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The adoption of banks of green services and products to finance sustainable projects: A study of international experiences

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Abstract--This study examines how banks' adoption of green services enhances performance and promotes clean project financing in Northern Europe. Using descriptive and analytical deductive methods, this research explores green investments in these nations, the adoption of green financing, and the role of environmental project funding organizations in supporting the energy transition. The findings indicate that diversification in the services offered by Northern European banks has made green banking a contemporary and significant topic. Additionally, green services play a crucial role in facilitating and supporting environmental and sustainable development projects. Therefore, banks should implement comprehensive awareness campaigns to educate customers on the benefits of these services, both financially and environmentally. This, in turn, would increase demand and encourage innovation in green banking services by allocating funds for research and development.

Keywords--Green services, green banking, green banking mechanisms, Northern European experiences.

Introduction

The orientation of banks toward green services is crucial, given their pivotal role in the economy through supporting investment projects and providing necessary financing to achieve economic growth. In the current economic climate, where pressures to achieve sustainable development and reduce the carbon footprint are increasing, the need for banks to enhance environmental and social sustainability

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has become more urgent. With the emergence of laws and regulations that encourage the provision of green services and offer incentives, banks have started shifting toward this type of investment. This study explores the experiences of banks in Northern European countries that have adopted green services, as these nations are among the leading in achieving sustainable development.

Significance of the Study

The importance of this study lies in providing practical recommendations for banks on how to improve their performance and enhance their environmental and social sustainability. Additionally, it seeks to raise awareness about the importance of green banking services and their positive impact on society and the environment. Furthermore, the study contributes to enriching the literature on green banking and sustainability.

Objectives of the Study

This study aims to:

- Identify the factors driving banks to adopt green services.
- Analyze the impact of green services on banks' financial and operational performance.
- Evaluate the role of green banking services in promoting environmental and social sustainability.
- Propose strategies for banks to effectively develop and expand their green services.

1. Previous Studies

First Study: Park & Jong (2020) – "Transition Towards Green Banking: Role of Financial Regulators and Financial Institutions"

This study examines how international and local banks have undertaken various green banking initiatives to create business opportunities for clients and manage risks by complying with national and regional regulations and guidelines. The study concludes that green banking services largely depend on national-level green activities through bank initiatives with financial institutions. Additionally, the banking system operates in highly regulated environments, leading to the establishment of green banking policies by governments and increasing the attractiveness of green financing.

Second Study: Anastasiya Luzgina (2021)

This study highlights the increasing importance of sustainable development, as financial institutions and banks are increasingly expected to implement environmentally friendly policies and tools. However, there is still significant work needed to ensure market participants adhere to green finance principles. The study finds that one of the key factors accelerating the adoption of green practices by banks is the presence of a proper regulatory and supervisory framework. It also notes that green aspects have become an integral part of traditional banking activities, such as international finance, participation in foreign markets, and involvement in financial programs and projects.

2. International Experiences in Banks' Adoption of Green Services and Products for Sustainable Project Financing

2.1. Swedbank

Definition and Overview of Swedbank

Swedbank is a banking group operating in Nordic and Baltic countries, headquartered in Stockholm, Sweden. It provides banking services to individuals, asset management, financial services, and more. As of 2019, Swedbank had 900,000 private customers, 130,000 corporate clients, and a 60% market share in Estonia's payment sector (<https://areq.net, 2024>).

Swedbank offers guidance and support to companies and customers to enhance the environmental and social performance of their businesses. Its sustainability and green financial services efforts exemplify the leading role banks play in achieving sustainable development. Swedbank's roots are deeply embedded in Sweden's savings bank traditions and cooperative agricultural banking. The bank has relationships with approximately seven million private clients and 555,000 corporate clients, making it Sweden's largest bank by customer base. It also holds a strong position in Estonia, Latvia, and Lithuania.

Swedbank's Sustainable Finance Framework serves as an update to its 2017 Green Bond Framework, expanding the scope of social activities. This new framework replaces the 2017 version, allowing Swedbank to issue green, social, and sustainable bonds to support the United Nations Sustainable Development Goals (SDGs). The framework aligns with the International Capital Market Association (ICMA) principles, including the 2021 Green Bond Principles, 2021 Social Bond Principles, and 2021 Sustainability Bond Guidelines (<https://www.swedbank.com, 2024>).

Refer to Figures (1,2) below.

Table 1: Swedbank's Organizational Structure

Name	Position	Department	Since	Age
Johan Bjorson	President	Executive Board	2019	74
Jens Henrikson	CEO, President	Senior Management	2019	56
Lota Lovin	Head of Digital Services & IT, Head of Information Office	Senior Management	2020	56
Charlotte Redin	Head of Group Legal Affairs, Chief Legal Officers	Senior Management	2021	55
Rolf Markwart	Chief Executive for Risk Operations	Senior Management	2020	59

Source: (<https://www.Swedbank AB Company Profile-Over, 2024>)

II. Strategies Adopted by Swedbank for Green Banking Practices

Swedbank's Green Bond Framework is used to finance and refinance, either fully or partially, loans and investments that provide clear environmental benefits. These efforts aim to facilitate the transition to a low-carbon, climate-resilient, and sustainable economy. Currently, the framework includes five key categories aligned with the United Nations Sustainable Development Goals (SDGs):

- SDG 7: Affordable and Clean Energy
- SDG 13: Climate Action
- SDG 9: Industry, Innovation, and Infrastructure
- SDG 15: Life on Land
- SDG 11: Sustainable Cities and Communities ([Swedbank, 2024](#))

A. Strategies for Creating Sustainable Value for Customers, Shareholders, and Society

To ensure long-term sustainability and value creation, Swedbank follows these key strategies (<https://www.swedbank.com, 2024>):

- I. **Easier Financial Management for Customers:**
Swedbank creates customer value by offering proactive, timely, and relevant services tailored to customer needs through their preferred channels. The bank focuses on maintaining a stable infrastructure and strong digital performance, ensuring seamless access to products and services anytime and anywhere. Delivering high value to customers is a prerequisite for sustainable profitability and establishing Swedbank as a trusted financial partner.
- II. **Competitive Return on Capital and Market-Leading Cost Efficiency:**
Shareholder value is generated through predictable, long-term, and profitable growth with an emphasis on efficiency. Swedbank prioritizes steady profitability over rapid expansion, ensuring stability and predictability for customers, stakeholders, and society. Rather than following short-term market trends, the bank prices its products based on risk and capital requirements. Strong financial performance is supported by cost efficiency, allowing for continuous investments in products, channels, and competitive pricing for customers.
- III. **Robust Risk Management:**
A strong and sound risk management strategy forms the foundation of Swedbank's trust and long-term sustainability. The bank finances its operations through public deposits and capital market funding, enabling it to lend to households and businesses at competitive rates—even in economic downturns. Additionally, Swedbank maintains a high level of digital stability, availability, and information security, ensuring customer trust and long-term relationships.
- IV. **Strong Commitment to Sustainability:**
Swedbank's deep commitment to sustainability is integral to its operations. The bank actively supports the green transition by reducing its own carbon footprint and investing in sustainable financing solutions for customers. It remains highly engaged in society, taking responsibility for its structural significance in the financial system by maintaining a strong financial position, asset quality, and capitalization.

B. Utilization of Green Assets (Green Bond Impact Report, 2018, p.6)



As of December 31, 2018, Swedbank's Green Asset Register totaled 10,319 million SEK, with carbon dioxide equivalent emissions avoided reaching 47 tons per million SEK invested. Green bond proceeds were allocated toward financing and refinancing green buildings and renewable energy investments, significantly reducing carbon emissions and contributing to multiple SDGs under the Swedbank Green Bond Framework.

Swedbank's annual report provides an overview of the annual environmental impact of its green investments. The report notes that assets included in the Green Asset Register do not account for pre-listing results, meaning that avoided emissions are calculated only for assets under construction that have yet to generate measurable carbon reductions.

As of December 31, 2018, Swedbank's Green Asset Register consisted of:

- 18% wind energy projects
- 82% green buildings

Table 2: Utilization of Green Assets in 2018

Use of proceeds reporting as of 31 December 2018			
	Total assets	 Green buildings	 Wind
Total amount in the Green Asset Register, in SEK million			
- whereof Retail banking	10 319	8 471	1 848
- whereof Large Corporate and Institutions	654	150	504
	9 665	8 321	1 344
Allocation of proceeds (%)	100%	82%	18%
Total amount of unallocated proceeds	0	0	0
Share of financing/re-financing (%)	32% / 68%	39% / 61%	0% / 100%
Total amount of Green Bonds issued since 2017, in SEK million		7 133	

Source: (Green Bond Impact Report, 2018, P. 6)

The Client Executive conducts the regular credit process, including a standardized sustainability risk assessment based on Swedbank's sustainability policies, position statements, and exclusion list. This process is guided by several sectoral guidelines, allocating projects to specific sectors concerning million SEK investments within Swedbank. Since the World Bank issued the first green bonds in 2008, the market has experienced rapid growth. Today, it also includes social bonds and sustainability bonds.

Swedbank is an active participant and a leading bank in Nordic capital markets. As such, it is committed to supporting the development and continuous growth of green, social, and sustainability bond markets. The bank provides advisory services, expertise, and support to both issuers and investors. Similar to traditional bonds, green, social, and sustainability bonds are debt instruments issued to raise capital. However, unlike traditional bonds, the raised capital is

exclusively used to finance assets and projects that have positive environmental and/or social impacts.

To be classified as green, social, or sustainability bonds, intended investments must meet specific criteria. These criteria are outlined in the following frameworks:

- Green Bond Principles (GBP)
- Social Bond Principles (SBP)
- Sustainability Bond Guidelines (SBG)

These principles are established by the International Capital Market Association (ICMA) and serve as the global leading guidelines for issuing green, social, and sustainability bonds. This is illustrated in Figure (1,2) below.

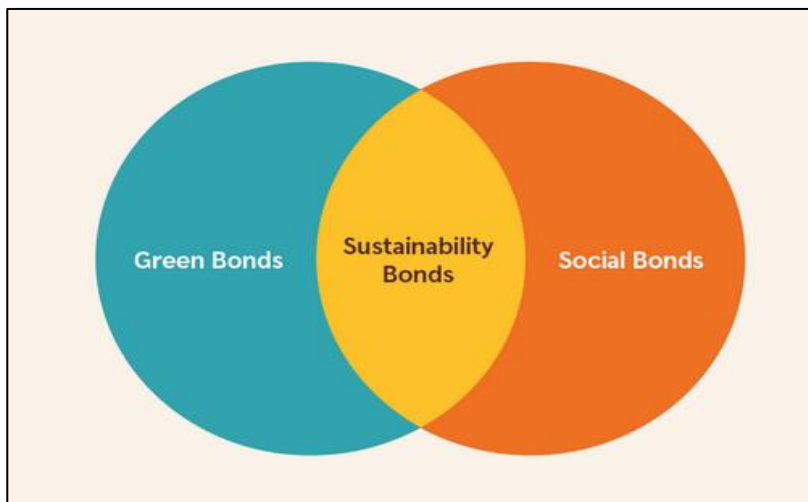


Figure (1): Swedbank's Assets in Green, Social, and Sustainability Bonds (ICMA)
Sources: (<https://www.swedbank.com>, 2024)

III. Stages of Issuing Green, Social, and Sustainability Bonds

(*Swedbank Green Bond Framework, 2017, p. 3*)

1. Uses of Green, Social, and Sustainability Bonds

Issuers, such as corporations, banks, and municipalities, can leverage green, social, and sustainability bonds to raise funds while adding value by attracting new investors and diversifying their investor base. Issuing such bonds fosters greater transparency, enhancing the issuer's sustainability reputation.

Transitioning to green, social, and sustainability bond issuance is a strategic decision that requires long-term commitment from the issuer. Swedbank's Sustainable Capital Markets Team combines credit and capital market expertise with in-depth sustainability knowledge. The bank is fully dedicated to guiding and supporting issuers throughout the framework development process, obtaining a second-party opinion, issuing the bonds, and preparing reports.

Swedbank collaborates with several external parties, including second-party opinion providers for green, social, and sustainability bond frameworks, as well as environmental, social, and governance (ESG) rating agencies.

A. Use of Proceeds

Proceeds from all Swedbank Green Bonds will be used to finance and refinance, either fully or partially, loans and investments (qualified green assets) that provide clear environmental benefits and promote the transition to low-carbon, climate-resilient, and sustainable economies.

Swedbank will exercise professional judgment, discretion, and sustainability expertise in determining the allocation of proceeds. The eligible green assets will be located within the Nordic and Baltic countries and must meet the eligibility criteria outlined in Tables (3,2) below.

(Swedbank Green Bond Framework, 2017, p. 4)

Table (3): Swedbank Eligibility Criteria

Eligible Green Assets	Sustainable Development Goal
Renewable Energy	SDG7 and SDG13
Renewable energy projects, defined as renewable energy from the following sources: <ul style="list-style-type: none"> o Wind energy. o Solar energy. o Small scale hydro energy (hydropower plant of maximum 10 megawatts (MW) of generating capacity) or investments in existing larger hydro power plants (above 10 MW of generating capacity) for refurbishments without increasing the size of its impoundment facility². 	
Energy Efficiency	SDG7, SDG11 and SDG13
<ol style="list-style-type: none"> 1. Green buildings, either residential or commercial real estate, including at least one of the following three criteria: <ul style="list-style-type: none"> o Buildings with an energy performance classification in the energy declaration issued by the Swedish National Board of Housing, Building and Planning (Sw. Boverket) of at least level B⁴. o Buildings which meet the following recognised environmental standards: <ul style="list-style-type: none"> ▪ BREEAM or BREEAM-SE³ (minimum certification "very good") ▪ LEED⁵ (minimum certification "gold") ▪ Sweden Green Building Council Miljöbyggnad⁷ (minimum certification "silver") ▪ Green Building⁸ ▪ Or any equivalent certification as determined by Group Sustainability at Swedbank. o Property upgrade of existing commercial or residential buildings which results in an energy consumption of at least 25% below the average national energy consumption of an equivalent building. 2. Other energy efficiency projects, including infrastructure, technology, processes such as energy storage, smart grid solutions and district heating/cooling from renewable energy sources leading to reduced energy losses of at least 25%. 	
Sustainable Management of Living Natural Resources	SDG15
Sustainable management of living natural resources defined as sustainable forestry and agriculture which meet recognised environmental standards such as: <ul style="list-style-type: none"> o Sustainable forestry defined as forestry certified by the Forest Stewardship Council (FSC) or the Programme for the Endorsement of Forest Certification (PEFC). o Sustainable agriculture defined as certified organic farming in compliance with national and EU-legislation. 	
Pollution Prevention and Control	SDG11
Pollution prevention and control, defined as sustainable waste management including: <ul style="list-style-type: none"> o Waste management such as recycling and waste to energy generation defined as biogas production of organic waste, non-recyclable municipal waste for incineration or forest biomass from areas that have, or meet the requirements for, FSC or PEFC certification. 	
Clean Transportation	SDG9 and SDG11, SDG13
Clean transportation defined as public passenger transport and low carbon vehicle solutions, systems and charging/supporting infrastructure reducing air pollution and climate impact including: <ul style="list-style-type: none"> o Public passenger transport such as electric rail, metros, trams and electric or hybrid buses. o Low carbon vehicles⁹ defined as electric, fuel cell and hybrid vehicles. 	

Sources: (Swedbank Green Bond Framework, 2017, p. 4)

B. Evaluation and Selection of Green Assets

The evaluation and selection of green assets is a fundamental process to ensure that bond proceeds are allocated to projects and assets that meet the criteria outlined in the framework (Section 2). This process defines and explains the internal procedures for assessing, selecting, approving, and registering eligible green assets for inclusion in the green asset portfolio. The process is based on the criteria and components described in the framework and ensures that proceeds are not used to finance activities outside the scope of eligible green assets. The first step in the evaluation and selection process is:

➤ Credit Process

The credit process is a standard procedure in which the client, project, or asset is approved for financing by Swedbank. All loans go through this credit process, which includes Know Your Customer (KYC) procedures, sustainability risk

assessments, credit risk analysis, and final credit decisions made by the Credit Committee. Only assets approved through this standard credit process can qualify for green financing. The assessment of sustainability risks is based on Swedbank Group's sustainability policy framework, including position statements, an exclusion list, and sectoral guidelines.

These guidelines serve as tools to identify sector-specific risks and highlight relevant international agreements and standards for risk evaluation. Swedbank's exclusion list is based on its position statements on defense equipment and climate change, stating that companies and projects engaged in the following activities will be excluded from financing and will not be eligible for Swedbank's Green Bond proceeds:

- Swedbank applies a zero-tolerance principle to financial services for clients involved in manufacturing, upgrading, selling, or purchasing nuclear weapons or illegal arms, such as anti-personnel mines, cluster munitions, chemical weapons, and biological weapons.
- Swedbank does not finance or facilitate the export of defense equipment or services to any entity in a country under EU or UN sanctions.
- Swedbank does not finance or invest in mining and coal production companies where coal represents more than 30% of their total business.
- Swedbank does not directly finance coal-fired power plants.

After an approved credit decision, the evaluation and selection of green assets follow the steps outlined in the subsequent sections:

➤ **Selection of Eligible Green Assets**

Initially, potential eligible assets for inclusion in the Green Bond portfolio are screened by business units. The business unit completes a predefined Green Asset Application along with supporting documentation, which is then submitted to Group Sustainability. The application includes information on the type of asset and relevant key performance indicators, forming the basis for the Green Bond sustainability analysis.

➤ **Green Bond Sustainability Analysis**

Based on the Green Asset Application and supporting documents, the Group Sustainability team conducts a Green Bond sustainability analysis to determine compliance with the specified criteria. The climate and environmental benefits of the asset are reviewed, assessed, and quantified. If the asset meets the defined standards within the Group's sustainability framework, a recommendation proposal is sent to the Green Bond Committee.

➤ **Green Bond Committee**

The Green Asset Application is submitted to the Green Bond Committee, which reviews the results of the Green Bond sustainability analysis and certifies whether the project qualifies as an eligible green asset under Swedbank's Green Bond Framework. The Green Bond Committee is chaired by the Head of Group Sustainability and includes representatives from relevant functions such as Group Risk, Group Treasury, Large Corporates & Institutions, and Swedish Banking (Retail). The Group Sustainability function holds veto power in the committee.

The committee is responsible for managing Swedbank's Green Bond Framework, approving the allocation of Green Bond proceeds, and overseeing environmental

impact reporting for the Green Bond portfolio. Meetings are typically held every two months or as needed. Committee decisions are documented in meeting minutes and presented to the Audit Committee.

➤ **Registration of Eligible Green Assets**

Once approved by the Green Bond Committee, eligible green assets are registered in the Green Asset Register, where they are monitored for the duration of the bond. This register is used for continuous tracking, matching, and reporting on the use of proceeds, ensuring that Green Bond proceeds are adequately allocated to eligible green assets on a regular basis. Each eligible green asset is registered with a unique identifier.

C - Management of Proceeds

Swedbank has established internal systems to track the proceeds of its Green Bonds. The Green Asset Register and the total amount of proceeds will be monitored by the Group Treasury on a quarterly basis to ensure that all Green Bond proceeds are allocated to an equivalent amount of eligible green assets. This process also ensures that eligible green assets are not nominated for other Green Bonds during the specified bond period.

Before issuing any Green Bonds, Swedbank must identify and confirm a sufficient amount of eligible green assets in the Green Asset Register, at least equal to the intended issuance size. Funds may be reallocated to other eligible green assets at any time during the bond's duration. If eligible green assets exit the green portfolio due to divestments, maturities, or other reasons, Swedbank will primarily seek to reallocate the proceeds to other eligible green assets. If no eligible green assets are available, the proceeds will be invested in accordance with Swedbank's internal sustainability policy framework and liquidity reserve requirements, with a preference for Green Bonds that comply with the Green Bond Principles, depending on their market availability.

(Swedbank Green Bond Framework, 2017, Page 6)

D - Reporting

To maintain full transparency with Green Bond investors and other market stakeholders, Swedbank is committed to providing regular reports at least annually until full allocation of proceeds. Subsequent reports will be provided if there are significant changes in the portfolio, detailing the use of proceeds and the environmental impact of the Green Bonds.

(Swedbank Green Bond Framework, 2017, Page 7)

Use of Proceeds Reporting

Swedbank will publish at least an annual report on the use of Green Bond proceeds on its Green Bond webpage. The report will detail:

- The total amount of Green Bonds issued.
- Allocation of proceeds across each category of Green Bond assets.
- The total amount of unallocated proceeds.
- The proportion of proceeds used for financing vs. refinancing.

Impact Reporting

On an annual basis, Swedbank will publish a Green Bond Impact Report, which will include:

- The environmental impacts of funded eligible green assets at the portfolio level until the maturity of Swedbank's Green Bonds.
- Information about borrowers, their businesses, and projects, disclosed in accordance with relevant confidentiality agreements.
- The Green Bond Impact Report will be reviewed and approved by the Green Bond Committee and made available on Swedbank's Green Bond webpage.
- Integrated impact indicators in the report will highlight the expected or actual impact of eligible green assets funded by Swedbank.

Examples of quantitative impact indicators are provided in **Table 4.2** below.

Green Bond Principles category	Swedbank category	SDG	Quantitative impact indicators
Renewable Energy	Wind, Solar and Hydro energy	7, 13	Installed capacity added (MW)
			Expected annual generation (MWh)
			Estimated annual GHG emissions avoided (tCO _{2e})
Energy Efficiency	Energy storage, Smart grids, District heating or cooling	7, 11, 13	Storage capacity (MW)
			Distribution capacity (MW)
	Green Buildings		Amount of energy saved (MW)
	Estimated annual GHG emissions reduced or avoided (tCO _{2e})		
Sustainable Management of Living Natural Resources	Sustainable forestry and agriculture	15	Land area certified (hectare)
			Cropland under organic agriculture practices (hectare)
Pollution Prevention and Control	Waste management	11	Recycling (tons)
			Production capacity (MW)
Clean Transportation	Public passenger transport and low carbon vehicles	9, 11, 13	Passenger/public passenger transport (No)
			GHG emissions per kilometer (CO _{2e})
			Estimated annual GHG emissions reduced or avoided (tCO _{2e})

(Swedbank Green Bond Framework, 2017, Page 7)

E - External Review

(Swedbank Green Bond Framework, 2017, Page 8)

Second Opinion

Swedbank will obtain a second opinion from DNV GL to confirm the transparency and robustness of its Green Bond Framework. This second opinion will be published on Swedbank's Green Bond webpage.

Assurance

An independent external auditor will be required to review the allocation of eligible green assets to provide limited assurance on the allocation of proceeds in accordance with Swedbank's Green Bond Framework. The assurance report will be published on Swedbank's Green Bond webpage.

2 - Annual Development of Green, Environmental, Social, and Governance (ESG) Bond Issuance

The following chart represents a bar graph illustrating the development of Swedbank's bond issuances, including all categories, from 2018 to April 16, 2024.

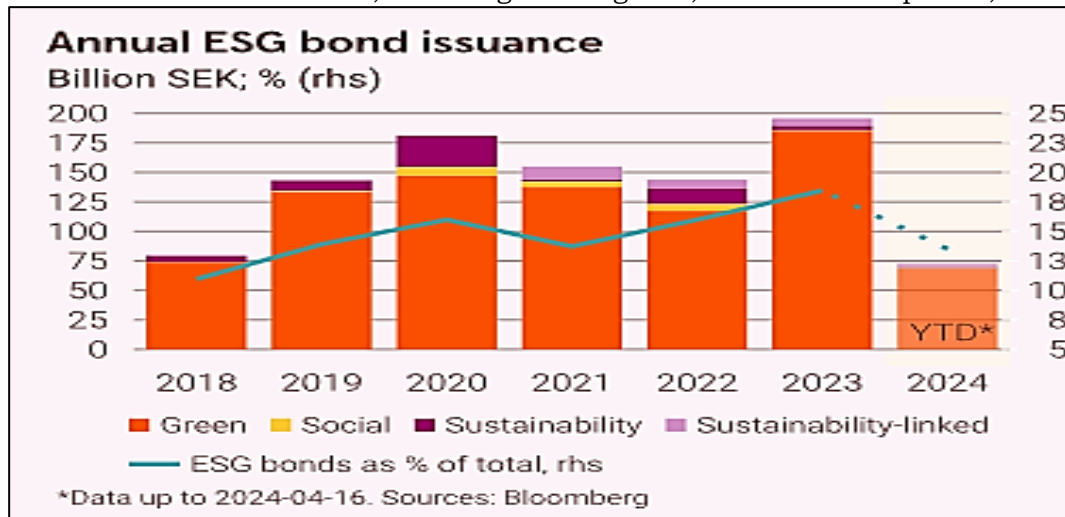


Figure 2: Annual Development of Green, ESG Bond Issuance from 2018 to April 16, 2024

Source: (*Swedbank Economic Outlook, 2024, p. 29*)

The data indicates that Green Bond issuance accounted for 90% of total bond issuances in all years from 2018 to 2023, except for 2018, where issuance was relatively lower. This can be attributed to:

- **2018:** Green, sustainable, and social bonds were still relatively unfamiliar, and companies and investors were not fully aware of their importance and benefits.
- There were no strong, comprehensive standards and guidelines for issuing these bonds, making companies hesitant to enter this market.

However, from 2019 to 2020, the issuance of green, sustainable, and social bonds increased due to:

- Growing environmental and social awareness among investors and companies, encouraging bond issuances that support environmental and social projects.
- Countries' commitments to global environmental agreements, such as the Paris Climate Agreement, which pushed companies toward financing sustainable projects.
- The outbreak of COVID-19 in 2020, which increased the need for social and healthcare projects, leading to the issuance of social bonds to support these initiatives.

In **2021**, bond issuance declined again due to:

- A shift in focus towards rapid economic recovery after the initial shock of the pandemic, leading to a relative decrease in interest in sustainable projects.
- Ongoing uncertainty regarding sustainable and green bond standards, which slowed down issuance.

From mid-2021 to 2023, bond issuance began to rise again due to:

- The evolution of standards and regulatory frameworks for green, sustainable, and social bonds encouraged more companies to issue them.
- Increased investor pressure demanding more sustainable and socially responsible investments.
- Governments worldwide began to support sustainable initiatives more actively, leading to higher issuance of green and social bonds to fund these initiatives.
- As the global conversation on climate change and sustainability continued, companies increased their sustainability commitments, resulting in a rise in bond issuances.

These factors explain the fluctuations in Swedbank's issuance of green, sustainable, and social bonds between 2018 and 2023, reaching the highest levels during this period.

2.2 - The Experience of Danske Bank (Denmark)

Denmark is known for its advanced environmental policies, which have been reflected in its banking sector. This section focuses on Danske Bank, one of the largest banks in Denmark, analyzing how it has implemented green financing strategies, adopted sustainable initiatives, and assessed the impact of these practices on its performance.

1. Introduction to Danske Bank

(Definition from GlobalData, 2024)

Danske Bank A/S is a financial institution that offers a wide range of banking services. Its primary activities include providing advisory services, financial solutions, and expertise to individuals, families, businesses, and organizations. Its key services include:

- Personal banking
- Commercial banking
- Corporate and institutional banking
- Pension services

The bank serves a diverse customer base, ranging from individual clients to multinational corporations across various industries. Danske Bank engages with its customers through multiple channels, including face-to-face meetings, online platforms, and mobile banking solutions.

Danske Bank operates in several countries, including Denmark, Sweden, Norway, Finland, Northern Ireland, Lithuania, Luxembourg, Poland, the United States, and India, holding a strong market position in the Nordic region.

Founded in 1871, Danske Bank is a Danish multinational bank that provides banking and financial services. It has over 5 million retail customers in Northern Europe, with headquarters in Copenhagen, Denmark. The bank employs 22,376 people and holds total assets worth 812.59 trillion Danish kroner.

Danske Bank is listed on the Nasdaq Copenhagen stock exchange and is part of the OMX C25 **index** (*World Benchmarking Alliance, 2024*).

2. Issuers Under the Green Finance Framework of Danske Bank Group

(*Green Finance Framework, Danske Bank Group, November 2022, p. 5*)

- **Danske Bank A/S:** For 150 years, Danske Bank has strived to be a driving force for societal growth and development, focusing on the Nordic markets while maintaining strong connections with the rest of the world. The bank operates in eight countries, helping clients achieve their ambitions. Danske Bank A/S shares are listed on Nasdaq Copenhagen.
- **Danske Hypotek AB (Publ):** Danske Hypotek is part of the Danske Bank Group and is a wholly owned subsidiary of Danske Bank A/S. Danske Hypotek is engaged in mortgage banking and the issuance of covered bonds under the Swedish Covered Bonds Act.
- **Danske Mortgage Bank Plc:** Danske Mortgage Bank Plc is part of the Danske Bank Group and a wholly owned subsidiary of Danske Bank A/S. It operates in the mortgage banking sector, issuing covered bonds under the Finnish Covered Bonds Act.
- **Realkredit Danmark A/S:** Realkredit Danmark A/S is a subsidiary of Danske Bank A/S and provides mortgage financing to individual and corporate customers in Denmark, as well as to selected commercial clients in Sweden and Norway. The company operates a pass-through financing model, where all mortgage loans are funded through covered bonds with matching terms. For terms and conditions, refer to rd.dk. Mortgages are offered through Danske Bank's branch network and the real estate agency home.

III- Organizational Structure of Danske Bank

Danske Bank's management consists of various structures and personnel organized to ensure the highest financial, environmental, and social profitability. The bank is structured into five main divisions:

- I. **President** – Representing the Executive Board
- II. **Chief Executive Officer (CEO)** – Representing Senior Management
- III. **Chief Financial Officer (CFO)** – Representing Senior Management
- IV. **Chief Operating Officer (COO)** – Representing Senior Management
- V. **Chief People Officer (CPO)** – Representing Senior Management

This structure highlights the diversity of positions, allowing each department to focus on its respective responsibilities, ensuring efficient, precise, and responsible management of the bank as a whole.

Additionally, considering the tenure of employees in their roles, most appointments date back to 2020, which appears to have been a pivotal year for the bank. The exception is the CEO, who was appointed in 2021. This indicates that the management team has between three to four years of professional experience in their current roles, making them well-positioned to drive progress. Notably, the bank strengthened its commitment to green bond issuance in 2019.

Furthermore, the age range of employees is between 48 and 62 years, reflecting a high level of expertise and awareness of technological advancements. Their commitment to sustainable energy is evident through the adoption of eco-friendly services and products. The CFO, being the oldest among them, brings extensive experience, ensuring the bank's continued success. More details are provided in Table (5.2) below.

Table (5): Organizational Structure of Danske Bank

Name	Position	Department	Since	Age
Martin Belsing	President	Executive Board	2020	61
Karsten Engberg	CEO	Senior Management	2021	48
Stefan Engler	CFO (Chief Financial Officer)	Senior Management	2020	62
Franz Wolters	COO (Chief Operating Officer)	Senior Management	2020	59
Karsten Prem	Chief People Officer	Senior Management	2020	52

SOURCES: (<https://www-globaldata-com>, 2024)

3-2. Strategies of Danske Bank

First: Strategic Directions of Danske Bank (<https://danskebank-com>, 2024)

Danske Bank has identified four key enablers to support its customers, the companies it invests in, and society as a whole in achieving a sustainable transition. Through these enablers, the bank embeds sustainability efforts across its organization and strengthens its ability to drive progress.

1. People, Culture, and Competencies: Continuously developing its capabilities and expertise in sustainability while integrating sustainability as a core part of its corporate culture.
2. Policies, Leadership, and Governance: Ensuring a clear policy framework and well-defined leadership responsibilities related to sustainability, along with an organized structure to facilitate implementation and coordination.
3. Environmental, Social, and Governance (ESG) Data and Digital Enablement: Enhancing its sustainability data architecture, governance, IT resources, and data management systems.
4. Sustainability Reporting and Stakeholder Engagement: Advancing its integrated reporting practices to enhance transparency and data-driven sustainability reporting, providing a foundation for proactive stakeholder engagement and collaboration.

These strategic directions are illustrated in the diagram below.



Figure (3): The Four Strategic Directions of Danske Bank

SOURCES: (<https://danskebank-com>, 2024)

Second: Danske Bank's Green Finance Framework

(Green Finance Framework, Danske Bank Group, November 2022, p. 4)

Danske Bank's Green Finance Framework is based on:

- The International Capital Market Association (ICMA) Green Bond Principles, June 2022.
- The Loan Market Association (LMA) Green Loan Principles, 2021.
- The framework is structured around the following core pillars:
 - **Use of proceeds**
 - **Evaluation and selection of green loans**
 - **Management of proceeds**
 - **Reporting**

The framework also follows the **Green Bond Principles' recommendations** regarding external reviews.

Tracking the Net Proceeds of Green Finance Instruments

(Green Finance Framework, Danske Bank Group, November 2022, p. 12)

- Danske Bank uses green registers, based on portfolio tracking, to monitor green loans for each green issuer.
- These registers also track the net proceeds from the issuance of green finance instruments.
- Green loans allocated for issuing green finance instruments may come from across Danske Bank's entities.
- Over time, Danske Bank aims to align or exceed the allocation of green loans with the net proceeds balance of outstanding green finance instruments.
- The green registers ensure that proceeds from green finance instruments are exclusively used to fund green loans or repay green bonds.

Third: Danske Bank's Green Finance Framework (2017-2023)

The table below illustrates the **growth in sales and net income** of Danske Bank from 2017 to 2021. However, due to strict confidentiality, data was only available for three years.

Table (6): Growth Rates of Sales and Net Income at Danske Bank (2017-2021)

Main Ratios	Units	2017	2018	2019	2020	2021
Growth Ratios						
Sales Growth	%	---	---	42.57	-11.42	14.11
Operating Income Growth	---	---	---	---	---	---
Growth of Earnings Before Interest, Taxes, Depreciation, and Amortization (EBITDA)	---	---	---	---	---	---
Net Income Growth	%	---	---	1.41	-69.55	181.54

Sources: (<https://www-globaldata-com>, 2024)

Based on the data recorded in the table, the following observations can be made:

- **2019:** Sales volume remained at a good level (42.57), possibly due to the bank's shift towards adopting green services. Green bonds were issued in March and April 2019, coinciding with the launch of the European Green Deal. However, net income was low (1.41), possibly due to the early signs of the COVID-19 crisis on one hand and a lack of awareness regarding the importance of green products on the other.
- **2020:** There was a significant decline in sales volume (-11.42), attributed to the intensifying COVID-19 pandemic and its impact on markets. The crisis severely disrupted the economy, particularly banks, leading to a sharp decrease in net income (-69.55).
- **2021:** A noticeable improvement in sales volume (14.11) was observed, driven by market recovery, adaptation to the pandemic work environment, and the banking sector's shift towards offering green products and services, which enhanced the bank's reputation among customers. The increased adoption of digital and electronic transactions, coupled with supportive financial and governmental policies, contributed to this growth. Signs of post-pandemic recovery also started to emerge, likely leading to the significant improvement in net income (181.84).

This analysis indicates that the bank exhibits **high resilience and adaptability** to major economic challenges. The shift towards green services may have played a key role in this adaptability.

Green Bonds and Green Finance Framework at Danske Bank

Green loans constitute asset portfolios for each issuer and qualify for financing and refinancing through green bonds under Danske Bank's Green Finance Framework. Green bonds saw significant development in March 2019 when Danske Bank Group launched its **Green Bond Framework** and issued its first two inaugural green bonds.

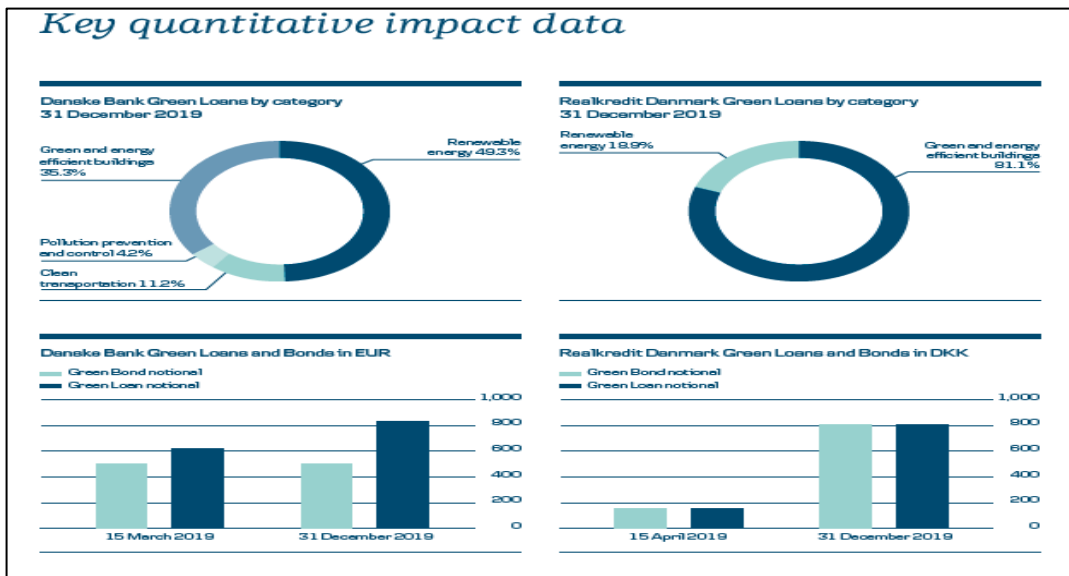


Figure (4): Key Quantitative Data on Green Bonds (2019)
 Source: (Danske Bank, 2019, p. 4)

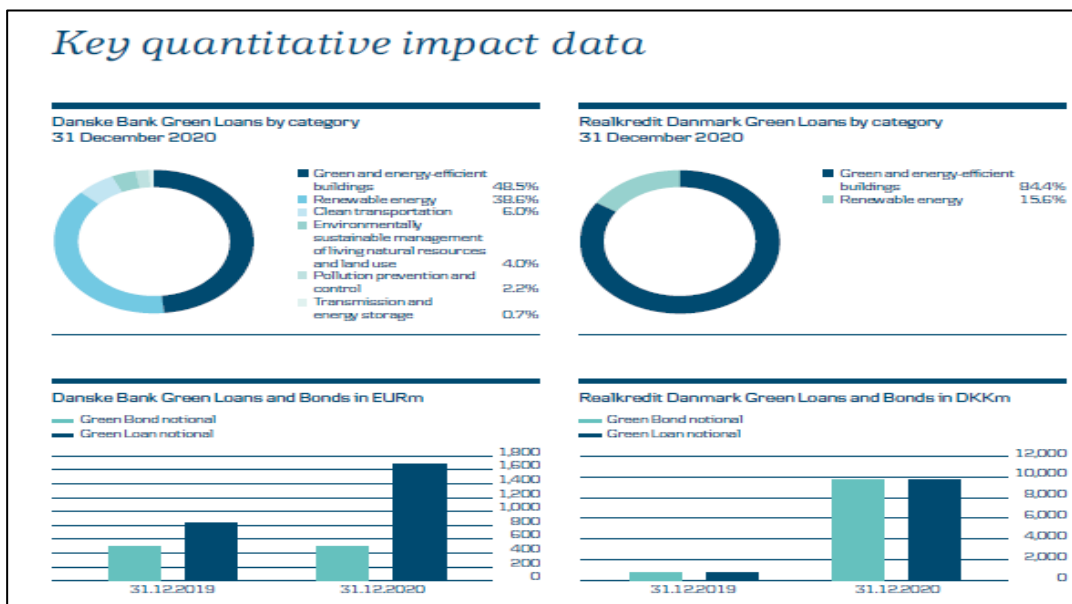


Figure (5): Key Quantitative Data on Green Bonds (2020)
 Source: (Danske Bank, 2020, p. 4)

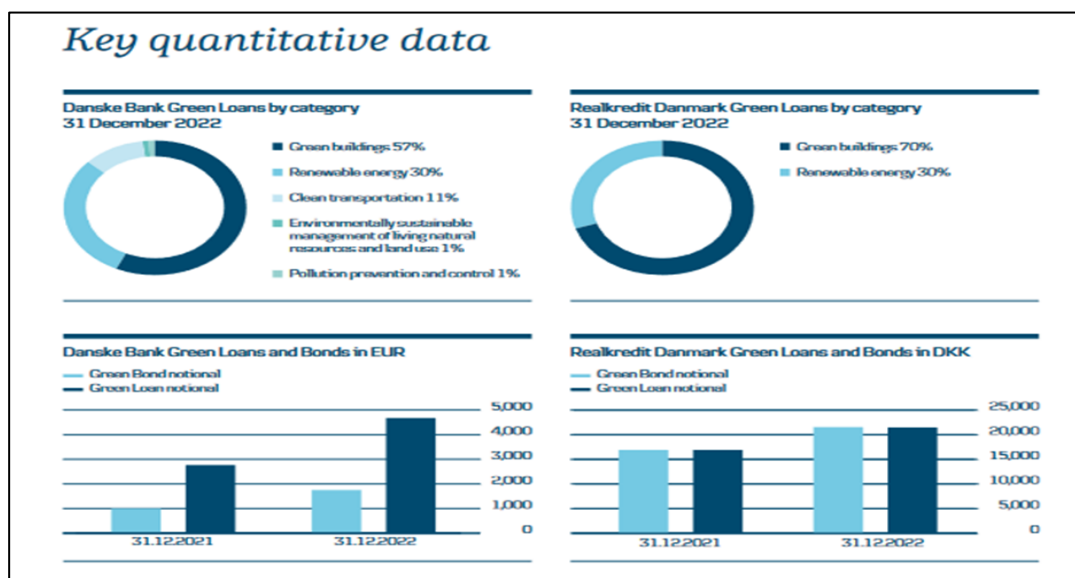


Figure (6): Key Quantitative Data on Green Bonds (2022)

Source: (Green Bond Report, 2022, p. 4)

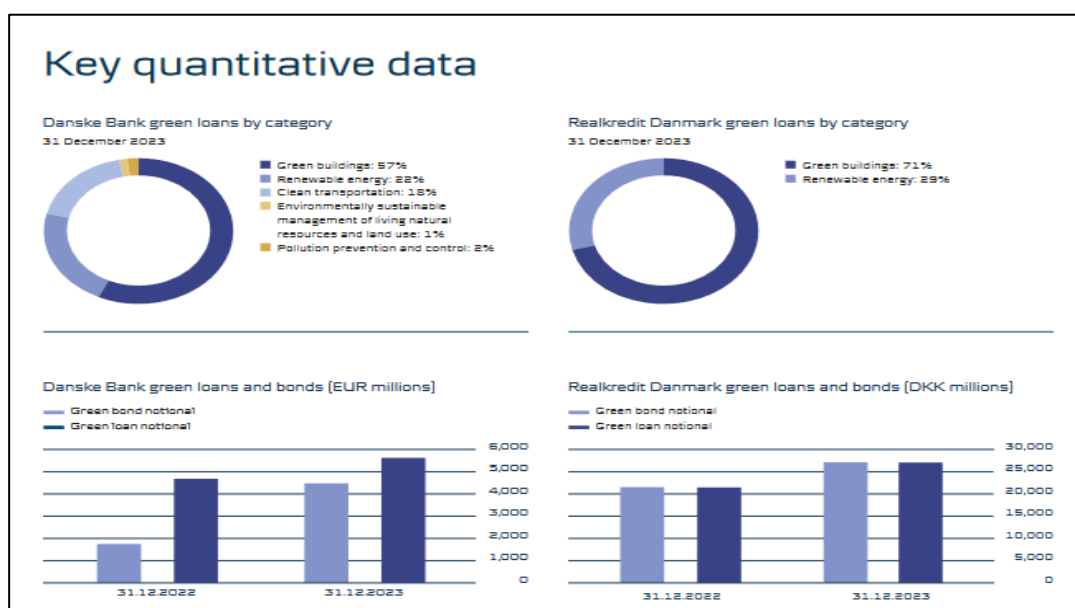


Figure (7): Key Quantitative Data on Green Bonds (2023)

Source: (Danske Bank, 2023, p. 4)

The first issuance of green bonds was made in March 2019 by Danske Bank A/S, followed by the second issuance in April 2019 by Realkredit Danmark A/S. (See Figure 4.2)

In May 2020, Realkredit Danmark introduced a new green mortgage bond denominated in Swedish kronor and increased the volume of green DKK-denominated bonds through tap auctions throughout 2020. (See Figure 5.2)

In June 2021, Danske Bank A/S issued its second green bond, while Realkredit Danmark A/S issued its third green bond. (See Figure 6.2)

In February 2022, Danske Bank A/S issued its third green bond, and Realkredit Danmark A/S issued its third Danish krone-denominated bond in May 2022, followed by an increase in volume in June 2021 and May 2020 for Swedish kronor-denominated bonds through tap auctions. (See Figure 6.2)

After publishing the updated Green Finance Framework in November 2022, Danske Bank A/S issued its first green bond under the new financial framework in January 2023.

The second issuance of 2023 followed shortly after, with Danske Bank A/S issuing its first Swedish kronor-denominated green bond in February 2023. (See Figure 7.2)

The latest issuances by Danske Bank A/S in January and February 2023 were executed under the new Green Finance Initiative, following the Green Finance Framework published in November 2022.

Key Quantitative Data on Green Loan Categories

According to the 2022 Green Bond Report, the net proceeds from green bonds will be used to fully or partially finance or refinance loans or investments, primarily in the Nordic region, originated by Danske Bank. These loans and investments aim to accelerate the transition to low-carbon and climate-resilient sustainable economies ("green loans"), as defined by Danske Bank under the specified green loan categories. (See Figure 8)

Green loans constitute the asset portfolios for each issuer and are eligible for financing and refinancing through green bonds.

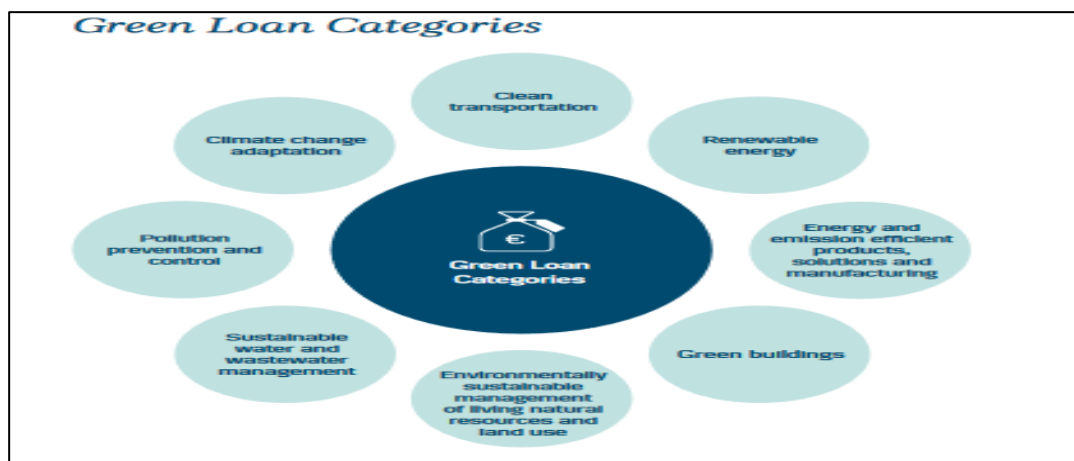


Figure (8): Green Loan Categories at Danske Bank
Source: (Green Bond Report, 2022, p. 10)

Through this figure, we can see that the green loan categories offered by Danske Bank to finance green and sustainable projects include: green buildings, environmentally sustainable management of living natural resources and land use, sustainable water and wastewater management, pollution prevention and control, climate change adaptation, clean transportation, renewable energy, and

energy-efficient and low-emission products, solutions, and manufacturing. Green loans represent approximately 90% of the total loans.

For Danske Bank, the first quarter of 2024 continued its stable and satisfactory performance from 2023. Its income increased, supported by strong customer activity across all business areas. The bank's ongoing focus on efficiency resulted in lower costs, while strong credit quality led to modest loan impairments. Overall, profitability continued to improve.

This year also saw strong interest in savings products among individual customers in Denmark, along with increased demand for banking and investment loan products. Combined with a normalized interest rate environment, this led to higher net interest income. Additionally, strong customer banking activity contributed to an increase in net fee income.

The first quarter of 2024 marked the beginning of Danske Bank's new strategy, "Forward 28", which set clear ambitions to strengthen its position as a leading bank in the Nordic region. During this quarter, progress was made through partnerships related to both platforms and cloud technology, ensuring that customers receive the best digital banking experience. The bank also introduced new asset management strategies to ensure broader distribution and product offerings.

2-3. The Finnish Experience (Nordea)

Finland also stands out as a leading country in sustainability practices across various sectors, including banking. This section will examine the experience of Nordea Bank, one of the largest financial institutions in Finland, by reviewing its efforts in promoting green practices, investments in sustainable projects, and its role in advancing the green economy in Finland.

I. Introduction to Nordea Bank

Definition (<https://fintechfrontiers-live.translate.goog/nordea-bank->, 2024): Nordea Bank, a 200-year-old financial institution in the Nordic region with approximately 9 million customers, took a bold step in 2019 to undergo digital transformation and completely overhaul its infrastructure. This move was aimed at ensuring the bank's future readiness and preparing for the new era of digital disruption in the banking industry.

The first step in this direction was the launch of the "Group Simplification Program", which involved phasing out outdated infrastructure. This was particularly important as the bank had undergone multiple mergers and acquisitions, bringing together around 300 banks across the region. The main goal was to build a robust digital banking platform. To achieve this, Nordea collaborated with fintech companies, big tech firms, and other technology players. The name "Nordea" is a combination of the words "Nordic" and "idea". The bank was formed through a series of mergers and acquisitions involving Finnish, Swedish, Danish, and Norwegian banks between 1997 and 2001. Nordea aimed to establish a fully digital bank with a strong focus on the future, leaving behind past challenges and building a more advanced banking system.

To successfully implement this vision, Nordea created a multi-channel banking facility. The bank integrated its contact centers with the help of technology firm Genesys, developing what is known as a "customer experience platform". This was achieved through a sustainable workforce improvement program, speech recognition, advanced call routing, and optimized use of communication channels such as chat and email. The system eliminated the need for agents to switch between different screens, enhancing efficiency and customer experience.

II. Nordea Bank's Strategies (<https://www.nordea.com>, 2024)

Frank Vang-Jensen, President and CEO of the Group, stated that throughout its 200-year history, Nordea Bank has always aimed to be a safe and strong bank, supporting its customers through all economic cycles. This is evident through the following strategies:

➤ Increasing Operational and Capital Efficiency

As the largest financial services group in the Nordic region, Nordea benefits from strategic advantages and cost efficiencies, creating opportunities to enhance operational efficiency and generate superior value.

The bank leverages digital technologies, data analytics, and increasingly artificial intelligence (AI) to streamline banking operations, improve productivity, and efficiently deliver digital banking services. These technologies also play a crucial role in its efforts to combat financial crimes and enhance cybersecurity, ensuring that Nordea remains a safe and strong banking partner.

The bank supports customers in becoming more digital by implementing the following initiatives (<https://www.nordea.com>, 2024):

- Local office customer meetings, where clients receive guidance on using personal authentication apps, money transfers, and mobile banking services.
- Online webinars for senior citizens and their relatives, offering simple banking solutions for daily transactions and advising family members on how to assist their relatives in adopting digital banking.
- Step-by-step instructional videos demonstrating how to conduct common banking transactions digitally.
- Webinars for parents, helping them understand how to talk to their children and teenagers about money management.
- Educational activities for school children, teaching them how to manage their personal finances.
- Simplified language and tone in communications to reduce fraud risks.

➤ Driving Focused and Profitable Growth

The bank continuously invests in key areas to support its vision. In recent years, it has strengthened lending, savings, and payment services, while also enhancing its offerings for large corporations in areas such as cash management and trade finance.

Supported by its strong financial position, Nordea has also undertaken selected acquisitions to expand its portfolio and drive growth. Its primary focus is on profitable growth opportunities that enable income growth to outpace costs.

➤ **Creating the Best Multi-Channel Customer Experience**

Providing the best multi-channel customer experience is Nordea's way of modernizing banking relationships.

The bank aims to deliver a seamless and consistent customer experience across online, phone, and in-person interactions. Its approach blends expert financial advice with the personal touch of human advisors, while also offering the convenience and personalization of digital technology.

➤ **How Nordea Issues Green Bonds**

To ensure that loans funded by its green bonds are truly sustainable, Nordea has developed a Green Bond Framework that it follows when issuing new green bonds.

This framework aligns with the Green Bond Principles set by the International Capital Market Association (ICMA).

Nordea's green bond approval process involves:

- Internal experts and an external third party reviewing and selecting assets that meet green bond standards.

III. Development of Green Bond Assets in Nordea Bank Abp's Portfolio

Below is a graph showing the annual issuance of green bonds and the cumulative supply from 2007 to 2020.

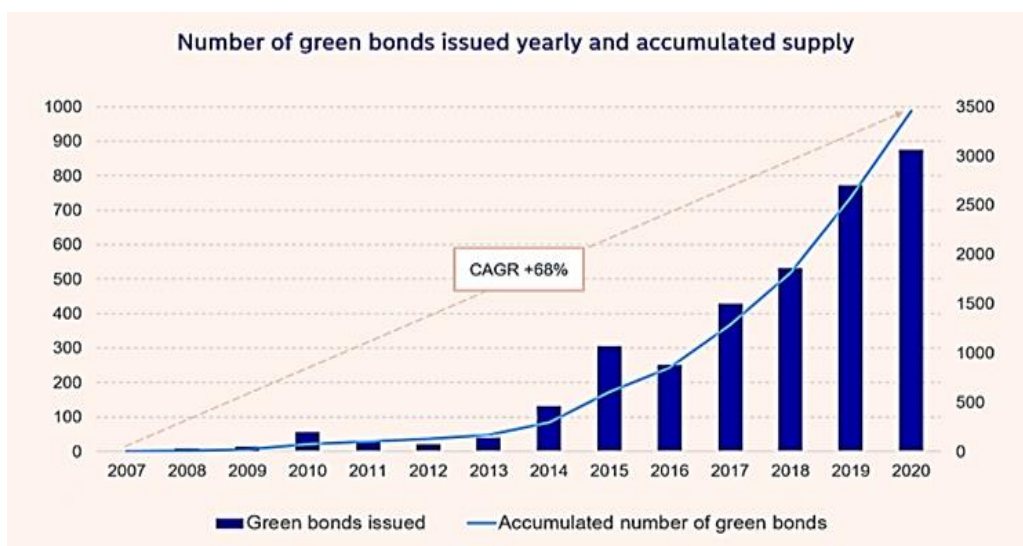


Figure 9: Annual Green Bond Issuance and Cumulative Supply

Source: (Andreas Zsiga, 2024)

From the figure, it is evident that the green bond market has experienced significant growth over the past two years, reaching a new global record in issuance in 2020. To analyze the potential yield spread between green and non-green bonds, there must be a critical mass of companies issuing both types of bonds. However, until now, the green bond market has provided very few data points for such a comparison. This is changing, as the cumulative issuance in 2020 exceeded 3,400 green bonds.

Green Bond Asset Portfolio and Allocation of Proceeds in Euros (2021):

In 2021, there was a significant increase in the bank's focus on sustainability in general and sustainable finance in particular. This was reflected in new long-term goals published by the bank in February, which included:

- Sustainable finance, including green finance, as a key component in meeting the bank's objectives.
- Green finance as a tool to support climate transition, thereby positively impacting the real economy.
- The focus on sustainable finance was also reflected in the growth of the green bond asset portfolio, which increased from €2.85 billion at the end of 2020 to €3.76 billion in 2021, representing a 32% increase.
- The weight of the "green buildings" category was reduced due to the introduction of new green loans in other categories, which were included in the portfolio.
- The bank uses the latest externally verified portfolio figures for green bond reporting and impact assessments.

In 2021, Nordea Bank Abp issued a new green bond, valued at €500 million, with a 10-year maturity. This fixed-rate bond was issued in March 2021 and was included in the green bond asset portfolio, as shown in Figure (10.2) below.

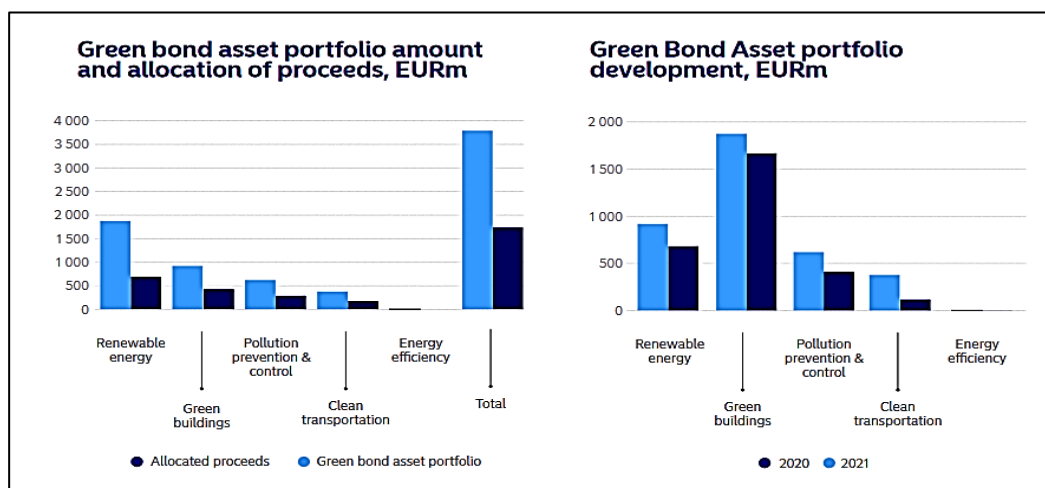


Figure (10): Green Bond Asset Portfolio Amount and Allocation of Proceeds in Euros (2021)

(Nordea, 2021, Page 7) SOURCES

Green Covered Bond Allocation:

Below is a table presenting the **Green Covered Bond Allocation Report** for **Nordea Bank** as of **March 27, 2024**:

Table (7): Green Covered Bond Allocation Report

Nordea Hypotek Green Covered Bond Allocation Report**Portfolio Date: 2024-03-27**

Category	Amount (SEK)
Lending to Green Buildings	28,895,287,631
Green Covered Bonds	12,000,000,000
Over Collateralization	16,895,287,631
Over Collateralization %	140.8%

Item	Value
Percentage of proceeds allocated to Green Assets	100%
Usage of Green Covered Bond Asset Portfolio	41.5%

ISIN	Issue Date	Maturity Date	Amount (SEK)
SE0013360856	25-11-2022	25-11-2027	6,000,000,000
SE0013361177	27-09-2023	27-09-2028	6,000,000,000
Sum			12,000,000,000

Sources: (<https://www.nordea.com>, 2024)**Key Insights from the Table:****1- Financial Analysis:**

The table provides detailed information on Green Covered Bonds, revealing that:

- The first bond amounts to 6,000,000,000 SEK, and the second bond also amounts to 6,000,000,000 SEK.
- The total allocated amount for Green Covered Bonds is 12,000,000,000 SEK.
- The corresponding assets and collateral include:
 - Green Building Loans: 28,895,287,631 SEK
 - Green Covered Bonds: 12,000,000,000 SEK
 - Total Collateral Value: 16,895,287,631 SEK
- Collateralization Ratio:
 - The collateral value significantly exceeds the bond value by 140.8%, reinforcing the stability and strength of these bonds.

2- Environmental Analysis:

The bonds comply with EU sustainability standards, as evidenced by:

- 100% of the assets aligning with the EU Taxonomy's climate change mitigation standards.
- 100% of the proceeds allocated to green assets.

Utilization of the Green Covered Bond Asset Portfolio:

- 41.5% of the asset portfolio is allocated to green covered bonds, indicating that:
 - The bonds are over-collateralized by 140.8%, making them a financially secure investment.
 - All assets and proceeds are directed towards EU-compliant green projects, enhancing their environmental credibility.

- A significant portion (41.5%) of the asset portfolio is allocated to Green Covered Bonds, showcasing a diverse and sustainable investment strategy.

Conclusion

After reviewing the experiences of Sweden, Denmark, and Finland in the banking sector's adoption of green financial services and how sustainability practices have evolved in these countries—especially in light of the current geopolitical events—we conclude the following:

- Swedish banks have been pioneers in offering green loans to support renewable energy projects and improve energy efficiency in buildings. They have also promoted sustainable investments by directing funds toward companies that adopt responsible environmental practices. Additionally, the introduction of green credit cards, which reward customers for sustainable spending, was a significant innovation.
- Denmark has focused on a diverse range of green financial products, including affordable loans for environmental projects and sustainable savings plans. Significant efforts have been made in financing maritime projects, particularly offshore wind energy. Collaboration with the government has been crucial in supporting environmental policies and expanding green finance initiatives.
- Finland has distinguished itself by offering innovative financing solutions for environmental projects, such as green loans and renewable energy investments. Finnish banks have actively supported startups in the green technology sector and have implemented awareness programs to enhance environmental consciousness among customers.
- In conclusion, the adoption of green banking services and products in these countries has increased investments in renewable energy sources in response to geopolitical tensions affecting energy supplies. Governments have implemented strong policies to support green economies, while international and regional cooperation has played a key role in enhancing sustainability efforts. The banks in these countries have demonstrated resilience by adapting to changes and boosting investments in environmental and sustainable sectors.

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