Identifying ESG Indicators in the Context of Bank Customer Credit Assessment

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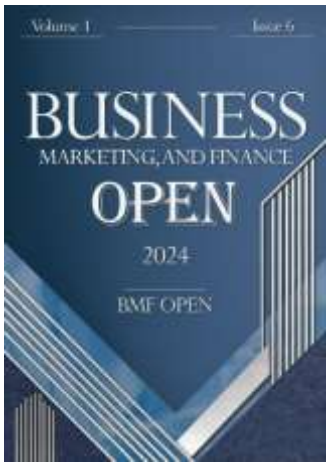

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Abstract: This study identifies ESG indicators in the context of bank customer credit assessment. The statistical population of this qualitative research consists of experienced university professors, researchers, and academic professionals, as well as senior, middle, and operational bank managers who possess sufficient knowledge and experience regarding the credit rating of applicants for bank facilities. Direct interviews were conducted with them. In this stage, interviews were conducted using the snowball sampling method until theoretical saturation was achieved. Thematic analysis led to the identification of eight key environmental criteria (sustainable practices, climate change initiatives, resource efficiency, pollution control, biodiversity conservation, green financing, adoption of renewable energy, and supply chain responsibility), eight key social criteria (community engagement, employee well-being, human rights, customer relations, diversity and inclusion, social impact investment, labor rights, and corporate ethics), and nine key governance criteria (corporate governance, transparency and accountability, risk management, ethical leadership, regulatory compliance, stakeholder engagement, board diversity, audit and oversight, environmental reporting, and anti-corruption measures).

Keywords: ESG, financial sustainability, banking, credit risk, financial performance.

1. Introduction

Banks must identify the characteristics of their customers to understand their needs when granting credit facilities. Credit assessment plays a crucial role in reducing banking risks, including credit risk [1, 2]. Credit assessment refers to the process in which the creditworthiness of individual and corporate clients of financial institutions and banks is measured based on the information received from them. This process allows for a better understanding of their financial situation and ability to repay received loans and access additional services [3]. Based on this approach, individuals' credit risk is assessed, and customers are classified and scored according to their credit risk [4].

The banking sector operates in an environment exposed to various types of risks. Banks, as the primary institutions providing credit, inherently face credit risk. Therefore, they place significant emphasis on dynamic risk management and the design of internal risk management models, establishing diverse structures and frameworks for optimal risk management [5]. Credit risk is one of the most critical risks banks face. Failure to properly manage and control this risk can lead to crises and bankruptcy. Since banks are influential entities within a country's economic system, such crises can impact the entire economic and social system [6].

Credit risk refers to the possibility that a borrower may delay loan repayment or default altogether, causing disruptions in the cash flow of banks and negatively affecting their liquidity and investment returns. To control and reduce credit risk, banks need to accurately assess their loan applicants [3]. They must distinguish between applicants who have the ability to repay their loans on time and those who pose a higher risk. This distinction is possible through efficient and effective credit risk management [7].

A significant portion of the current challenges faced by banks in our country, such as the rise in overdue and non-performing loans, stems from the lack of proper credit risk measurement and management systems. Loan portfolios constitute a major portion of the assets of commercial banks. The core competency of these banks lies in attracting deposits from investors and granting loans to applicants [8]. The attracted deposits obligate banks to pay interest and principal at specified maturities, while granted loans expose them to borrower defaults. Therefore, assessing the creditworthiness of applicants is crucial for decision-making regarding loan approvals [1].

Banks and financial institutions play a key role in the money and capital markets, with credit risk management and allocation being integral to their responsibilities. Banks require methods and tools to estimate the credit ratings and risk levels associated with loan repayments and returns to minimize default rates. The use of an efficient system in this area provides significant benefits to bank stakeholders and financial institutions [2]. Despite the importance of this issue, the Iranian banking system lacks an efficient and structured approach to credit risk assessment, scoring, ranking, and credit level determination based on effective indicators. Instead, these processes are primarily conducted based on expert assessments and credit committees. An efficient credit risk model not only facilitates decision-making in loan approvals and collateral acquisition but also ensures the banking system—and, consequently, the economy—adopts an efficient capital allocation model [9].

Previous studies have used statistical methods such as discriminant analysis, logistic and probit regression, classification, and regression trees for customer credit scoring and ranking. However, with the development of artificial intelligence models and deep learning techniques, along with advancements in software and hardware capabilities, significant studies have explored the application of these methods in credit scoring and ranking models [10].

Credit risk assessment is at the core of modern economies. Traditionally, it has been measured through statistical and manual methods. Recent advances in financial artificial intelligence, driven by a new wave of machine learning (ML), have brought about credit risk models that have gained significant attention from both industry and academia [11]. Numerous quantitative models have been developed for credit scoring, enabling banks to assess their customers' credit risk based on past ranking trends. However, due to changing economic conditions and various social and political developments, quantitative models alone are not sufficiently accurate. Therefore, a comprehensive model incorporating both quantitative and qualitative factors, along with expert opinions, is required [12].

In recent years, the importance of environmental, social, and governance (ESG) criteria in the banking industry has grown significantly. Banks, as key economic institutions and providers of capital, play a critical role in sustainable development and financing for businesses [8]. As a result, incorporating ESG criteria into banks' credit decision-making processes has gained importance. ESG criteria help banks not only achieve profitability goals but also contribute to sustainable development and fulfill their social and environmental responsibilities. Consequently, there is an increasing need for a comprehensive framework that integrates ESG criteria into the credit assessment of corporate clients [13].

The adoption of ESG criteria in banks is not only effective in managing credit risks and reducing financial costs but also enhances their social reputation and public trust. By considering indicators such as greenhouse gas emission reduction, resource efficiency, and corporate social responsibility, banks can better evaluate their clients' risks and make more effective credit allocation decisions [14]. On the other hand, governance criteria such as transparency, risk management, and conflict of interest mitigation help banks strengthen their internal control systems and prevent fraud and financial misconduct [15].

The existing literature on ESG integration in the banking sector and credit risk assessment highlights a range of methodologies and findings that contribute to a comprehensive understanding of the topic. Zad Falah et al. (2024) proposed a green banking model emphasizing ethical banking and social responsibility through semi-structured interviews and thematic analysis using MAXQDA, concluding that managerial actions and environmental protection, supported by marketing, new technologies, and governance frameworks, are critical. Similarly, Madani

et al. (2024) investigated the impact of customer protection policies on banking profitability using a descriptive correlational method and multiple regression analysis of 25 Iranian banks, finding that regulatory compliance and customer responsiveness positively affect profitability [16]. Jafari Gorji et al. (2023) presented a sustainable banking model for Iran's public banks, emphasizing the importance of green banking under specific conditions. In the context of credit risk prediction [17], Tolouei Ashlaghi et al. (2022) applied support vector machine models combined with F-score and grid search to predict the financial performance of corporate clients in banks, identifying key influencing factors [18]. Azimi and Ahmadi (2021) introduced a hybrid intelligent model for credit rating of bank loan applicants using logistic regression and financial indicators to assess credit risk factors effectively [19]. Similarly, Taghavi-Fard et al. (2019) evaluated sustainable banking performance using a multiple criteria framework, identifying Bank Mellat as one of Iran's most sustainable banks from a stakeholder perspective [20]. Advanced modeling approaches were also explored by Mehrara et al. (2019), who used logistic and probit regression alongside GMDH neural networks to rank the creditworthiness of corporate clients in Parsian Bank, and by Jafari Eskandari and Rouhi (2017), who employed an enhanced decision vector machine with a genetic algorithm for credit risk management, demonstrating the effectiveness of data mining techniques [21]. On the international front, Danisman and Tarazi (2024) examined the impact of ESG activities on bank lending during financial crises using a two-step dynamic panel data model (GMM) on European banks, revealing that ESG-committed banks were less affected by lending reductions due to reduced credit risk [22]. In the Middle East and North Africa, Khori et al. (2023) analyzed ESG determinants using Refinitiv and World Bank data with panel regression models, showing that bank size positively influences ESG scores, while economic development and corruption exert varying impacts [23]. Additionally, Andries and Sprincean (2023) analyzed data from 493 banks across 39 developed and emerging markets between 2003 and 2020, concluding that banks with strong ESG performance face lower financing costs, with social and governance dimensions playing a more significant role in reducing funding costs [1]. In the Italian banking sector, Miniochi and Paulochi (2023) found that pollution reduction and waste management positively impacted financial performance, whereas a focus on social responsibilities resulted in lower accounting performance [24]. Other studies such as Galletta et al. (2022) provided a literature-based assessment of ESG features in banking, introducing key authors and new research directions [13]. In the realm of credit risk modeling, Si Shi et al. (2022) conducted a systematic review of machine learning applications, highlighting the superiority of deep learning algorithms in credit risk estimation [11]. Similarly, Wei-Huan Li et al. (2022) demonstrated the effectiveness of combining XGBoost and MLP models for credit risk assessment in digital supply chains . Bruno and Lagasio (2021) examined ESG-related regulatory frameworks across European banks, emphasizing disclosure requirements [25].

Implementing ESG-based models in banks signifies a greater focus on sustainability and accountability across all operational levels. Given the rapid changes in economic and social environments, banks need to transition from traditional credit assessment approaches to a more comprehensive approach [8]. This comprehensive approach, incorporating ESG criteria, enables banks to mitigate risks associated with non-compliance with ESG requirements while attracting clients committed to sustainability and social responsibility. Consequently, banks can achieve improved financial and social performance in both the short and long term [26].

Considering all the aforementioned aspects, the present study aims to identify ESG indicators in the context of bank customer credit assessment, ensuring the highest alignment with the prevailing ESG concepts in modern international banking [27]. Integrating ESG perspectives into the credit assessment process can lead to the development of strategic banking approaches and better alignment with emerging global trends in modern banking.

2. Methodology

The research process began with an extensive literature review to identify theoretical foundations and preliminary ESG indicators. A qualitative thematic analysis approach was adopted to aggregate and categorize ESG indicators comprehensively. The study design followed an exploratory qualitative approach, involving in-depth interviews with a carefully selected sample of experts in the banking sector, including senior, middle, and operational managers, as well as academic researchers with extensive experience in credit scoring. The sampling method used was the snowball technique, where initial participants recommended other suitable candidates for

interviews until theoretical saturation was achieved. Participants were selected based on key criteria such as possessing specialized knowledge and experience in credit scoring of bank loan applicants, being introduced and recognized by their peers, diversity in professional backgrounds to ensure representation of both academic and practical perspectives, and their willingness to actively engage in the research process. This design ensured that the study captured a comprehensive range of perspectives and provided in-depth insights into ESG criteria relevant to credit evaluation in the Iranian banking sector.

Data collection was conducted using semi-structured interviews, which allowed for flexibility while ensuring coverage of key research themes. The interview questions were designed to capture insights related to ESG criteria and their impact on credit scoring processes. Open-ended questions were used to encourage participants to share their experiences and perspectives in depth. Interviews were recorded, transcribed, and reviewed for accuracy before analysis. Additionally, secondary data sources such as industry reports, regulatory guidelines, and relevant corporate sustainability disclosures were examined to supplement the primary data. Data collection followed a systematic process to ensure reliability and validity, with triangulation techniques used to cross-verify information obtained from different participants and sources. Ethical considerations, including informed consent and confidentiality, were strictly adhered to throughout the data collection phase. The collected data provided valuable insights into the factors influencing credit scoring practices and the role of ESG indicators in financial decision-making.

The data analysis phase involved a rigorous thematic analysis approach to identify recurring patterns and key themes within the collected data. The analysis process began with an initial familiarization stage, where the research team carefully reviewed interview transcripts and field notes to gain a comprehensive understanding of the content. Following this, an open coding process was conducted, in which significant phrases and concepts were systematically identified and labeled with relevant codes. These codes were then grouped into broader themes reflecting environmental, social, and governance dimensions of ESG. Thematic categorization allowed for a structured interpretation of data, ensuring that key issues related to sustainability and governance were captured effectively. To enhance the reliability of the findings, an iterative coding process was employed, with regular peer debriefing sessions held to discuss emerging themes and resolve discrepancies. Validity was ensured through expert review and feedback, ensuring that identified themes accurately represented the underlying data. The findings were subsequently synthesized into a comprehensive report, with illustrative quotes and examples from the interviews used to support the interpretation of results. This systematic approach to data analysis enabled the identification of critical ESG criteria that could enhance the credit scoring process in the banking sector.

3. Findings

This study included 17 experts in various banking and financial fields, comprising individuals of different genders, ages, and work experiences. In terms of gender, the group consisted of 9 men and 8 women. The average age of the male experts was 47.5 years, while the average age of the female experts was 39.3 years. Regarding educational background, most male experts held doctoral degrees, whereas female experts primarily held master's degrees. Their professional roles were diverse, ranging from university professors and bank managers to financial researchers and banking specialists. The participants' work experience varied from 6 to 27 years, reflecting a broad range of experiences in different banking and financial sectors.

The experts' work experience ranged from 6 to 27 years in various banking and financial fields. The youngest expert in terms of work experience was a woman with 6 years of experience as a banking operations specialist (E10). On the other hand, the expert with the most extensive work experience was a man with 27 years of experience as a branch deputy manager (E7). In terms of work experience distribution, many experts had over 20 years of experience, including branch managers and university professors. For instance, banking executives such as expert E3, with 25 years of experience, branch manager E5, with 25 years of experience, and branch manager E11, with 24 years of experience, fall into this category. Female experts also had significant work experience, such as expert E12, with 19 years of experience as a branch supervisor, and expert E2, with 15 years of experience as a financial researcher. Additionally, a banking affairs specialist (E6) with 15 years of experience and a banking supervision and planning specialist (E16) with 16 years of experience are examples of experienced female experts.

Overall, this group of experts, with an average of 18.3 years of work experience, represents extensive and in-depth knowledge in various banking and financial domains, contributing significantly to comprehensive research efforts. The distribution of work experience indicates a blend of younger and more experienced individuals, adding diverse perspectives to the study.

The age of the experts in this study ranged from 33 to 55 years. The youngest expert was a 33-year-old woman (E10) working as a banking operations specialist. In contrast, the oldest experts were a 55-year-old man working as a branch manager (E5) and a branch deputy manager (E7). In terms of age distribution, a significant number of experts were in their 40s and 50s. For example, expert E1, a 45-year-old male university professor, and expert E3, a 50-year-old male bank manager, represent this group. Female experts were also present in this age range, such as expert E2, a 39-year-old financial researcher, and expert E4, a 34-year-old credit officer. The largest concentration of participants fell within their forties. Male experts such as E9 (38 years old) and E15 (43 years old) were part of this group, as well as female experts such as E6 (42 years old) and E16 (40 years old).

The average age of male experts was 47.5 years, indicating their long-standing experience in various fields. In contrast, the average age of female experts was 39.3 years, bringing younger and more dynamic perspectives to the research. This age diversity represents a combination of deep experience and innovative ideas in banking and financial sectors, contributing significantly to the comprehensiveness and dynamism of the study.

Overall, the diverse age distribution among experts indicates a mix of varied experiences and perspectives, contributing to more comprehensive and precise analyses in banking and financial fields. This diversity ensures a balance between fresh perspectives and past experiences, both of which are essential for achieving meaningful and effective research outcomes.

Among the 17 experts participating in this study, 9 were men and 8 were women, representing an almost equal gender ratio. Male experts had extensive work experience and advanced educational qualifications. For example, expert E1 was a 45-year-old man with 20 years of experience and a doctoral degree, working as a university professor. Similarly, expert E3 was a 50-year-old man with 25 years of experience and a doctoral degree, serving as a bank manager. Expert E5, a 55-year-old man with 25 years of experience and a doctoral degree, held the position of branch manager. This group of male experts reflected profound and extensive experience in various banking and financial fields.

The educational background of the experts in this study demonstrated diversity and a high level of academic achievement in banking and financial fields. Among the 17 participants, 9 held doctoral degrees, and 8 held master's degrees, indicating a high level of expertise and academic knowledge among the experts.

Experts with doctoral degrees were predominantly men with long-term work experience and key organizational roles. For example, expert E1, a 45-year-old man with 20 years of experience and a doctoral degree, worked as a university professor. Expert E3, a 50-year-old man with 25 years of experience and a doctoral degree, served as a bank manager. Similarly, expert E5, a 55-year-old man with 25 years of experience and a doctoral degree, was a branch manager. Other male experts with doctoral degrees included E7, E9, E11, E13, E15, and E17, each holding significant roles in the banking sector.

Experts with master's degrees were primarily women with diverse work experience and various specializations in banking and finance. For example, expert E2, a 39-year-old woman with 15 years of experience and a master's degree, worked as a financial researcher. Expert E4, a 34-year-old woman with 12 years of experience and a master's degree, was responsible for credit management. Expert E6, a 42-year-old woman with 15 years of experience and a master's degree, worked as a banking affairs specialist. Other female experts with master's degrees included E8, E10, E12, E14, and E16, each playing important roles in different banking functions.

This educational combination, emphasizing higher academic qualifications, indicates a high level of expertise and scientific knowledge among the experts. The presence of numerous individuals with doctoral degrees, especially among men, reflects extensive experience and broad knowledge in both research and executive domains. Conversely, female experts with master's degrees highlight the active and effective participation of women in key and specialized roles in banking and finance.

The first step in thematic analysis is familiarization with the data. This phase involves thoroughly reading the collected data, which may be derived from interview transcripts, open-ended questionnaire responses, or observational notes. The goal of this stage is to develop a deep understanding of the data's content and identify key insights that can serve as a foundation for subsequent analysis. This initial familiarization helps the researcher

obtain a comprehensive overview of the data and informally generate ideas about potential themes. For instance, statements related to energy consumption reduction or recycling promotion may emerge, which could later develop into themes related to environmental sustainability.

The second step is initial coding. In this phase, the data is divided into smaller units or codes. Coding involves identifying important phrases or sentences and assigning concise labels that capture the core concepts. For example, if a statement such as "investment in solar panels and wind turbines" is found, it might be assigned the code "green technologies." This stage requires a high level of precision, as it forms the basis for subsequent stages of analysis.

Following the coding process, the third step involves searching for themes. In this stage, the generated codes are categorized based on similarities and differences to form broader, more meaningful themes. These themes should reflect recurring patterns in the data that directly address the research questions. For instance, codes related to energy consumption reduction, recycling, and waste minimization may converge into a theme titled "sustainable practices." Similarly, codes such as "biodiversity conservation" and "habitat restoration" can be grouped under the theme "biodiversity protection." This phase is iterative and creative, requiring careful reflection and repeated data review.

The next stage, theme review, involves revisiting and refining the identified themes. Here, themes are compared against the original data to ensure they accurately represent the content. Similar themes may be merged, while irrelevant ones are discarded. The objective of this stage is to ensure that the final themes are both valid and well-structured, providing a coherent framework for data analysis.

The fifth step, defining and naming themes, involves precisely defining each theme and selecting a concise and descriptive name that accurately reflects its nature and content. For example, "pollution control" could be a theme encompassing waste management and greenhouse gas emissions reduction, while "climate change initiatives" could represent efforts focused on carbon footprint reduction and participation in global initiatives.

Finally, the reporting phase entails compiling a comprehensive report of the thematic analysis findings. This report should include detailed descriptions of each theme, examples from the data (such as direct quotes), and visual representations such as charts or tables illustrating relationships between themes. The report should be structured in a way that allows readers to easily understand how themes were derived from the data and how they address the research questions.

In addition to the outlined stages, the use of supporting tools such as qualitative analysis software can facilitate the analysis process. Tables and matrices can also be valuable for organizing and presenting themes and codes. Ultimately, thematic analysis is a flexible and powerful method for extracting deep insights from qualitative data, applicable across various fields, including environmental, social, and governance (ESG) issues.

Environmental Section Results

The results of the thematic analysis in the environmental section indicate that organizations have adopted various sustainable practices and initiatives to reduce environmental impacts and improve sustainability. In the area of sustainable practices, companies prioritize policies that ensure environmental sustainability. These policies include reducing energy consumption, minimizing waste, and promoting recycling. Investments in green technologies such as solar panels, wind turbines, and energy-efficient machinery are also key initiatives. These investments not only contribute to reducing environmental impacts but also lead to long-term cost savings and improved operational efficiency.

Regarding climate change initiatives, organizations focus on optimizing energy use, improving logistics operations, and implementing carbon offset programs to reduce their carbon footprint. Participation in global initiatives such as the Paris Agreement or the Carbon Disclosure Project (CDP) helps companies align their strategies with international standards and contribute to global climate change mitigation efforts.

Resource efficiency has also been emphasized through the efficient use of resources and waste minimization. Companies achieve this by streamlining production processes, making more effective use of raw materials, and adopting practices such as lean manufacturing. Waste minimization efforts include reducing production waste through better product design, improved packaging, and recycling programs. Pollution control is achieved through emission reduction and waste management initiatives, such as installing filters and scrubbers on industrial exhausts, using cleaner fuels, and transitioning to electric vehicles. Effective waste management strategies involve waste segregation at the source, recycling, composting organic waste, and ensuring the safe disposal of hazardous materials.

Biodiversity conservation efforts involve conservation initiatives and habitat restoration. Companies can contribute by preserving green spaces, planting trees, and protecting natural habitats. Habitat restoration projects include rehabilitating degraded land, creating wildlife corridors, and supporting conservation programs.

Green financing focuses on investing in green projects and promoting sustainable financing. Green financing includes providing loans or investments for projects with positive environmental impacts, such as renewable energy facilities, sustainable agriculture, and green buildings. Promoting sustainable finance involves developing financial products and services that support environmental and social sustainability, encouraging investors to consider ESG factors in their investment decisions.

The adoption of renewable energy involves transitioning to clean and renewable energy sources. Moving to renewable energy sources such as solar, wind, and hydroelectric power reduces reliance on fossil fuels and decreases greenhouse gas emissions. Investing in clean energy technologies includes funding research and development for new innovations, installing renewable energy systems, and integrating these technologies into existing operations to enhance sustainability.

Finally, supply chain responsibility encompasses sustainable sourcing and ethical supply chains. Sustainable sourcing involves procuring materials that are produced in an environmentally and socially responsible manner. This includes ensuring that suppliers adhere to ethical practices, such as fair labor conditions and environmental stewardship. Guaranteeing an ethical supply chain means monitoring and managing suppliers to prevent human rights violations, environmental degradation, and unethical practices. All these actions contribute to environmental preservation and sustainable development.

Table 1: Environmental Thematic Analysis Results

Main Category	Subcategory	Open Coding
Sustainable Practices	Environmentally Friendly Policies, Green Technologies	This includes adopting policies that prioritize environmental sustainability, such as reducing energy consumption, minimizing waste, and promoting recycling. Companies may invest in green technologies such as solar panels, wind turbines, and energy-efficient machinery. These investments not only help reduce environmental impacts but often lead to cost savings and improved operational efficiency in the long term.
Climate Change Initiatives	Carbon Footprint Reduction, Global Initiatives	Organizations can take steps to reduce their carbon emissions by optimizing energy consumption, improving transportation logistics, and implementing carbon offset programs. Participation in global initiatives such as the Paris Agreement or the Carbon Disclosure Project (CDP) helps companies align their strategies with international standards and contribute to global climate change efforts.
Resource Efficiency	Efficient Use of Resources, Waste Minimization	Resource efficiency can be improved by streamlining production processes, making better use of raw materials, and adopting lean manufacturing practices. Waste minimization includes reducing the amount of waste produced through better product design, improved packaging, and recycling programs, ultimately lowering disposal costs and environmental impacts.
Pollution Control	Emission Reduction, Waste Management	Pollution control involves installing filters and scrubbers on industrial exhausts, using cleaner fuels, and transitioning to electric vehicles. Effective waste management strategies include waste segregation at the source, recycling, composting organic waste, and ensuring the safe disposal of hazardous materials to prevent pollution and conserve natural resources.
Biodiversity Conservation	Conservation Efforts, Habitat Restoration	Companies can contribute to biodiversity conservation by preserving green spaces, planting trees, and protecting natural habitats. Habitat restoration projects may include reclaiming degraded lands, creating wildlife corridors, and supporting conservation initiatives to restore ecological balance and promote biodiversity.
Green Financing	Investment in Green Projects, Sustainable Financing	Green financing involves providing loans or investments for projects that have positive environmental impacts, such as renewable energy facilities, sustainable agriculture, and green buildings. Promoting sustainable financing includes developing financial products and services that support environmental and social sustainability, encouraging investors to consider ESG factors in their investment decisions.
Renewable Energy Adoption	Transition to Renewable Energy Sources, Clean Energy	Transitioning to renewable energy sources such as solar, wind, and hydropower helps reduce reliance on fossil fuels and decrease greenhouse gas emissions. Investing in clean energy technologies includes funding R&D for new innovations, installing renewable energy systems, and integrating these technologies into existing operations to enhance sustainability.
Supply Chain Responsibility	Sustainable Sourcing, Ethical Supply Chain	Sustainable sourcing involves procuring materials produced in an environmentally and socially responsible manner, ensuring suppliers adhere to ethical practices such as fair labor conditions and environmental oversight. Ensuring an ethical supply chain means monitoring and managing suppliers to prevent human rights violations, environmental degradation, and unethical practices.

Social Section Results

The results of the thematic analysis in the social section indicate that companies play a significant role in improving social conditions and enhancing public welfare. These results are categorized into several main categories, each with relevant subcategories and open codes.

In the community engagement category, companies can initiate programs aimed at improving local communities. These programs include educational initiatives, healthcare services, and infrastructure development. Participation in corporate social responsibility (CSR) projects also includes volunteering, financial contributions to charitable causes, and collaborations with non-profit organizations to address social issues and enhance community well-being.

In the employee well-being category, ensuring employee health and safety is of utmost importance. This includes maintaining a safe work environment, providing necessary protective equipment, and conducting regular safety training. Fair labor practices encompass adherence to labor laws, offering fair wages, ensuring reasonable working hours, and preventing discrimination and harassment in the workplace.

Human rights have also been a focal point of this analysis. Adhering to human rights standards involves recognizing and respecting the rights of all employees, including fair treatment, safe working conditions, and freedom from exploitation. Preventing workplace discrimination requires implementing policies and practices that promote equality, diversity, and inclusion, ensuring that all employees are treated with respect and dignity.

Regarding customer relations, delivering excellent customer service involves understanding customer needs, providing high-quality products and services, and addressing customer concerns promptly and effectively. Maintaining high levels of customer satisfaction is achieved through continuous improvement, seeking customer feedback, and creating positive customer experiences that foster loyalty and trust.

Diversity and inclusion in the workplace involve promoting diversity and creating an inclusive culture that values and respects differences in ethnicity, gender, age, religion, and other characteristics. Implementing inclusive practices includes developing policies and programs that promote equal opportunities, support diverse talent, and ensure that all employees feel valued and engaged.

Social impact investing focuses on supporting social enterprises and impact-driven investments. These investments aim to generate measurable social and environmental impacts alongside financial returns, targeting areas such as affordable housing, education, healthcare, and clean energy.

In the labor rights category, ensuring fair wages means providing compensation that reflects employees' skills, experience, and contributions, and is sufficient to cover their living costs. Providing safe working conditions includes maintaining a hazard-free work environment, adhering to safety protocols, and promoting a culture of health and safety.

Finally, corporate ethics include defining core principles and values that guide corporate actions and decisions, such as integrity, respect, and responsibility. Implementing ethical guidelines involves establishing a code of conduct that outlines acceptable behaviors, offering training on ethical issues, and ensuring employee compliance with these standards.

This thematic analysis reflects companies' commitment to improving social conditions and adhering to ethical and human values in all aspects of their operations. These initiatives not only contribute to public welfare but also foster trust and loyalty among customers and employees.

Table 2: Social Thematic Analysis Results

Main Category	Subcategory	Open Coding
Community Engagement	Community Development Programs, Social Projects	Companies can initiate programs aimed at improving local communities, such as educational initiatives, healthcare services, and infrastructure development. Participation in corporate social responsibility (CSR) projects includes volunteering, financial contributions to charitable causes, and collaborations with non-profit organizations to address social issues and enhance community welfare.

Employee Well-being	Health and Safety Policies, Fair Labor Practices	Ensuring employee health and safety includes maintaining a safe work environment, providing necessary protective equipment, and conducting regular safety training. Implementing fair labor practices includes compliance with labor laws, offering fair wages, ensuring reasonable working hours, and preventing discrimination and harassment in the workplace.
Human Rights	Human Rights Assurance, Anti-Discrimination	Adhering to human rights standards involves recognizing and respecting the rights of all employees, including fair treatment, safe working conditions, and freedom from exploitation. Preventing workplace discrimination requires implementing policies and practices that promote equality, diversity, and inclusion, ensuring respect and dignity for all employees.
Customer Relations	Customer Service Excellence, Customer Satisfaction	Providing excellent customer service involves understanding customer needs, delivering high-quality products and services, and addressing concerns promptly and effectively. High levels of customer satisfaction are maintained through continuous improvement, seeking customer feedback, and creating positive experiences that foster loyalty and trust.
Diversity and Inclusion	Diversity Promotion, Inclusive Practices	Encouraging diversity and inclusion involves fostering a workplace culture that values and respects differences in ethnicity, gender, age, religion, and other characteristics. Implementing inclusive practices includes developing policies and programs that promote equal opportunities, support diverse talent, and ensure all employees feel valued and included.
Social Impact Investment	Investment in Social Enterprises, Impact-Driven Investments	Supporting social enterprises involves providing financial backing to businesses that aim to address social or environmental issues. Impact-driven investments focus on generating measurable positive social and environmental impacts alongside financial returns, targeting areas such as affordable housing, education, healthcare, and clean energy.
Labor Rights	Fair Wages, Safe Working Conditions	Ensuring fair wages means providing compensation that reflects employees' skills, experience, and contributions, and is sufficient to cover their living expenses. Providing safe working conditions includes maintaining a hazard-free work environment, complying with safety protocols, and promoting a culture of health and safety.
Corporate Ethics	Corporate Values, Ethical Guidelines	Establishing corporate values includes defining core principles that guide corporate actions and decisions, such as integrity, respect, and responsibility. Implementing ethical guidelines involves creating a code of conduct that specifies acceptable behaviors, providing training on ethical issues, and ensuring employees' compliance with these standards.

Governance Section Results

The results of the thematic analysis in the governance section highlight the importance of various corporate governance principles and mechanisms in enhancing transparency, accountability, and ethical performance in organizations. These findings are categorized into several main categories and related subcategories, each addressing different aspects of corporate governance.

In the corporate governance category, board composition and governance structure are emphasized. Ensuring an appropriate board composition includes selecting board members with diverse skills, experiences, and perspectives aligned with the company's strategic objectives. Establishing a robust governance structure involves defining roles and responsibilities, implementing effective oversight mechanisms, and promoting transparency and accountability in decision-making processes.

Transparency and accountability are crucial aspects of corporate governance. Transparent disclosure of financial and operational information includes providing accurate, timely, and comprehensive reports on the company's performance, strategies, and risks. Such transparency fosters trust among stakeholders, including investors, customers, and regulators, and ensures that the company remains accountable for its actions.

Risk management focuses on identifying and mitigating risks and managing crises. Risk identification involves assessing potential threats to the company's operations, financial stability, and reputation. Implementing mitigation strategies includes developing plans to reduce or eliminate these risks. Effective crisis management involves having a crisis management plan, clear and timely communication, and rapid response to address situations and minimize their impact.

Ethical leadership in corporate governance involves making ethical decisions and fostering ethical behavior. Ethical decision-making entails considering the ethical implications of business choices and acting fairly, honestly, and in alignment with the company's values. Fostering ethical behavior requires consistently acting respectfully, fairly, and ethically, setting a positive example for others in the organization.

Regulatory compliance entails adherence to laws and regulations. Compliance with laws and regulations requires understanding and following the legal requirements applicable to the company's operations, including environmental, labor, and financial regulations. Ensuring regulatory compliance involves staying informed about regulatory changes, implementing necessary policies and procedures, and ensuring employees' awareness and adherence to these requirements.

Stakeholder engagement is another key aspect of corporate governance. Engaging with stakeholders involves communicating and collaborating with individuals or groups affected by or interested in the company's activities, such as employees, customers, suppliers, and the local community. Community participation in decision-making processes means seeking community input, considering their perspectives, and incorporating their feedback into business decisions to enhance social responsibility and community relations.

Board diversity includes promoting gender and skill diversity within the board. Promoting gender diversity on the board involves actively seeking and appointing women to board positions to ensure balanced representation and diverse perspectives. Ensuring a diverse skill set means selecting board members with a wide range of expertise, knowledge, and experience that contribute to the company's strategic direction and success.

Audit and oversight play a crucial role in corporate governance. Internal audits involve regularly reviewing and assessing the company's internal processes, controls, and compliance with policies. External audits, conducted by independent auditors, provide an objective evaluation of the company's financial statements and procedures. Ensuring accountability means holding individuals and departments accountable for their actions and performance and taking corrective actions when necessary.

Environmental reporting includes publishing environmental performance reports and sustainability reports. Publishing environmental performance reports involves documenting and disclosing the company's environmental impacts, including resource consumption, greenhouse gas emissions, and sustainability initiatives. Participation in sustainability reporting means providing comprehensive information on the company's environmental, social, and governance (ESG) performance, demonstrating commitment to sustainability, and enhancing transparency with stakeholders.

Anti-corruption measures include anti-bribery policies and whistleblower protections. Implementing anti-bribery policies requires establishing clear rules and procedures to prevent and address bribery and corruption within the organization. Whistleblower protection involves providing a secure and confidential mechanism for employees to report unethical or illegal activities without fear of retaliation and ensuring that such reports are thoroughly and fairly investigated.

This thematic analysis highlights companies' commitment to establishing strong governance structures, transparency, accountability, and ethical behavior, which can enhance overall performance and strengthen stakeholder trust.

Table 3: Governance Thematic Analysis Results

Main Category	Subcategory	Open Coding
Corporate Governance	Board Composition, Governance Structure	Ensuring an appropriate board composition involves selecting board members with diverse skills, experiences, and perspectives that align with the company's strategic objectives. Establishing a strong governance structure includes defining roles and responsibilities, implementing effective oversight mechanisms, and enhancing transparency and accountability in decision-making processes.
Transparency & Accountability	Financial Disclosure, Operational Transparency	Transparent disclosure of financial and operational information includes providing accurate, timely, and comprehensive reports on the company's performance, strategies, and risks. This transparency fosters trust among stakeholders, including investors, customers, and regulators, ensuring the company remains accountable for its actions.
Risk Management	Risk Identification & Mitigation, Crisis Management	Risk identification involves assessing potential threats to operations, financial stability, and corporate reputation. Implementing mitigation strategies includes developing plans to reduce or eliminate these risks. Effective crisis management requires having a crisis management plan, clear and timely communication, and rapid response to address situations and minimize their impact.

Ethical Leadership	Ethical Decision-Making, Ethical Behavior	Ethical decision-making entails considering the ethical implications of business choices and acting fairly, honestly, and in alignment with the company's values. Supporting ethical behavior involves consistently acting in a respectful, fair, and ethical manner, setting a positive example for others within the organization.
Regulatory Compliance	Legal Compliance, Regulatory Adherence	Compliance with laws and regulations requires understanding and following legal requirements related to company operations, including environmental, labor, and financial regulations. Adhering to regulatory requirements means staying informed about regulatory changes, implementing necessary policies and procedures, and ensuring employee awareness and compliance.
Stakeholder Engagement	Stakeholder Engagement, Community Participation	Engaging with stakeholders involves communicating and collaborating with individuals or groups affected by or interested in the company's activities, such as employees, customers, suppliers, and the local community. Community participation in decision-making processes means seeking community input, considering their perspectives, and incorporating their feedback into business decisions to enhance social responsibility and community relations.
Board Diversity	Gender Diversity, Skill Diversity on the Board	Promoting gender diversity in the board involves actively seeking and appointing women to board positions to ensure balanced representation and diverse perspectives. Ensuring a diverse skill set means selecting board members with a wide range of expertise, knowledge, and experience that contribute to the company's strategic direction and success.
Auditing & Oversight	Internal and External Auditing, Accountability	Internal audits involve regularly reviewing and assessing the company's internal processes, controls, and compliance with policies. External audits, conducted by independent auditors, provide an objective evaluation of the company's financial statements and procedures. Ensuring accountability means holding individuals and departments responsible for their actions and performance and taking corrective actions when necessary.
Environmental Reporting	Environmental Performance Disclosure, Sustainability Reporting	Publishing environmental performance reports involves documenting and disclosing the company's environmental impacts, including resource consumption, greenhouse gas emissions, and sustainability initiatives. Sustainability reporting involves providing comprehensive information on the company's environmental, social, and governance (ESG) performance, demonstrating commitment to sustainability, and enhancing transparency with stakeholders.
Anti-Corruption Measures	Anti-Bribery Policies, Whistleblower Protection	Implementing anti-bribery policies requires establishing clear rules and procedures to prevent and address bribery and corruption within the organization. Whistleblower protection involves providing a secure and confidential mechanism for employees to report unethical or illegal activities without fear of retaliation and ensuring that such reports are thoroughly and fairly investigated.

Table 4: Summary of Identified Criteria and Coding

Code	Environmental (E)	Code	Social (S)	Code	Governance (G)
E1	Sustainable Practices	S1	Community Engagement	G1	Corporate Governance
E2	Climate Change Initiatives	S2	Employee Well-being	G2	Transparency & Accountability
E3	Resource Efficiency	S3	Human Rights	G3	Risk Management
E4	Pollution Control	S4	Customer Relations	G4	Ethical Leadership
E5	Biodiversity Conservation	S5	Diversity & Inclusion	G5	Regulatory Compliance
E6	Green Financing	S6	Social Impact Investment	G6	Stakeholder Engagement
E7	Renewable Energy Adoption	S7	Labor Rights	G7	Board Diversity
E8	Supply Chain Responsibility	S8	Corporate Ethics	G8	Auditing & Oversight
				G9	Environmental Reporting
				G10	Anti-Corruption Measures

4. Discussion and Conclusion

In this study, thematic analysis was employed to identify and categorize the key ESG criteria. Thematic analysis, as a qualitative method, facilitates the extraction of significant concepts and patterns from qualitative data and assists researchers in identifying the primary and secondary themes related to the research topic. In this study, thematic analysis was conducted through in-depth interviews with banking experts and managers from various companies. These interviews aimed to identify key ESG criteria that are crucial for assessing corporate performance. Following data collection, thematic analysis resulted in the identification of eight key environmental criteria, eight key social criteria, and nine key governance criteria.

The present study also demonstrated that incorporating ESG criteria is not only essential for evaluating corporate performance but can also contribute to the overall improvement of the economy, environmental sustainability, and social well-being. In Iran, particularly in Ilam province, which has significant industrial and economic diversity, such evaluations can serve as essential tools for identifying companies' strengths and weaknesses and for developing strategies to enhance performance. This can lead to attracting new investments, improving resource efficiency, and enhancing social and environmental conditions.

Overall, the findings of this study emphasize that to achieve sustainability and accountability goals, banks and financial institutions must seriously assess the environmental, social, and governance aspects of their customers' performance. The use of integrated and comprehensive approaches can enhance the accuracy and efficiency of these assessments, enabling banks and financial institutions to develop appropriate strategies to improve their customers' performance. This can contribute to broader sustainability and accountability goals and enhance overall economic and social conditions.

In the process of developing localized indicators for the Iranian banking sector, experts have identified and prioritized criteria that closely align with Iran's cultural, economic, and environmental conditions. For instance, indicators such as waste management, pollution reduction, employee well-being, labor rights, community relations, transparency and accountability, and risk management have been identified as localized criteria.

Waste management and pollution reduction, given the severe environmental issues such as air pollution and improper waste management in Iran, are considered critical localized indicators. These criteria emphasize the importance of proper waste management and pollution reduction efforts that are crucial for improving Iran's environmental conditions.

Employee well-being and labor rights have been recognized as localized indicators due to the specific needs of the Iranian workforce and the country's economic conditions. These indicators focus on improving working conditions, employee welfare, and ensuring compliance with legal rights and benefits, which are essential for retaining the workforce and enhancing organizational productivity in Iran.

Community relations, due to the high importance of positive relationships and active engagement with the community in Iranian culture, have been identified as localized indicators. This criterion emphasizes effective interaction and engagement with society and participation in social activities, which can enhance public trust and improve the organizational image.

Transparency, accountability, and risk management, given the governance and managerial requirements in Iran, are significant localized indicators. These criteria highlight the importance of operational transparency, accountability to stakeholders, and the identification and management of various organizational risks, which can contribute to improved governance and reduced corruption in organizations.

A comparison of the present study with three domestic and three international studies indicates that while there are similarities in many aspects, unique differences and specific features were also observed, which are analyzed in detail below.

Galletta et al. (2022): This study assessed ESG characteristics in the banking industry through a systematic literature review of related articles. The findings suggest a growing interest in ESG studies and the emergence of new topics in this field. Compared to this research, our study provided a deeper and more practical evaluation of ESG performance in banks within Ilam province, utilizing various analytical methods for more precise assessments [13].

Jafari Gorji et al. (2023): This study focused on green banking and proposed a sustainable development model for public banks in Iran. The results indicated that sustainable banking development in public banks is influenced by causal factors such as professional consulting, environmental resource preservation, cultural transformation, and merit-based managerial evaluations. Compared to the present study, both emphasize the importance of environmental and social factors in banking. However, our research adopted a more systematic approach by

employing thematic analysis, fuzzy DEMATEL, the best-worst method (BWM), and fuzzy ARAS to comprehensively assess bank performance across the three ESG dimensions [17].

Azmi et al. (2021): This study examined the relationship between ESG activities and bank value. The results indicated that lower ESG engagement positively impacts bank value. In comparison, our research not only explored the impact of ESG activities on bank value but also provided a more comprehensive evaluation of banks' performance across the ESG dimensions using various data analysis techniques [28].

Comparing the results of the present study with domestic and international research shows that although some approaches and findings are similar, our research stands out due to the application of multidimensional and more precise analytical methods, offering a more comprehensive evaluation of banks' performance in environmental, social, and governance dimensions. Furthermore, the focus on the specific conditions of banks in Ilam province and the use of advanced analytical methods such as thematic analysis, fuzzy DEMATEL, the best-worst method (BWM), and fuzzy ARAS distinguish our study from others, providing more accurate and practical results for improving bank performance in these crucial dimensions.

This comprehensive and precise approach can serve as a model for future research and as a valuable tool for policymakers and bank managers to enhance sustainability and accountability in the banking sector.

Based on the findings and analyses of this study, practical recommendations can be provided for banking managers, corporate entities, and policymakers, including parliament and the central bank. These suggestions are specifically designed to enhance companies' environmental, social, and governance (ESG) performance while strengthening economic, social, and environmental sustainability. For banking managers, it is recommended to develop specific ESG policies that evaluate and support companies demonstrating strong ESG performance. Additionally, adopting advanced risk assessment models such as thematic analysis, fuzzy DEMATEL, BWM, and fuzzy ARAS can provide a more accurate evaluation of ESG-related risks. Banks should also encourage green investments by offering financial incentives and facilities to companies investing in sustainable projects. Increasing transparency through regular ESG performance disclosures and developing regulatory guidelines for evaluating and reporting ESG performance are also crucial. Furthermore, conducting training programs and workshops for banking managers and staff to enhance their understanding of ESG criteria and promoting the adoption of sustainable technologies by supporting businesses that utilize clean and sustainable technologies are essential steps in improving ESG performance within the banking sector.

For corporate customers, it is essential to develop comprehensive and long-term sustainability strategies to improve their ESG performance. Transparent reporting of ESG performance to stakeholders, including shareholders and customers, can enhance corporate credibility and public trust. Companies should commit to corporate social responsibility (CSR) programs and actively participate in social and environmental initiatives. Implementing effective methods and technologies to reduce negative environmental impacts and increase resource efficiency is another crucial recommendation. Promoting a sustainable organizational culture that integrates ESG values across all levels of the organization is critical for long-term success. Additionally, employee education and training programs focusing on sustainability and social and environmental responsibility can play a key role in fostering ESG awareness and aligning employees with sustainability goals. These initiatives can enhance corporate reputation and competitiveness in the market.

For policymakers, including parliament and the central bank, developing and enacting ESG-related regulations that mandate companies to comply with environmental, social, and governance criteria is essential. Policymakers should introduce legal requirements for transparency and ESG reporting to ensure that companies disclose their ESG-related performance consistently and accurately. Providing tax incentives and financial facilities to companies with strong sustainability and social responsibility performance can encourage broader ESG adoption. Strengthening regulatory and supervisory bodies to ensure compliance with ESG regulations and standards is another key recommendation. These measures will not only foster a more responsible corporate environment but also contribute to national economic development and environmental sustainability. By implementing these policy

recommendations, decision-makers can create an enabling framework that promotes ESG best practices across the banking and corporate sectors.

Authors' Contributions

Authors equally contributed to this article.

Ethical Considerations

All procedures performed in this study were under the ethical standards.

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Conflict of Interest

The authors report no conflict of interest.

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