.39	.001	2.905	53.788	***
No	1	.	.	.	.	.	Baseline
I don't know	1.852	2.254	0.51	.613	.17	20.131	
I don't know, unfamiliar	1	.	.	.	.	.	PFP
Constant	.06	.036	-4.70	0	.019	.194	***
Number of obs	=	*84*			*Log pseudol.*	=	*-29.120384*
Wald chi2(2)	=	*12.33*			*Pseudo R2*	=	*.1954*
Prob > chi2	=	*.0021*					

Logistic Regression: SFIUse – CLST

SFIUser	Odds Ratio	Robust Std. Err.	z	P >|z|	95 % Confidence Interval		Significance/ Comment
Yes	5.434	5.844	1.57	.116	.66	44.729	
No	1	.	.	.	.	.	Baseline
I don't know	1	.	.	.	.	.	PFP
Constant	.042	.043	-3.10	.002	.006	.311	***
Number of obs	=	*90*			*Log pseudol.*	=	*-35.289425*
Wald chi2(1)	=	*2.48*			*Pseudo R2*	=	*.0505*
Prob > chi2	=	*.1155*					

Logistic Regression: SFIUse – STCS

SFIUser	Odds Ratio	Robust Std. Err.	z	P >|z|	95 % Confidence Interval		Significance/ Comment
Yes	4.143	3.047	1.93	.053	.98	17.512	*
No	1	.	.	.	.	.	Baseline
I don't know	1.184	1.018	0.20	.845	.219	6.386	
Constant	.121	.049	-5.26	0	.055	.266	***
Number of obs	=	*93*			*Log pseudol.*	=	*-35.874599*
Wald chi2(2)	=	*3.83*			*Pseudo R2*	=	*.0465*
Prob > chi2	=	*.1473*					

Source: Logistic regression analysis with robust standard errors run in Stata using data from Table 8. Further details see Table 5. Note: "PFP" = predicts failure perfectly. Significance levels: *** p<.01, ** p<.05, * p<.1.

Table 8. SFI Use for the Seven Defined Push and Pull Factors

	SFI Implementation				
	Yes	No	In Process	Unfamiliar with SFIs	I don't know
Perceived Regulatory Pressure					
None	0	0	0	0	0
Low	0	4	0	0	0
Average	3	21	2	6	0
Strong	7	24	3	4	0
Very Strong	3	11	1	2	2
Perceived Transformation Risk					
None	0	0	0	0	0
Low	1	7	0	2	0
Average	3	14	3	4	1
Strong	7	29	2	5	0
Very Strong	2	10	1	1	1
Perceived Risk to Lose Financing Access					
Very Low	2	2	1	1	1
Low	0	17	2	5	0
Average	6	24	2	3	0
High	5	14	1	3	0
Very High	0	3	0	0	1
Perceived Likelihood that Sustainability Criteria & Credit Conditions will be linked					
Very Unlikely	1	2	0	0	0
Unlikely	1	5	0	1	1
Average	2	14	1	4	0
Likely	4	27	5	5	0
Very Likely	5	12	0	2	1
Company Carbon Footprint					
Yes	10	31	5	5	1
No	2	23	1	7	0
I don't know	1	6	0	0	1

	SFI Implementation				
	Yes	No	In Process	Unfamiliar with SFIs	I don't know
Company ESG Rating					
Yes	9	9	3	0	0
No	3	37	3	9	1
I don't know	1	7	0	2	0
I don't know, unfamiliar with ESG term	0	7	0	1	1
Company-Level Sustainability Targets					
Yes	12	40	5	8	0
No	1	19	1	4	0
I don't know	0	1	0	0	2
Sustainability Target Commitment Scheme					
Yes	4	6	1	1	0
No	7	43	5	10	0
I don't know	2	11	0	1	2

Source: This table presents the recorded answers regarding the push and pull factors from the survey questions 14, 15, 16, 17, 21, 22, 23 and 24, as well as the recorded SFI use for each push and pull factor.

Table 9. Correlation Analysis Results – Push and Pull Factors & Barriers

	Company Size		CMA		Company Sector	
	Fisher's Exact P-Value	Cramér's V	Fisher's Exact P-Vale	Cramér's V	Fisher's Exact P-Value	Cramér's V
Regulatory Pressure	.764	.1481	.555	.1662	.728	.3056
Transformation Risk	.175	.2144	.710	.1234	.157	.3929
Financing Access	.377	.1978	.832	.1199	.077*	.4323
Financing Link	.022**	.3345	.941	.0907	.768	.2986
Carbon Footprint	.007***	.2990	.237	.1710	.257	.4121
ESG Rating	.000***	.3960	.079*	.2685	.509	.3300
CLST	.062*	.2516	.511	.1237	.111	.4024
STCS	.165	.2408	.275	.1716	.435	.3383
Unfamiliar with ESG	.005***	.4159	.721	-.0511	.329	.3758
Unfamiliar with SFI	.040**	.3020	.049**	.2127	.357	.3571
Barriers	.555	.1507	.273	.1352	.775	.2714

*** p<.01, ** p<.05, * p<.1

Source: Fisher's exact test and Cramér's V calculations run in Stata using the data from Table 10, 11 and 12. The number of observations for company size groups is 89, for capital market activity groups 92 and for company sector groups 75, as recorded "no answer" options were excluded. Note: "CMA" denotes capital market activity, "CLST" denotes corporate level sustainability targets and "STCS" denotes sustainability target commitment scheme. Significance levels are denoted as follows: *** p<.01, ** p<.05, * p<.1.

Table 10. Push and Pull Factors by Company Size Group

	Company Size				
	Medium-Size	Large Medium-Size	Large	Multi-nationals	No Answer
Perceived Regulatory Pressure					
None	0	0	0	0	0
Low	1	2	1	0	0
Average	4	17	6	2	3
Strong	3	19	12	4	0
Very Strong	1	9	4	4	0
Perceived Transformation Risk					
None	0	0	0	0	0
Low	2	2	4	0	2
Average	3	12	6	4	0
Strong	4	27	7	4	1
Very Strong	0	6	6	2	0
Perceived Risk to Lose Financing Access					
Very Low	1	2	3	1	0
Low	4	11	6	2	1
Average	4	18	9	2	2
High	0	15	4	4	0
Very High	0	1	1	1	0
Perceived Likelihood that Sustainability Criteria & Credit Conditions will be Linked					
Very Unlikely	0	1	0	2	0
Unlikely	4	2	1	1	0
Average	3	9	5	1	3
Likely	2	25	11	3	0
Very Likely	0	10	6	3	0
Company Carbon Footprint					
Yes	2	25	14	10	0
No	5	20	6	0	2
I don't know	2	2	3	0	1

	Company Size				
	Medium-Size	Large Medium-Size	Large	Multi-nationals	No Answer
Company ESG Rating					
Yes	1	4	8	8	0
No	2	33	13	2	2
I don't know	2	5	2	0	1
I don't know, unfamiliar with ESG term	4	5	0	0	0
Company-Level Sustainability Targets					
Yes	5	28	20	9	3
No	3	18	3	1	0
I don't know	1	1	0	0	0
Sustainability Target Commitment Scheme					
Yes	1	4	2	4	1
No	7	37	15	5	1
I don't know	1	6	6	1	1

Source: This table presents the recorded answers regarding the push and pull factors from the survey questions 14, 15, 16, 17, 21, 22, 23 and 24 by company size groups.

Table 11. Push and Pull Factors By Company Capital Market Activity Group

	Company Capital Market Activity		
	Active	Not Active	I don't know
Perceived Regulatory Pressure			
None	0	0	0
Low	0	4	0
Average	13	19	0
Strong	14	23	1
Very Strong	7	12	0
Perceived Transformation Risk			
None	0	0	0
Low	3	7	0
Average	10	14	1
Strong	14	29	0
Very Strong	7	8	0
Perceived Risk to Lose Financing Access			
Very Low	3	4	0
Low	10	13	1
Average	11	24	0
High	8	15	0
Very High	2	2	0
Perceived Likelihood that Sustainability Criteria & Credit Conditions will be Linked			
Very Unlikely	1	2	0
Unlikely	4	4	0
Average	7	14	0
Likely	15	25	1
Very Likely	7	13	0
Company Carbon Footprint			
Yes	19	33	0
No	10	22	1
I don't know	19	33	0
Company ESG Rating			
Yes	12	9	0
No	14	39	0
I don't know	4	5	1
I don't know, unfamiliar with ESG term	4	5	0

	Company Capital Market Activity		
	Active	Not Active	I don't know
Company-Level Sustainability Targets			
Yes	24	40	1
No	8	17	0
I don't know	2	1	0
Sustainability Target Commitment Scheme			
Yes	9	3	0
No	21	44	0
I don't know	4	11	1

Source: This table presents the recorded answers regarding the push and pull factors from the survey questions 14, 15, 16, 17, 21, 22, 23 and 24 by capital market activity groups.

Table 12. Push and Pull Factors by Company Sector Group

	Perceived Regulatory Pressure					Perceived Transformation Risk				
Company Sector	None	Low	Aver-age	Strong	Very Strong	None	Low	Aver-age	Strong	Very Strong
Communi-cation S.	0	0	1	0	0	0	0	0	1	0
Consumer Discr.	0	0	5	3	1	0	1	2	5	1
Consumer Staples	0	1	2	3	3	0	1	0	5	3
Financials	0	0	2	1	1	0	2	1	1	0
Health Care	0	0	0	4	0	0	0	3	1	0
Industrials	0	2	9	11	7	0	3	7	16	3
Information Techn.	0	0	0	1	1	0	0	2	0	0
Materials	0	0	3	3	1	0	0	3	3	1
No Answer	0	1	4	8	5	0	2	7	6	3
Real Estate	0	0	1	0	0	0	0	0	1	0
Utilities	0	0	5	4	0	0	1	0	4	4

	Perceived Risk to Lose Financing Access					Perceived Likelihood of Linkage				
Company Sector	Very Low	Low	Aver-age	High	Very High	Very Un-likely	Unlikely	Aver-age	Like-ly	Very Likely
Communi-cation S.	0	1	0	0	0	0	0	0	1	0
Consumer Discr.	1	2	3	3	0	0	0	4	3	2
Consumer Staples	0	2	2	3	2	0	1	1	4	3
Financials	2	0	2	0	0	0	2	1	0	1
Health Care	2	0	2	0	0	0	0	2	2	0
Industrials	1	8	14	6	0	1	2	7	15	4
Information Techn.	0	2	0	0	0	0	1	0	1	0
Materials	0	3	1	3	0	0	1	2	2	2
No Answer	1	4	7	4	2	2	1	2	7	6
Real Estate	0	0	0	1	0	0	0	0	1	0
Utilities	0	2	4	3	0	0	0	2	5	2

Company Sector	Company Carbon Footprint			Company ESG Rating			
	Yes	No	I don't know	Yes	No	I don't know	Unfamiliar with ESG
Communication S.	0	1	0	0	1	0	0
Consumer Discr.	4	4	1	1	7	1	0
Consumer Staples	6	3	0	3	4	1	1
Financials	1	1	2	1	1	1	1
Health Care	4	0	0	2	2	0	0
Industrials	14	13	2	6	16	3	4
Information Techn.	2	0	0	1	1	0	0
Materials	5	2	0	2	2	0	3
No Answer	12	3	3	3	11	4	0
Real Estate	1	0	0	1	0	0	0
Utilities	3	6	0	1	8	0	0

Company Sector	Sustainability Targets			Commitment Scheme		
	Yes	No	I don't know	Yes	No	I don't know
Communication S.	0	1	0	0	1	0
Consumer Discr.	7	2	0	2	4	3
Consumer Staples	6	2	1	0	8	1
Financials	3	0	1	1	2	1
Health Care	4	0	0	1	3	0
Industrials	21	8	0	3	22	4
Information Techn.	1	1	0	1	1	0
Materials	4	3	0	0	6	1
No Answer	15	2	1	3	11	4
Real Estate	1	0	0	0	0	1
Utilities	3	6	0	1	7	1

Source: This table presents the recorded answers regarding the push and pull factors from the survey questions 14, 15, 16, 17, 21, 22, 23 and 24 by company sector groups.

Table 13. Barriers to SFI Use by SFI Implementation and Company Size Groups

	Implementation				
	Yes	No	Currenly in Process	Unfamiliar with SFIs	I don't know
Barriers					
Yes	4	27	3	4	0
No	9	33	3	8	2

	Company Size				
	Medium-Size	Large Medium-Size	Large	Multinational	No Answer
Barriers					
Yes	5	16	9	5	3
No	4	31	14	5	0
Stated Barriers					
Applicability	1	4	0	0	1
Company Requirements	0	6	4	2	2
Economic Efficiency	3	6	3	1	1
Implementation	1	2	3	3	0

Source: This table presents the recorded answers from survey question 2.

Table 14. Stated Perceived Barriers to SFI Use

Main Categories	Subcategories Level 1	Subcategories Level 2	Number of Observations
Applicability	Company Characteristics	*Company purpose*	1
		Financing structure	2
		Industry	1
	Financing Need	*Insufficient flexibility*	1
		Use Case	1
Company Requirements	Administrative Work	*Add. work capacities needed*	1
		General add. effort	7
		Reporting	4
	Knowledge	*Insufficient consulting*	1
		No experience	1
		Regulatory uncertainty	2
Economic Efficiency	Cost	*Costs higher than benefits*	3
		Higher costs	3
		Insufficient promotional loans	2
	Risk	*Greenwashing risk*	1
		Regulatory risk	1
		Risk of failure to achieve targets	4
Implementation	Instrument	*Data collection*	2
		KPI choice & tracking	4
		Size	1
	Standards & Regulations	*Data availability*	3
		Data comparability	1
		Investor requirements	1

Source: This table shows the categorical system developed based on companies' stated perceived barriers using thematic content analysis following Kuckartz's (2014) seven steps and the survey data recorded for survey question 2.

Table 15. Ranking of Potential SFI Use Barriers by Company Size Group

	Medium- Size	Large Medium-Size	Large	Multinational
Considered SFI				
1	Knowledge	Knowledge	Knowledge	Knowledge
2	Data	Data	Data	Data
3	Costs	Costs	Costs	Costs
4	Publicity	Publicity	Publicity	Publicity
5	No financing needs	Promotional loans exhausted / too low, no financing needs, regulatory uncertainty, complicated application, insufficient consultation / advice, limited financing offers	No financing needs	-
Not Considered SFI				
1	Knowledge	Knowledge	Knowledge	Knowledge
2	Data	Data	Data	Data
3	Costs	Costs	Costs	Costs
4	Publicity	Publicity	Publicity	Publicity
5	No financing needs	No needs, no project identified	No financing needs	Insufficient incentive
Implemented SFI				
1	-	Pricing	Pricing	Communication
2	-	Communication	Communication	Pricing
3	-	Competition	Competition	Recommendation
4	-	Recommendation	Recommendation	Competition
5	-	-	Company strategy, broader investor base	Company strategy
SFI Implementation Underway				
1	-	Pricing	Communication	-
2	-	Communication	Pricing	-
3	-	Competition	Competition	-
4	-	Recommendation	Recommendation	-
5	-	-	-	-

Source: This table shows the ranking of potential barriers to SFI use, as recorded by the survey data from questions 4, 5, 6 and 7. It should be noted that none of the medium-sized companies have implemented or are currently underway to implement a SFI. Furthermore, none of the multinational companies are currently underway to implement a SFI.

Table 16. The Role of Banks and Promotional Loans in Regard to SFI Use

	Implementation				
	Yes	No	Currenly in Process	Unfamiliar with SFIs	I don't know
Bank Support					
Very Bad	0	3	0	2	0
Bad	0	8	0	3	0
Average	3	28	2	5	0
Good	7	18	4	2	1
Very Good	3	3	0	0	1
Bank Recommendation to Use SFIs					
Yes	11	17	5	0	1
No	2	39	1	12	0
I don't know	0	4	0	0	1
Bank Role					
Yes	6	31	4	6	0
No	2	11	2	0	1
I don't know	5	18	0	6	1

	Company Size				
	Medium-Size	Large Medium-Size	Large	Multinational	No Answer
Promotional L. Interest					
Yes	6	38	18	7	1
No	0	4	1	2	0
I don't know	3	5	4	1	2
Promotional L. Use					
Yes, we use PL	0	5	2	1	0
No, we do not use PL	9	42	21	9	3
Promotional L. Knowledge					
Yes, PL are known	4	19	13	6	2
No, unfamiliar with PL	5	23	8	3	1
Bank Support					
Very Bad	0	5	0	0	0
Bad	1	10	0	0	0
Average	4	21	8	2	3
Good	3	10	13	6	0
Very Good	1	1	2	2	0
Bank Recommendation					
Yes	3	8	13	8	2
No	5	38	8	2	1
I don't know	1	1	2	0	0
Bank Role					
Yes	4	23	12	8	0
No	1	8	5	1	0
I don't know	4	16	6	1	3

Source: This table shows companies' evaluation of banks' role and support in regard to SFI use, as well as their interest in and use of promotional loans. The data is based on the recorded answers for survey questions 9, 10, 11, 12 and 13.

Table 17. Desired Form of Bank Support in Regard to SFI Use

Main Categories	Subcategories Level 1	Subcategories Level 2	Number Of Observations
Consultation	General Consultation		14
	KPI Choice		4
	Optimizing Rating		1
	Promotional Loans		3
	Reporting		2
Information	General Information		3
	Sustainable Finance Market	*Expectation of bank / capital market participants*	2
		Market overview	2
	Sustainable Finance Mechanisms	*Comparison to conv financing*	1
		Impact of sustainability on rating / financing	1
		Information on conditions	1
	Sustainable Finance Use	*Best Practice*	2
		Experience (with other customers)	4
		Use Cases	1
Mode of Information	Event		1
	Personal Talks		1
	Presentation		1
	Questionnaire		1
	Workshop		1
Role of Bank	Clear Commitment with Strategic Allocation		1
	Financing (Offers)		4
	Sparring Partner		1

Source: This table presents companies' desired support that they would like to receive from their banks and financial partners in regard to sustainable finance, based on the survey data recorded for question 12. The qualitative answers were categorized using a thematic content analysis method based on the seven steps by Kuckartz (2014).

Table 18. Logistic Regression Analysis Results – Barriers & Company Bank Relation

Logistic Regression: SFIUse – Barriers

SFIUser	Odds Ratio	Robust Std. Err.	z	P >| z|	95 % Confidence Interval		Signifi-cance/ Comment
Yes	.601	.388	-0.79	.431	.17	2.131	
No	1	.	.	.	.	.	Baseline
Constant	.196	.072	-4.45	0	.095	.401	***
Number of obs	=	*93*			*Log pseudol.*	=	*-37.297639*
Wald chi2(1)	=	*.62*			*Pseudo R2*	=	*.0087*
Prob > chi2	=	*.4307*					

Logistic Regression: SFIUse – Bank Support

SFIUser	Odds Ratio	Robust Std. Err.	z	P >| z|	95 % Confidence Interval		Signifi-cance/ Comment
Very Bad	1	.	.	.	.	.	PFP
Bad	1	.	.	.	.	.	PFP
Average	1	.	.	.	.	.	Baseline
Good	3.267	2.427	1.59	.111	.762	14.011	
Very Good	8.75	8.563	2.22	.027	1.285	59.566	**
Constant	.086	.052	-4.06	0	.026	.281	***
Number of obs	=	*77*			*Log pseudol.*	=	*-32.085894*
Wald chi2(2)	=	*5.22*			*Pseudo R2*	=	*.0822*
Prob > chi2	=	*.0737*					

Logistic Regression: SFIUse – Bank Recommendation

SFIUser	Odds Ratio	Robust Std. Err.	z	P >| z|	95 % Confidence Interval		Signifi-cance/ Comment
Yes	12.435	10.111	3.10	.002	2.527	61.2	***
No	1	.	.	.	.	.	Baseline
I don't know	1	.	.	.	.	.	PFP
Constant	.038	.028	-4.50	0	.009	.159	***
Number of obs	=	*88*			*Log pseudol.*	=	*-29.957214*
Wald chi2(1)	=	*9.61*			*Pseudo R2*	=	*.1870*
Prob > chi2	=	*.0019*					

Logistic Regression: SFIUse – Bank Role

SFIUser	Odds Ratio	Robust Std. Err.	z	P >| z|	95 % Confidence Interval		Signifi-cance/ Comment
Yes	1.024	.899	0.03	.978	.183	5.725	
No	1	.	.	.	.	.	Baseline
I don't know	1.4	1.268	0.37	.71	.237	8.261	
Constant	.143	.109	-2.56	.01	.032	.634	**
Number of obs	=	*93*			*Log pseudol.*	=	*-37.495085*
Wald chi2(2)	=	*.26*			*Pseudo R2*	=	*.0035*
Prob > chi2	=	*.8770*					

Source: Logistic regression analysis with robust standard errors run in Stata using data from Table 13 and Table 16. Further details see Table 5. Note: "PFP" = predicts failure perfectly. Significance levels: *** p<.01, ** p<.05, * p<.1.

Table 19. Logistic Regression Results Analysis Promotional Loans

Logistic Regression: SFIUse – Promotional Loan Interest

SFIUser	Odds Ratio	Robust Std. Err.	z	P >|z|	95 % Confidence Interval		Signifi-cance / Comment
Yes	.443	.397	-0.91	.363	.076	2.563	
No	1	.	.	.	.	.	Baseline
I don't know	.462	.517	-0.69	.49	.051	4.155	
Constant	.333	.274	-1.34	.181	.067	1.666	
Number of obs	=	*93*			*Log pseudol.*	=	*-37.245138*
Wald chi2(2)	=	*.84*			*Pseudo R2*	=	*.0101*
Prob > chi2	=	*.6574*					

Logistic Regression: SFIUse – Promotional Loan Knowledge

SFIUser	Odds Ratio	Robust Std. Err.	z	P >|z|	95 % Confidence Interval		Signifi-cance / Comment
No	1	.	.	.	.	.	Baseline
Yes	1.936	1.249	1.02	.306	.547	6.852	
Constant	.108	.057	-4.20	0	.038	.305	***
Number of obs	=	*93*			*Log pseudol.*	=	*-37.065362*
Wald chi2(1)	=	*1.05*			*Pseudo R2*	=	*.0149*
Prob > chi2	=	*.3056*					

Logistic Regression: SFIUse – Promotional Loan Use

SFIUser	Odds Ratio	Robust Std. Err.	z	P >|z|	95 % Confidence Interval		Signifi-cance / Comment
No	1	.	.	.	.	.	Baseline
Yes	2.242	1.98	0.91	.36	.397	12.654	
Constant	.149	.048	-5.87	0	.079	.281	***
Number of obs	=	*93*			*Log pseudol.*	=	*-37.246373*
Wald chi2(1)	=	*.84*			*Pseudo R2*	=	*.0101*
Prob > chi2	=	*.3604*					

Source: Logistic regression analysis with robust standard errors run in Stata using data from Table 16. Further details see Table 5. Note: "PFP" = predicts failure perfectly. Significance levels: *** p<.01, ** p<.05, * p<.1.

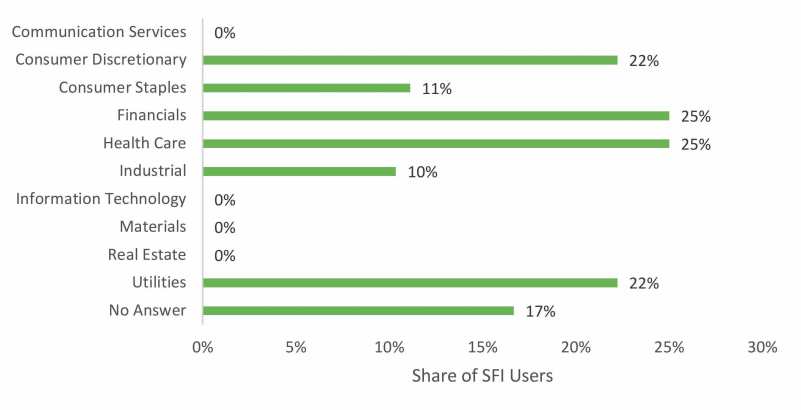
Table 20. Correlation Analysis Results Company Bank Relation & Promotional Loans

	Company Size	
	Fisher's Exact	Cramér's V
Bank SF Support Rating	.008***	.3040
Bank SFI Recommendation	.000***	.3689
Banks Potential Role	.637	.1632
Promotional Loan Knowledge	.498	.1690
Promotional Loan Use	.942	.1091
Promotional Loan Interest	.421	.183

Source: Fisher's exact test and Cramér's V calculations run in Stata using the data from Table 16. Note: Significance levels are denoted as: *** p<.01, ** p<.05, * p<.1.

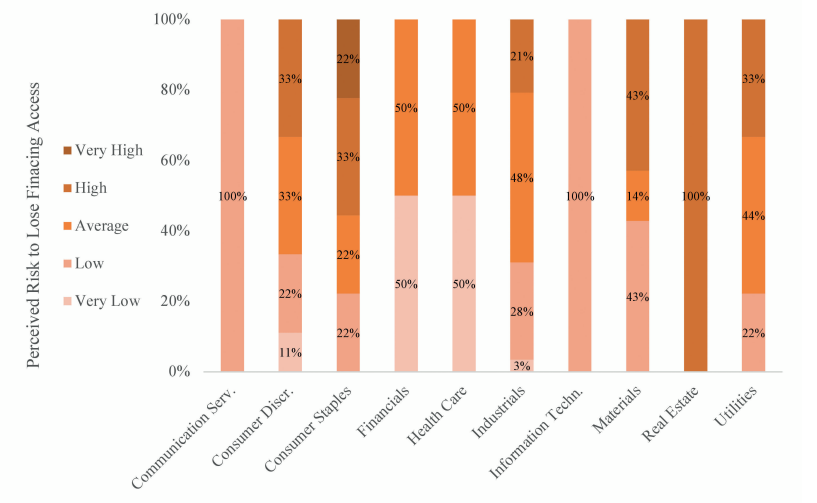
Appendix B: Figures

Figure 3. Sustainable Finance Instrument Use by Company Sector



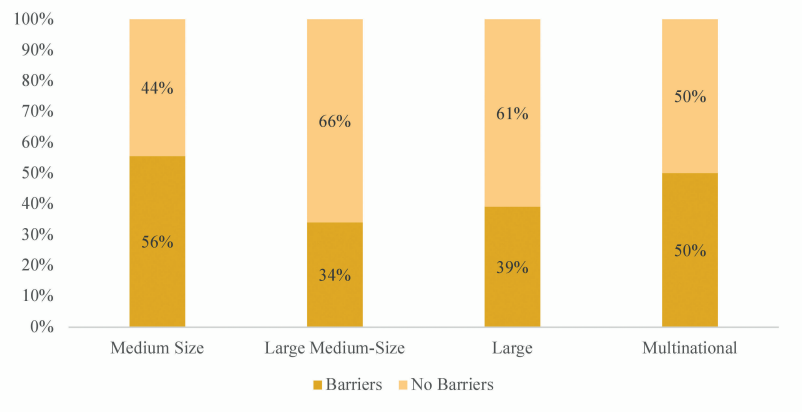
Source: This figure presents the share of SFI users for the ten defined company sector groups, based on the survey data reported in Appendix A, Table 6.

Figure 10. Perceived Risk to Lose Financing Access by Company Sector



Source: This figure presents the respective share of different levels of perceived risk to lose financing access by the ten defined company sector groups, based on the survey data reported in Appendix A, Table 12.

Figure 19. Barriers to SFI Use by Company Size Group



Source: This figure presents the share of companies that state they view barriers to SFI use by the four defined company size groups, based on the survey data reported in Appendix A, Table 13.

Appendix C: Survey

Appendix C: Survey

Start of Block: Introduction

Welcome Message
Goethe University Study: More Favorable Financing through Sustainability ?!

The European Green Deal is changing financing: it is to be expected that financing conditions will become more favorable due to sustainability criteria . But how can the potential of sustainable finance instruments be used in the best possible way?

This study, in cooperation with DZ BANK AG and Goethe University Frankfurt, examines the advantages and opportunities of sustainable finance for companies. **It takes 5 minutes to answer the questions**. At the end you have the opportunity to write down any additional information or comments.

If you have any questions or require assistance in completing the survey, please contact Mrs. Isabelle Hinsche (hinsche@econ.uni-frankfurt.de). All answers are anonymous and the results of the study will be made available to all participants.

Data Protection
All answers are anonymous and cannot be traced back to you personally. The answers will be stored on an EU server and will only be used for the research project Sustainable Finance by Goethe University Frankfurt.

What are Sustainable Finance Instruments?

In the following section, two best-known instruments will be explained. The respective sustainable financing structure can be applied to any traditional credit financing instrument, such as a loan, schuldscheindarlehen or bond.

A green financing instrument:
is a financing instrument whose funds may only be used for a predefined green project that contributes to environmental protection. The sustainability of the issuer is irrelevant. There are also social or combined instruments whose projects are classified as social or social and green.

A sustainability-linked instrument:
is a financing instrument that is linked to company-level sustainability criteria. The issuer defines company-specific sustainability targets and commits to reaching these targets within a set time frame. In the event that the sustainability targets are not met, a financial penalty, for example in the form of a coupon step-up, is defined in advance.

End of Block: Introduction

Start of Block: SF Instruments

Q1 Has your company ever used a sustainable finance instrument (e.g.: green loan / schuldscheindarlehen / bond)?

- ○ Yes. *Please briefly name the sustainable finance instrument(s) used:* (1) _____
- ○ No. (2)
- ○ Is currently being implemented. *Please briefly name the planned sustainable financing instrument:* (3) _____
- ○ I was not familiar with sustainable finance instruments so far. (4)
- ○ I don't know. (5)

Q2 Do you see any barriers in regard to sustainable finance instrument use for your company? *(If yes, please name them: keywords are possible)*

- ○ Yes: (1) _____
- ○ No. (2)

Display This Question:
If "Has your company ever used a sustainable finance instrument" = No.
Or "Has your company ever used a sustainable finance instrument" = I don't know.

Q3 Has your company ever considered using a sustainable finance instrument?

- ○ Yes. (1)
- ○ No. (2)
- ○ I don't know. (3)

Display This Question:
If "Has your company ever considered using a sustainable finance instrument?" = Yes.

Q4 Why has your company nevertheless not used a sustainable finance instrument so far? *(Please rank the potential reasons according to their influence: category 1 indicates the greatest influence)*

_____ Insufficient knowledge of sustainable finance instruments. (1)
_____ Insufficient data on company's sustainability. (2)
_____ Additional costs of a sustainable finance structure (consultation, reporting). (3)
_____ Potential negative public reaction (e.g. greenwashing accusations). (4)
_____ Further: (5)

Display This Question:
If "Has your company ever considered using a sustainable finance instrument?" = No.

Q5 Why has your company not used a sustainable finance instrument so far? *(Please rank the potential reasons according to their influence: category 1 indicates the greatest influence)*

_____ Insufficient knowledge of sustainable finance instruments. (1)
_____ Insufficient data on the company's sustainability. (2)
_____ Additional costs of a sustainable finance structure (consultation, reporting). (3)
_____ Potential negative public reaction (e.g. greenwashing accusations. (4)
_____ Further: (5)

Display This Question:
If "Has your company ever considered using a sustainable finance instrument?" = Is currently being implemented.

Q6 Why does your company plan to use a sustainable finance instrument? *(Please rank the potential reasons according to their influence: category 1 indicates the greatest influence)*

_____ Potential pricing advantage compared to conventional financing structure. (1)
_____ Communication of own sustainability strategy to investors and customers. (2)
_____ The competition has already used a sustainable financing structure. (3)
_____ Recommendation of sustainable finance structure by financing partner/Hausbank. (4)
_____ Further: (5)

Display This Question:
If "Has your company ever used a sustainable finance instrument" = Yes.

Q7 Why has your company used a sustainable finance instrument?
(Please rank the potential reasons according to their influence: category 1 indicates the greatest influence)

_____ Potential pricing advantage compared to conventional financing structure. (1)
_____ Communication of own sustainability strategy to investors and customers. (2)
_____ The competition has already used a sustainable financing structure. (3)
_____ Recommendation of sustainable finance structure by financing partner/Hausbank. (4)
_____ Further: (5)

Q8 Does your company plan to use (further) sustainable finance instruments in the future?

○ Yes, because (1) _____

○ No, because (2) _____

○ I don't know. (3)

Q9 Are you familiar with promotional loans in connection with sustainable finance?

○ Yes, we are already using the following promotional loans: (1)
_____

○ Yes, I am familiar with sustainable finance related promotional loans. (2)

○ No, I am not familiar with sustainable finance related promotional loans. (3)

Q10 Would you be interested in promotional loans in connection with sustainable finance?

○ Yes. (1)

○ No. (2)

○ I don't know. (3)

End of Block: SF Instruments

Start of Block: Sustainability, Banks & Regulation

Q11 How well do you feel supported by your bank(s) on the subject of sustainability?

- ○ Very bad (1)
- ○ Bad (2)
- ○ Average (3)
- ○ Good (4)
- ○ Very good (5)

Q12 Do you believe that your financing partner / bank can support you in your sustainability transformation?

- ○ Yes, in the form of: (1) _____
- ○ No. (2)
- ○ I don't know. (3)

Q13 Have your financing partners (e.g. Hausbank) ever suggested a sustainable financing structure to you?

- ○ Yes. (1)
- ○ No. (2)
- ○ I don't know. (3)

Q14 How likely do you think is the linkage of sustainability criteria and credit conditions for your future financing?

- ○ Very unlikely (1)
- ○ Unlikely (2)
- ○ Average (3)
- ○ Likely (4)
- ○ Very likely (5)

Q15 How high do you estimate the risk of losing access to the capital / credit market to be, if you do not meet certain sustainability targets?

- ○ Very low (1)
- ○ Low (2)
- ○ Average (3)
- ○ High (4)
- ○ Very high (5)

Q16 How strongly do you think is your company affected by the sustainability transformation of the economy?

- ○ Not at all (1)
- ○ Little (2)
- ○ Average (3)
- ○ Strongly (4)
- ○ Very strongly (5)

Q17 How much pressure to you experience as a company from regulatory sustainabilty requirements (NFRD, CSRD, Supply Chain Act)?

- ○ None (1)
- ○ Little (2)
- ○ Average (3)
- ○ Strong (4)
- ○ Very strong (5)

End of Block: Sustainability, Banks & Regulation

Start of Block: Company Information

Q18 Which industry does your company belong to?
Please select the appropriate industry group.

- ○ Automobiles and Parts (1)
- ○ Banks (2)
- ○ Construction and Materials (3)
- ○ Chemicals (4)
- ○ Retail (5)
- ○ Utilities (6)
- ○ Oil and Gas (7)
- ○ Financial Services (8)
- ○ Health Care (9)
- ○ Real Estate (10)
- ○ Industrial Goods & Services (11)
- ○ Media (12)
- ○ Food, Beverages and Tobacco (13)
- ○ Personal and Household Products (14)
- ○ Basic Resources (15)
- ○ Travel and Leisure (16)
- ○ Technology (17)
- ○ Telecommunications (18)
- ○ Insurance (19)
- ○ No Answer (20)

Q19 How big is your company?
Please select the appropriate annual revenue range (rounded to millions)

- ○ Up to €9 million (1)
- ○ From €10 million to €49 million (2)
- ○ From €50 million to €499 million (3)
- ○ From €500 million to €5 billion (4)
- ○ Greater than €5 billion (5)
- ○ No Answer (6)

Q20 Does your company acquire financing on the capital market?

- ○ Yes. (1)
- ○ No. (2)
- ○ I don't know. (3)

Q21 Does your company already determine its carbon footprint?

- ○ Yes. (1)
- ○ No. (2)
- ○ I don't know. (3)

Q22 Does your company have an ESG rating?

- ○ Yes. (1)
- ○ No. (2)
- ○ I don't know. (3)
- ○ I don't know, I am not familiar with the term ESG. (4)

Q23 Has your company defined sustainability targets at the company level?

- ○ Yes. (1)
- ○ No. (2)
- ○ I don't know. (3)

Q24 Is the achievement of these targets ensured by a form of commitment? *(e.g. management compensation is linked to the achievement of sustainability targets)*

- ○ Yes, through (1) _____
- ○ No. (2)
- ○ I don't know. (3)

Q25 For which company are you answering this questionnaire?

(Voluntary information. All answers are anonymous, this information is only used to link company-specific data for research purposes and will also be anonymized and aggregated in the analysis). We would be happy to send you, as a participant, the results of the study. However, as all answers are anonymous, we do not have any contact details for the distribution of the survey results. Consequently, we would kindly ask you to state your company name if you would like to receive the survey results.

_____

End of Block: Company Information

Start of Block: Personal Information

Q26 Please select your gender:

- ○ Male (1)
- ○ Female (2)
- ○ Diverse (3)
- ○ No Answer (4)

Q27 Please select your age group:

- ○ Younger than 20 years (1)
- ○ 20 to 29 years (2)
- ○ 30 to 39 years (3)
- ○ 40 to 49 years (4)
- ○ 50 to 59 years (5)
- ○ 60 years or older (6)
- ○ No Answer (7)

Q28 Please select your work department within your company:

- ○ Finance (1)
- ○ Sustainability (2)
- ○ Other Area (3)
- ○ No Answer (4)

Q29 Do you have any study and / or work experience in the field of sustainability?

- ○ Yes, I have study and work experience in the field of sustainability. (1)
- ○ Yes, I have study experience in the field of sustainability. (2)
- ○ Yes, I have work experience in the field of sustainability. (3)
- ○ No, I do not have study or work experience in the field of sustainability. (4)
- ○ No Answer (5)

Q30 Additional information / comments from your side:

_____

End of Block: Personal Information