




Green banking strategies: Evidence from Turkish banks

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ABSTRACT

Given the expanding role of green finance in developing economies, this study investigates green banking strategies utilized by Turkish banks as a case study. Data constitutes banks included in Borsa İstanbul's BIST 100 Index as of 2023. Content analysis and purposive sampling methods are utilized to analyze the data. Results indicate that Turkish banks utilize various green banking strategies to realize carbon neutral or net zero targets. Provision of green financing products is the most common strategy, followed by disclosure and reporting. Measuring, monitoring and reducing greenhouse gas emissions, and reducing energy consumption in bank buildings are other popular strategies. The results have important policy implications. Banks can establish long-term goals for climate change while laying out a clear plan for supporting transition away from fossil fuels in the short-term through loans and other financial products and include Environment, Social, and Governance (ESG) into the core of their strategies and reporting by providing incentives for CEOs and staff to implement ESG-related policies. Increased government climate action and research and development support may pave the way for private funding to commercialize and mainstream decarbonization technologies.

1. Introduction

Climate change is a serious threat to the future of the world. The efforts to reduce carbon emissions triggered a global shift from fossil fuels towards mobilizing more funding to carbon-neutral projects (Park & Kim, 2020; Taneja et al., 2024). The Paris Agreement signed in 2015 was a commitment from 195 countries across the globe to take all necessary actions to ensure global warming will not surpass 2 °C (Batrancea et al., 2021; Hickel & Kallis, 2020).

To combat climate change, governments and organizations establish either carbon neutral or net zero goals. Institutions may become carbon neutral by investing in projects such as reforestation or renewable energy initiatives to compensate for their carbon emissions. On the other hand, an institution aiming for net zero would need to eliminate all its greenhouse gas emissions.

Transition to environmentally friendly economic activity requires dedicated funding. As such, Green Finance emerges as a means of meeting the funding needs of businesses or governments for environment friendly projects and policies (Akter & Akhter, 2018; Nawaz et al., 2021; Taneja et al., 2024). Green Finance refers to the specific funding provided to businesses, projects, products, policies and regulations that facilitate environmentally friendly society and way of life (Ali et al., 2020; Lin et al., 2021). The “Green” refers to distribution of resources to initiatives and activities such as corporate governance, renewable

technology, green infrastructure, environment preservation, and social awareness whereas the “Finance” refers to distribution of capital and investments by financial institutions (Taneja et al., 2024).

As the funding source for businesses, banks may incentivize environment friendly companies through the funding process. The stakeholder theory developed by Freeman (1984) suggests that companies aligning all stakeholder interests are successful as they focus on maximizing the interests of all stakeholders of the firm including financiers, not only the shareholders. Many corporate executives and academicians endorse the stakeholder theory with the argument that companies should seek the interest of shareholders as well as the other stakeholders including employees, suppliers, customers, financiers, community, government and the environment. As a new strategic paradigm for the company's vision, like how financial measures assess a company's performance for shareholders, Environment, Social and Governance (ESG) metrics can assess performance and position on a variety of topics significant to the company's broader group of stakeholders. (Aydoğmuş et al., 2022; Kay et al., 2020).

Due to their significance in economic growth and development, the financial sector, and particularly the banking sector, plays a significant role in promoting Green Finance. Green Banking, known also as Sustainable Banking, is the primary tool for Green Finance due to its function in providing financial services for green projects to protect the environment (Akomea-Frimpong et al., 2022; Ali et al., 2020; Amir,

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2021; Leticia and Ivete, 2022; Sharma & Choubey, 2022; Shaumya & Arulrajah, 2017; Zhixia et al., 2018).

Green Banking has increasingly become more important for the banking industry to remain resilient against risks caused by climate change, social or corporate governance issues (Weber & Feltmate, 2016). As the traditional banking changes and evolves over time, banks provide increasingly more green services and products. Central banks and major commercial banks across the globe have committed to eco-friendly banking during “One Planet Summit” in 2017 (Alexander & Fisher, 2019). Environmental protection has become an integral and mandatory part of the World Bank’s funding requirements (Akomea-Frimpong et al., 2022).

Green Banking covers all aspects of banking including but not limited to operations, marketing, communications and financing decisions (Ramya, 2017; Fernando & Fernando, 2017; Yip & Bocken, 2018). Banks or other financial institutions are not considered heavy polluters. However, their use of energy, paper or water has a certain impact on the environment. Banks have focused on minimizing this impact in recent years, in addition to providing green funding to their clients (Taneja et al., 2024).

Banks employ certain methods, procedures, and projects to encourage environmentally friendly approach in their operations and services known as Green Banking Strategies (GBS) (Park & Kim, 2020). Researchers mention four categories of GBS: 1) policy related, 2) operational, 3) employee related, and 4) customer focused (Shaumya & Arulrajah, 2017; Bukhari et al., 2022; Aslam & Jawaid, 2022; Kala, 2020; Chen et al., 2022; Risal & Joshi, 2018; Rehman et al., 2021). Such GBS may have transformative effects for the low-carbon economy. Through these strategies, banks may transform their short-term profitability motive to the goal of creating a safe and effective environmentally friendly operating business model in the long term (Haden Pane et al., 2009).

GBS facilitate green products and services and thereby create positive brand value which is effective for creating customer loyalty (Chen, 2010). GBS involve shifting towards online banking, online payments, online account opening, paperless operations, green buildings, and green funding for customers (Aslam & Jawaid, 2022; Ahuja, 2015; Mir & Bhat, 2022; Kapoor et al., 2016; Nath et al., 2014; Selvaraj, 2022). Regulatory disparities, unclear rules, and the high upfront cost of implementing green technologies may be considered as potential problems that may prevent banks from adopting GBS (Qureshi & Hussain, 2020; Islam et al., 2014).

This study focuses on green strategies of the banks listed on Borsa Istanbul BIST 100 index. GBS also cover green practices, green initiatives, green efforts etc., as they are used interchangeably throughout the study. BIST 100 Index covers largest companies in the Turkish capital markets with the highest volume and market value.

This study focuses on the Turkish banks for several reasons. First, there has been notable growth in the Turkish economy. Real GDP growth averaged 4.1 % between 2018 and 2024 and the per capita income doubled (World Bank, 2023b). Second, the country’s banking system has played a significant role in supporting this growth, benefiting from a robust legal framework and institutional setup. The banking system dominates the financial sector, and it has grown considerably and supported economic growth, showing resilience through the currency and capital account pressures of 2018 Global Financial Crisis and the COVID-19 pandemic (World Bank, 2023a). Due to regulatory reforms implemented in the banking industry starting in 2000, the banking system became more resilient against external shocks. As a result of these successful reforms, the Turkish banking system has become a preferred sector for foreign direct investment (FDI), attracting 17 % of the total FDI between 2002 and 2023 (Central Bank of Republic of Türkiye, 2024). Third, an effective risk management strategy has contributed to making the banking industry more stable and efficient with strong financial and capital adequacy ratios. As of September 2024, liquidity coverage ratio of the Turkish banking system stood at 153 %

and the capital adequacy ratio of 18 % exceeded regulatory limits (Banking Regulation and Supervision Agency, 2024a).

In addition, substantial investments in technology and the fintech ecosystem has been made by Turkish banks in recent years in response to evolving consumer needs and technological advancements. Currently, there are 63 banks in Türkiye, consisting of 9 participation banks, 20 investment banks and 34 deposit banks (Banking Regulation and Supervision Agency, 2024b). Despite the solid growth achieved in recent years, the Turkish banking system still holds untapped potential for further expansion, improvement, and investment. It remains underpenetrated in comparison to similar countries. Loans/GDP and Deposits/GDP ratios are 49 % and 58 %, respectively. Adults in Türkiye without a bank account remain around 26 % compared to 1 % in the Eurozone (World Bank Global Financial Inclusion Database 2021 Report) which presents opportunities for continued growth and development in the Turkish banking sector.

In comparison with other emerging markets in the green finance domain, Türkiye moved up to “Advancing” stage from the “Developing” stage. In 2021, Banks Association of Türkiye updated its sustainability guidelines for the banking sector, aligning further with international good practices. Türkiye sustainable finance framework has been implemented for a number of years and it has a series of tools already in place including guidelines, templates (for example reporting), training, online tools, and ability to manage all this in practice. Also, financial institutions have started reporting on sustainable finance implementation in line with consistent reporting templates (Türkiye Country Progress Report – Sustainable Banking and Finance Network, 2022).

The rest of the study is organized as follows. Section 2 provides a brief overview of the literature. Section 3 provides the theoretical framework. Section 4 explains methodology, analysis and results. Section 5 concludes the paper with policy implications of the findings.

2. Literature review

In this section, we review several studies from different emerging markets related to green banking and green banking strategies. First set of papers focus on Bangladesh. Ahmad, Zayed, and Harun (2013) examined the reasons underlying Bangladeshi commercial banks’ adoption of green banking and found that the main determinants include stakeholder pressure, policy guidelines, economic factors, legal factors, and environmental interests. Bose et al. (2018) investigated how regulatory advice and other factors affected Bangladeshi commercial banks’ green banking disclosure practices and determined that the Central Bank of Bangladesh’s release of green banking regulatory guidelines have a positive impact on the amount of green banking disclosure by the banks. Alam and Islam (2021) examined how corporate social responsibility may help Bangladesh’s garment industry develop a green company image and a green competitive edge. They argued that corporate social responsibility, green business and green competition are related and instrumental in protecting the environment. The results support that the green corporate image facilitates competitiveness in enterprises. Using structural equation modeling, Zhang, Wang, Zhong, Yang, and Siddik (2022) attempted to determine how green banking practices affected green financing and how green financing mediated the relationship between green banking practices and environmental performance of commercial banks. Their results revealed that green banking activities exhibit a significantly positive effect on banks’ environmental performance and sources of green financing, and that sources of green financing significantly influence banks’ environmental performance. They noted that the main factors impeding the growth of green banking in Bangladesh were the lack of customers’ knowledge about green banking, high investment costs, technical difficulties, a shortage of qualified personnel to evaluate green credits and loans, and the complexity and difficulty of evaluating green projects. They identified the main advantages of green banking including making banks more competitive, cutting long-term costs and expenses, lowering carbon

footprints, offering online banking, and enhancing customer satisfaction.

A second set of papers cover Pakistan. Sun, Rabbani, Ahmad, Sial, Cheng, Zia-Ud-Din and Fu. (2020) examined how corporate social responsibility affects green customer loyalty in Pakistan's banking sector. The findings demonstrated that corporate social responsibility and increase in consumer loyalty are correlated, also this correlation is strengthened further by green banking initiatives. Rehman et al. (2021) used structural equation modeling to examine the link between green banking strategies and their direct and indirect effects on environmental performance in Pakistan. They found that green strategies have a significant impact on encouraging environmentally friendly policy and investments. Khan, Hameed, Khan, and Khan (2023) examined green banking strategies and how they affect Pakistani Islamic banks. They showed that strategies related to employees, operations, clients, and policies significantly improve the reputation of the banks.

Some studies provided evidence from India. Bahl (2012) examined efforts of Indian banks to implement green banking and tried to establish a list of green banking strategies. She pointed out that banks predominantly fund pollution-reduction and green technology projects to help lower carbon emissions. Kapoor et al. (2016) studied the concept and need of green banking in India. They noted that social banking and creative service operations and products are helping Indian banks transition to sustainability. They found that both public and private banks have embraced service innovation as part of their future banking strategy and are moving towards customer-centric and service-centric banks. They also found that innovation is not limited only to product or process innovations but also to business model, operations, markets, and paradigm innovation. Raut, Cheikhrouhou, and Kharat (2017) attempted to create a comprehensive and efficient multi-criteria decision-making model for assessing sustainability strategies in Indian banks. They use four criteria to assess sustainability with the top six commercial banks: internal company processes, customer relationship management, financial stability, and environmentally responsible management. The results indicated that environmentally responsible management is less important compared to others and the role of corporate social responsibility in environmental issues is often misunderstood. Deka (2022) reviewed green banking practices in India and noted that Indian banks, particularly State Bank of India, the country's biggest commercial bank, introduced several green banking programs, such as paperless banking for its clients.

Limited studies examined China. Lin et al. (2021) investigated how firms in Yangtze River Delta region of China could benefit from implementing a strategic approach towards taking advantage of green-related opportunities and found that green business strategy and firm performance are positively correlated.

Regarding studies on Türkiye, Şahin, Aydın, and Abacı (2014) analyzed public and private banks' relative productivity measures and found that deposit banks with private capital were the most successful in boosting productivity and private banks invest in social responsibility projects more than others. Dayan (2015) examined the contributions of the banks operating in Türkiye and Canada to sustainable banking and their achievements in attaining the identified goals. Cihangir and Öztürk (2019, pp. 95–114) investigated instruments offered by the banking sector to finance green investments in Türkiye and role of the Turkish banks in achieving sustainable development. They found that green banking products provided by deposit banks and investment-development banks are different. Deposit banks offer green mortgage loans, green vehicle loans, and green credit cards whereas investment banks issue green bonds and provide financing for environment-friendly natural capital investments. Kuduz (2021) examined six banks that signed the Responsible Banking Principles from Türkiye and the dimensions of sustainability in their risk management activities announced on their websites. Yüksel, Dinçer, and Yavuz (2023) investigated priority factors for the development of green banking practices in Türkiye. They found that diversification of green

financial products is the most significant factor for growth of green banking in Türkiye. Seyidova (2023) assessed the environment-friendly structuring and sustainability practices of the banking sector in Türkiye and found that especially investment and development banks are closer to the sustainable banking stage.

The literature review above highlights a growing global recognition of green banking to enhance both environmental protection and financial performance. Studies across various countries like Bangladesh, Pakistan, and India reveal drivers for green banking adoption such as stakeholder pressure, regulation, and economic benefits. The positive impact of green banking on disclosure, customer loyalty, environmental performance, and bank reputation, as well as challenges like lack of customer knowledge and high costs are also highlighted.

This study makes three significant contributions to the body of existing literature. First, it examines green banking experience of the Turkish banking sector which presents an interesting example for developing countries and the rest of the world. Second, it uses both content analysis and purposive sampling method for a more focused and in-depth evaluation of the largest banks which provide a good proxy for the whole banking sector in Türkiye. Third, through the recent analysis with the latest data it fills time gap in the literature.

Building on the existing literature, this study provides a contemporary and specific understanding of the current state and variety of green banking strategies being actively employed by the Turkish banking sector. While previous Turkish studies have explored various aspects of green banking, this study offers a more recent snapshot of the actual strategies within the largest listed banks and the types of products and services used to implement these strategies. This study offers valuable insights into the practical application of green banking principles in the Turkish context and potentially identify trends and best practices not fully captured in earlier, broader studies.

3. Green banking strategies of banks in BIST 100

Climate change and the shift to a low-carbon economy present banks with both direct and indirect threats as well as opportunities. As financiers, they facilitate and support this shift. Direct physical risks associated with climate change for banks include supply chain and service disruptions as well as operational risks that could result in physical asset damage. Indirect risks include market, credit, liquidity, and claim risks because of client risk exposures. Business and retail clients suffering from losses may request insurance benefits or withdraw savings from banks, non-performing loans may increase because of declining ability to repay, and sharp declines in value of stocks, commodities, collateral, and debt instruments are some of the possible indirect risks (Sustainable Banking Strategic Plan 2022–2025, Banking Regulation and Supervision Agency of Türkiye).

Table 1 below provides a detailed description of the green banking strategies and products of Banks in BIST 100. Some notable strategies are summarized below.

Akbank Sustainability Committee is responsible for preparing the sustainability strategy in accordance with overall business strategy, market conditions and developments and integrating sustainability into all business processes.

Şekerbank is another example where a Sustainability Committee has been established. The Committee is responsible for strengthening sustainability strategy and integrating it into Şekerbank's operations. The Committee has put forward efforts such as automating the calculation of data for the Carbon Transparency Project in 2022, initiating processes for ISO 14001 and ISO 9001 documentation and engaging in studies related to Scientific-Based Targets Initiative. To avoid the worst consequences of climate change, banks may see how much and how fast they need to cut their greenhouse gas emissions by using science-based targets.

Garanti Bank is the first bank to receive an award in Türkiye from Worldwide Fund for Nature (WWF). Garanti Bank implemented many

Table 1
Green banking strategies and products of banks in BIST 100.

Bank Name	Green Strategies	Products & Services
Akbank	Akbank strives to reduce its environmental footprint. Through its products and services also supports transition to a low-carbon economy. Energy efficiency practices in Akbank's buildings align with ISO 50001 energy management system. A waste management system is incorporated into operations, continuously being audited and monitored. Environmental performance is reported through the annual integrated report, sustainable financing allocation report and carbon disclosure project climate change report.	<ul style="list-style-type: none"> - Blue finance package for corporate and commercial segment including blue port, blue transportation and blue tourism loans - Rooftop solar panel investment loan - Transition to low carbon economy loan - Electric vehicle/Hybrid car loan - SME eco transformation loan - Agriculture loan - Women SME loan - Renewable energy loan - Sustainable trade finance
Albaraka türk participation bank	The bank aims to create infrastructure that will minimize carbon emissions and achieve high scores through carbon disclosure project. It carries out operational activities in an environmentally friendly manner by using scientific measurement methods to achieve net zero emissions and limit the temperature increase to 1.5 °C. Albaraka türk established the sustainable finance framework ("framework") under which the bank can issue green, social, sustainability and blue capital market products and participation finance instruments (collectively "sustainable finance Instruments").	<ul style="list-style-type: none"> - Green, social, sustainable finance and blue finance instruments: Financial products (murabaha, interbank wakala and customer wakala, etc.) and lease certificates (sukuk) and/or various capital market instruments compliant with participation finance principles within the scope of financing/refinancing of eligible green, social, and blue projects supporting the sustainable blue economy and ocean health
Şekerbank	To work towards determining and implementing targets, related performance criteria and action plans to achieve united nations sustainable development goals and Şekerbank's sustainability strategy and policies.	<ul style="list-style-type: none"> - Financing for female entrepreneurs - Financing farming families - EKOkredi, insulation energy efficiency loan - Social and environmental impact management in lending
Garanti bank	Garanti BBVA structures its strategy on the principles of continuous improvement of customer experience through products and services that meet customer needs.	<ul style="list-style-type: none"> - Renewable energy loan - Energy efficiency loan - Building insulation loan - Roof solar energy loan - Green mortgage loan - Urban transformation loan - Environment friendly auto loan - Electric charging station loan - Electric bicycle shopping credit - Green leasing loan - Agricultural loan (organic, irrigation, no-till farming, digital agriculture, solar energy) - Digital carbon credit - Sustainability linked loan

Table 1 (continued)

Bank Name	Green Strategies	Products & Services
Halkbank	Since 2013, halk bank calculates its carbon footprint and prepares carbon reduction strategies. Environmental management system (ISO 14001) and energy management system (ISO 50001) integrated into bank structure and processes to reduce energy consumption and environmental impact. Energy and natural resource management system was implemented to monitor and manage all energy and natural resource consumptions in real time.	<ul style="list-style-type: none"> - Women entrepreneur loan - Gender equality loan - Green IPO - Green direct debit system - Sustainable investment funds - Sustainable pension funds - Green energy credit package - Energy efficiency loan - Green workplace loan - Green construction loan - Green light commercial vehicle loan - Electric vehicle charging station credit - Insulation, modern heating and cooling loan
İşbank	İşbank regularly monitors and measures greenhouse gas emissions, sets targets to reduce them, and discloses the results. Customers are informed about sustainability and supported to develop sustainability practices. Energy efficiency, renewable energy, waste reduction and recycling, protecting or improving environmental conditions are supported through loans. İşbank aims to mediate the green transformation of its customers by developing environmentally friendly products and lending activities.	<ul style="list-style-type: none"> - Financing renewable energy - Green bond - Solar loan (roof solar power plant loan) - Urban transformation loan - Unlicensed electricity generation loan - Energy efficiency loan - Electric charging station installation loan - Green office premises loan - Marine conservation loan - Solar powered bankamatiks - Forest forward - Maximum TEMA (Turkish foundation for combating soil erosion, for reforestation and the protection of natural habitats) card - Environmental variable fund -TEMA - Women at work stock exchange fund - Renewable energy mix fund - Green swan platform (collaboration with institutions in the fight against climate change) - Project financing renewable energy - Green/sustainable bond - Transition to low carbon economy bond - Green finance project venture capital investment fund
Türkiye sınai Kalkınma bankası (TSKB)	<ul style="list-style-type: none"> - Implements task force on climate-related financial disclosures criteria. - Calculates annual greenhouse gas emissions according to ISO 14064 greenhouse gas reporting and verification standard. - Incorporates climate change into the bank's risk management system, including provisions for lending. - Board of Directors and senior management actively follows climate change management efforts. Sustainability committee monitors the progress together with working groups of different disciplines. 	

(continued on next page)

Table 1 (continued)

Bank Name	Green Strategies	Products & Services
Vakıfbank	<ul style="list-style-type: none"> - Supports carbon disclosure project water program, manages water-related risks and raises awareness. - Implements a recycling action plan for recycling of wastes such as paper and plastic. - Supports lowering carbon emissions through electric cars. - Calculates and reduces carbon footprint, reports the results through carbon disclosure project. 	<ul style="list-style-type: none"> - Credit guarantee fund, February 6 earthquakes operating expenses support and investment support - Environment friendly loan - Energy efficiency loan - Renewable energy loan - Green housing loan
Yapı Kredi bank	<ul style="list-style-type: none"> - Maintains an environmental board. - In line with circular economy principles, prioritizes waste prevention, waste reduction, increasing recycling, recovery, reuse and using waste as a resource whenever possible. - Aims to reduce environmental impacts caused by energy consumption, water consumption and resource consumption. Works towards efficient use of natural resources and increased usage of renewable energy. - Develops environment friendly financing products. 	<ul style="list-style-type: none"> - Sustainability-linked loan - Renewable energy loan - Energy efficiency loan - Nature friendly mortgage - Nature friendly auto loan - Green bond Issuance

Source: Created by the author

projects such as the Blue Breath Project aiming at making marine pollution prevention by cleaning Marmara Sea and organizing training for raising awareness.

Türkiye Sınai Kalkınma Bankası (TSKB) established Green Swan Platform gathering public and private institutions, academics, students, media, NGOs and international organizations. Climate review report is published by the platform.

4. Methodology, data, analysis and results

4.1. Methodology

Content analysis is a research tool that allows systematic analysis (classification, coding and numerical summarization) of the information that belongs to certain text or content and thereby making inferences about that text or content (Macnamara, 2005; Weber, 1996). Using the content analysis, an investigation has been carried out on the websites of the banks in BIST 100. The focus was on whether these websites contained information related to green banking. The analysis yielded quantitative data. To elaborate on the contents of websites and news in the press, a control table containing 26 environmentally friendly green products and services have been identified based on literature as shown in Table 2.

First, a literature review was conducted, and a descriptive framework of green banking strategies was drawn from Google Scholar, Emerald, and Academic Search Ultimate databases. The research questions and keywords were determined. Then, to conduct content analysis the phrases, “green banking”, “green banking strategies”, “green

Table 2

Comparison of green strategies of banks in BIST 100.

Green Strategies	1	2	3	4	5	6	7	8	9
- Energy efficiency practices in buildings, reduce energy consumption, increased usage of renewable energy, energy management system (ISO 50001)		+		+					+
- Waste management system incorporated into operations, increase recycling, recovery, reuse and use waste as a resource when possible		+						+	+
- Reduce water consumption, manage water-related risks and raise awareness								+	+
- Environmental performance reporting through carbon disclosure project, integrated report, sustainable financing allocation report, climate change report	+	+						+	+
- Create infrastructure that will minimize carbon emissions	+								
- Environmentally friendly operations to achieve net zero emissions	+								
- Determine and implement targets, performance criteria and action plans to achieve the united nations sustainable development goals, sustainability strategy and policies							+		
- Environmental management system (ISO 14001)				+					
- Monitor and measure greenhouse gas emissions, set targets to reduce and disclose the results				+	+			+	
- Develop environment friendly financing products and support customers through these products and services to facilitate low carbon economy	+	+	+	+	+	+	+	+	+
- Incorporate climate change into the bank's risk management system, including provisions for lending								+	
- Board of Directors and senior management actively follows climate change management efforts								+	+
- Sustainability committee monitors the progress together with working groups of different disciplines								+	
- Support lowering carbon emissions through electric cars									+
- Work towards efficient use of natural resources									+

1 Albaraka Türk, 2 Akbank, 3 Garanti Bank, 4 Halk Bank, 5 İş Bank, 6 Şekerbank, 7TSKB, 8Vakıf Bank, 9Yapı ve Kredi Bank.

banking practices”, “sustainability reports of banks”, “environmental policies and strategies of banks” and “examples of green practices of banks” were searched on the Google search engine. Resulting 112 contents were examined. 98 compatible contents have been analyzed for 9

banks in BIST 100 (Albaraka Turk, Akbank, Garanti Bank, Halk Bank, İş Bank, Şekerbank, TSKB).

4.2. Sample data

Using the purposeful sampling method, 9 banks have been identified in BIST 100 Index as of 2023 through the Public Disclosure Platform (PDP) – an online information disclosure system where official notifications of companies are posted in line with capital market regulations.

Purposeful sampling is a common technique in qualitative social research. In this method, researchers select participants based on specific criteria such as their presence in a population of interest, unique characteristics, relevant experiences, or other pertinent attributes. The chosen sample serves as the study subjects, representing a larger group or population that the research aims to investigate. Studies employing purposive sampling are often used to identify prevailing concepts, standards, and social issues. A key advantage of purposive sampling is its efficiency, requiring fewer resources and less time compared to many traditional research methods (Stratton, 2024).

The purposeful sample is appropriate for our study as it allows in-depth research on certain characteristics and criteria such as green banking strategies. The rationale behind selecting banks for our sampling is that they have a high level of influence on the environment because they provide funds to businesses. The steps taken by the banks on sustainable development affect and guide all other sectors.

We scanned the news in the national press for 2023 and framed 98 news containing the previously identified phrases. In addition, the websites of the nine banks were examined and a content analysis was conducted.

4.3. Reliability analysis and validity

The content analysis works with categories. The reliability of content analysis largely depends on the coding process and the reliability of the coding categories. It is about different coders encoding the same message in the same way or getting the same results when the same coder re-examines the same text at different times. The same content is distributed to researchers, and they are asked to classify. If the classifications are compatible with the results at hand and there is a concordance of more than 80 % then the study is considered reliable. The following formula is used while performing the reliability test in content analysis:

$$R = 2 \cdot (C_{1,2}) / C_1 + C_2$$

R = The reliability coefficient of the research
 $C_{1,2}$ = Number of encoders compatible with each other
 C_1 = Number of encoders by first encoder
 C_2 = Number of encoders by the second encoder

In this study, the accuracy of the data coded twice by different encoders and was formulated as follows:

$$R (\text{Reliability coefficient}) = 2 \cdot (98)/112 + 112 = 0.88.$$

The resulting 0.88 corresponds to “very good” reliability range because a reliability coefficient within 0.80–1.00 indicates that the scale is reliable (Leiva et al., 2006).

4.4. Evidence from the content analysis

Following the content analysis, Table 2 shows a comparison of the green strategies in BIST 100. The green strategies identified through content analysis are marked with “+” symbol. A blank field does not necessarily mean a product or service is not provided by the corresponding bank. It only indicates that it did not come up during the content analysis.

As seen in Table 2, the most popular green banking strategy among

Turkish banks is to provide loans to customers to facilitate low carbon economy. All the nine banks covered by the study provide at least one green product or service to customers. The next most important strategy is disclosure and reporting; four out of nine banks mentioned reporting in the green banking strategy statements. Measuring, monitoring and reducing greenhouse gas emissions (three banks) and reducing energy consumption in bank buildings (three banks) come next in the analysis as preferred strategies.

A robust disclosure and reporting mechanism are critical for banks due to investor and customer pressures. Institutional investors are moving away from carbon intensive industries to low-carbon alternatives. Demand for green banking products accelerates with increasing consumer awareness. As such, providing a diverse set of green banking products and services is crucial for banks.

Table 3 below shows different types of green products and services provided by the banks in BIST 100. The green products and services identified through content analysis are marked with “+” symbol.

Comparison of products and services in Table 3 point out renewable energy and energy efficiency loans as the most popular green banking products among the Turkish banks, seven out of nine banks provide this loan. Remarkable renewable energy capacity in Türkiye should be also testament to this finding. Türkiye ranked fifth in Europe and twelfth in the World with 54 % renewable of the total installed power as of 2022 (Republic of Türkiye Ministry of Foreign Affairs, 2024). Electric vehicle loans (four banks) and gender themed loans (four banks) are also popular as well followed by roof solar energy, green mortgage, electric charging station, agriculture, green bond and green workplace investment loans (three banks). This result is important as it explains the type of banking products and services provided in line with green banking strategies. Sustainable banking strategy predominantly focuses on the type of products and services provided by the banks.

Table 3 provides a quantitative snapshot of the popularity of different green banking products among Turkish banks (7 out of 9 offering renewable energy and energy efficiency loans). While previous studies like Cihangir and Öztürk (2019) identified certain product types, this study offers a clearer picture of their relative adoption rates.

5. Conclusion and policy implications

Recognizing the growing importance of green banking in driving sustainability within emerging economies, this study aimed to identify the specific green banking strategies employed by major Turkish banks listed on the BIST 100 Index as of 2023. Through content analysis and purposive sampling, our findings reveal that Turkish banks are actively utilizing a range of green banking strategies to pursue carbon neutral or net zero targets, with the provision of a diverse range of green financing products emerging as the most prevalent strategy, followed by comprehensive disclosure and reporting initiatives. Measuring, monitoring and reducing greenhouse gas emissions along with minimizing energy consumption in bank operations are prominent strategies as well. All nine banks in our sample have set ambitious “carbon neutral” and “net zero” targets and are implementing green banking strategies to varying degrees, with Garanti, İşbank, and Akbank offering the most diversified portfolios of green products and services.

Consistent with the literature highlighting the importance of green lending (Zhang et al., 2022; Bahl, 2012), our results confirm the prominence of green financing products while also offering fresh insights into the specific types and adoption levels within Türkiye. The quantification of product popularity, the detailed breakdown of emerging green products and their adoption levels, and the particularly noteworthy highlight of gender-themed loans provide a more up-to-date and granular understanding of the practical implementation of green banking strategies within the Turkish banking sector.

By providing a timely and detailed analysis of the green banking strategies actively employed by major Turkish banks, this study makes a significant and nuanced contribution to the existing literature, in

Table 3
Comparison of green products and services provided by banks in BIST 100.

Green Products and Services	1	2	3	4	5	6	7	8	9
- Renewable energy loan		+	+	+	+		+	+	+
- Energy efficiency and insulation loan			+	+	+	+		+	+
- Roof solar energy loan		+	+		+				
- Green mortgage loan			+					+	+
- Electric vehicle/Hybrid auto loan		+	+	+					+
- Electric charging station loan			+	+	+				
- Urban transformation loan			+		+				
- Agricultural loan (organic, irrigation, no-till farming, digital agriculture, solar energy)		+	+			+			
- Sustainability linked loan		+							+
- Women entrepreneur loan		+	+		+	+			
- Green bond					+		+		+
- Green workplace investment loan		+		+	+				
- Green direct debit system			+						
- Sustainable investment funds			+						
- Sustainable pension funds			+						
- Electric bicycle shopping credit			+						
- Green leasing loan			+						
- Gender equality loan			+						
- Green IPO			+						
- Unlicensed electricity generation loan					+				
- Solar powered bankamatiks					+				
- Forest forward					+				
- Maximum TEMA card					+				
- Environmental variable fund - TEMA					+				
- Blue finance package for corporate and commercial segment including blue port, blue transportation and blue tourism loans		+							
- Transition to low carbon economy loan		+							
- Sustainable trade finance		+							
- Green swan platform (collaboration with institutions to fight climate change)							+		
- Low carbon economy transition bond							+		
- Green finance project venture capital investment fund							+		
- Social and environmental impact management in lending						+			
- Financial products (murabaha, interbank wakala and customer wakala, etc.) and lease certificates (sukuk) compliant with participation finance principles within the scope of financing/ refinancing of eligible green, social, and blue projects		+							
- Credit guarantee fund, February 6 earthquakes operating expenses support and investment support								+	
- Environment friendly loan								+	
- Green certified construction project loan				+					

1 Albaraka Türk, 2 Akbank, 3 Garanti Bank, 4 Halk Bank, 5 İş Bank, 6 Şekerbank, 7 TSKB, 8 Vakıf Bank, 9 Yapı ve Kredi Bank.

contrast to the broader adoption and impact analyses found in studies of other emerging markets (Ahmad et al., 2013; Sun et al., 2020). Our findings reinforce the importance of green financing, consistent with studies in Bangladesh (Zhang et al., 2022) and India (Bahl, 2012), but depart by quantifying the current prevalence of specific green financial products in Türkiye, such as roof solar energy loans, green mortgages, and electric charging station loans, offering a more granular view of the practical implementation of these strategies.

The inclusion and ranking of specific products such as roof solar energy loans, green mortgages, electric charging station loans, agriculture loans, green bonds, and green workplace investment loans offers a valuable and detailed view of the current green banking product landscape in Türkiye. The moderate adoption of roof solar loans suggests a growing interest in supporting decentralized renewable energy among Turkish banks and their clients. The presence of gender-themed loans (offered by four banks) is a particularly noteworthy finding, indicating a potential convergence of social and environmental sustainability considerations within Turkish banking strategies, moving beyond purely environmental focus seen in some of the earlier studies. Furthermore, the inclusion of all sampled banks in the BIST Sustainability Index suggests that the adoption of green banking strategies is likely associated with competitive advantage, contributes to enhanced reputation, and increases their attractiveness to investors in capital markets.

These results have crucial policy implications. Policymakers should encourage banks to establish clear and measurable long-term goals for climate change while laying out a clear plan for supporting the transition away from fossil fuels through targeted loan programs and incentives for green investments. Regulatory bodies should mandate or incentivize the integration of Environment, Social, and Governance (ESG) factors into the core of banks' strategies and reporting frameworks, potentially through performance-based incentives for executive leadership and staff. Governments should continue to support technological developments and improve ESG data availability through investments in research, standardization of reporting metrics, and fostering collaboration between technology providers and the financial sector to enhance climate risk prediction and management. Increased government climate action, including clear policy signals and financial incentives, alongside greater public and private investment in research and development, is crucial to accelerate the commercialization and mainstream adoption of decarbonization technologies, thereby creating further opportunities for green financing by banks.

This study has some limitations. It focuses only on Türkiye as a case study. Future studies can include more evidence from other emerging markets and compare the findings. In addition, it would be interesting to study the impact of green banking strategies on financial stability and development.

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The author certifies that he has NO affiliations with or involvement in any organization or entity with any financial interest (such as honoraria; educational grants; participation in speakers' bureaus; membership, employment, consultancies, stock ownership, or other equity interest; and expert testimony or patent-licensing arrangements), or non-financial interest (such as personal or professional relationships, affiliations, knowledge or beliefs) in the subject matter or materials discussed in this manuscript.

Ethics approval and consent to participate

Not applicable.

Availability of data and materials

The data that used in this study are available in Borsa Istanbul Website and Dergipark Database.

Consent for publication

The authors are willing to permit the Journal to publish the article.

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