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使用平衡計分卡框架診斷友利金融集團的永續關鍵績效指標

**Diagnosing Woori Financial Group's Sustainability
KPIs using Balanced Scorecard Framework**

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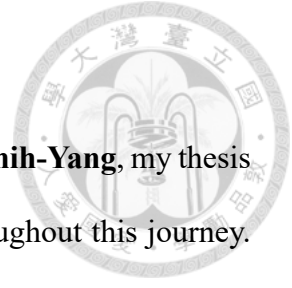
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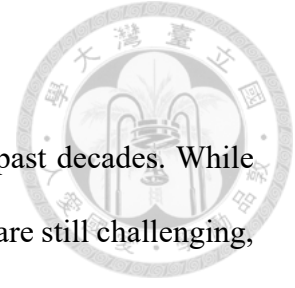
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Abstract



ESG issues has been arising and continuously changing in the past decades. While building a holistic view and internationally integrated guidance on ESG are still challenging, corporates still need to navigate themselves in this chaos to stay competitive not only in the current but also future business landscape. Taking the case study from a giant Korean financial group, the research aims to analyze the ESG performance management from a business strategic view through Balanced scorecard framework.

Looking deeply into the ESG management of Woori Financial Group in the past three years, it is diagnosed that though the majority of Sustainable KPIs support the business strategy, there are still room for improvements to make these KPIs better align with the group-wide long term goals. Though Double materiality helps figuring out the key issues from different stakeholder perspective, it is important to apply balanced scorecard as an additional strategic tool to fully integrate the issues into business directions. The better alignment can help businesses to truly achieve the meaning of ESG practice which is Sustainability growth, “doing well by doing good”.

The study shows the effectiveness of balanced scorecard in providing a holistic strategic view for goal alignment in such a big corporation like Woori Financial Group, where ESG strategy is separately developed and managed by ESG-in charge departments.

Keywords: Sustainable KPIs, ESG integration, Woori Financial Group, Balanced scorecard, Double Materiality assessment, Sustainability

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List Of Abbreviations



AI	Artificial Intelligence
AUM	Assets Under Management
BIS ratio	Bank for International Settlements ratio
BOD	Board of Directors
BSC	Balanced Scorecard
CDP	Carbon Disclosure Project
CDSB	Climate Disclosure Standards Board
CEO	Chief Executive Officer
CET	Common Equity Tier
CIR	Cost-to-Income Ratio
CSR	Corporate Social Responsibility
CSRD	Corporate Sustainability Reporting Directive
DGB FG	Daegu Bank Financial Group
EFRA	Environmental Framework Regulation Act
EMS	Environmental Management System
EPS	Earnings Per Share
ERM	Enterprise Risk Management
ESG	Environmental, Social, and Governance
ESRS	European Sustainability Reporting Standards
EXIM	Export-Import
FDI	Foreign Direct Investment
FI	Financial Institution
FIS	Financial Information Systems
FSC	Financial Supervisory Commission
FSS	Financial Supervisory Service
GHG	Greenhouse Gas
GRI	Global Reporting Initiative
IFRS	International Financial Reporting Standards
IIRC	International Integrated Reporting Council
ISO	International Organization for Standardization

IT	Information Technology
KCGS	Korea Corporate Governance Service
KDIC	Korea Deposit Insurance Corporation
KOSPI	Korea Composite Stock Price Index
KPI	Key Performance Indicator
KRW	Korean Won
LGBT+	Lesbian, Gay, Bisexual, Transgender, and others
MAU	Monthly Active Users
MSCI	Morgan Stanley Capital International
NFRD	Non-Financial Reporting Directive
NIM	Net Interest Margin
NPL	Non-Performing Loan
PCAF	Partnership for Carbon Accounting Financials
PRB	Principles for Responsible Banking
REGS	Resilience, Emission, Governance, Sharing
ROA	Return on Assets
ROE	Return on Equity
ROI	Return on Investment
SASB	Sustainability Accounting Standards Board
SDGs	Sustainable Development Goals
SWOT	Strengths, Weaknesses, Opportunities, and Threats
TCFD	Task Force on Climate-related Financial Disclosures
UAE	United Arab Emirates
UK	United Kingdom
UN	United Nations
USD	United States Dollar
VRIO	Value, Rarity, Imitability, Organization
WFG	Wellbeing for Future Generations
WGSS	Workplace Gender and Sexuality Studies
WM	Wealth Management
WOHI	Woori Organizational Health Index



1. Introduction



1.1. Background

Sustainability is a trendy topic, not only for manufacturing industry, but also for financial industry, especially financial institutions are given the role as the leading firms in pulling the economies. As a tool for strategy movements, KPIs has been utilizing to help corporate archive their goals in incorporating sustainability in decision making, helping corporate moving forward to their short and long term strategies where sustainability is a crucial part. However, whether these sustainability KPIs really have a positive impact on aligning the goals from investors, management board to executive staffs is critical to corporates. That is the ultimate sustainability that all corporates want to achieve. Though the awareness of sustainability factors has been increasing, there also has been increasing difficulty in adopting the suitable set of of Sustainability KPIs to measure the development and to incorporate sustainability orientation into corporate strategies (Hristov & Chirico, 2019).

Korea financial market is a very KPIs and report focus industry, hence, those indicators reporting is taken very serious. By using Balanced Scorecard framework, the author will analyze a case study of a Korea financial group, focusing on the comprehensiveness and effectiveness of these sustainable KPIs in achieving the group goal.

1.2. Purpose of Study

The purpose of this study is to conduct a comprehensive analysis of the adoption and implementation of Sustainable KPIs at Woori Financial Group. This study aims to achieve three primary objectives.

First, it seeks to analyze the adoption of Sustainability KPIs at WFG, exploring how these indicators have been integrated into the company's strategic framework and operational processes. This involves examining the motivations behind adopting Sustainability KPIs, the specific indicators chosen, and the alignment of these KPIs with WFG's overall sustainability goals.

Second, the study discusses the advantages and disadvantages of Sustainable KPIs under BSC approach. This comparative analysis aims to highlight the potential limitations of Sustainable KPIs in the context of goal alignment. This provides a general view on setting up KPIs using Double Materiality Assessment approach and what shortcomings can be hindered in WFG business landscape.

Third, the study evaluates the effectiveness and alignment of each Sustainability KPIs in driving performance improvements, and achieving business goals by using BSC approach. This evaluation includes assessing the impact of Sustainability KPIs on business strategy alignment, related initiatives and performance evaluation. It provides details implications of each indicators, which, in summary, generates insights how financial institutions like WFG can effectively integrate sustainability considerations into their performance management systems.

By addressing these objectives, the study aims to contribute to the growing body of knowledge on sustainable finance and performance measurement, offering practical recommendations for financial institutions seeking to enhance their sustainability practices through the adoption of Balanced scorecard.

1.3. Research questions

With the above study objectives, this research seeks to evaluate the Sustainable KPIs employed by WFG over the past three years, examining their alignment with the organization's long-term business strategy. By analyzing these KPIs, the study aims to determine whether they effectively support WFG's strategic goals. Additionally, it will explore whether alternative or refined indicators could drive more impactful initiatives and deliver improved outcomes over time. This evaluation not only assesses the current state of WFG's sustainability metrics but also provides insights into potential enhancements to optimize their contribution to the group's vision and objectives. In short, the research questions are:

1. What are the Sustainable KPIs of WFG in the past 3 years?
2. Diagnosing Sustainable KPIs, are they aligning with WFG long term business strategy?
3. Are there better indicators that can bring better initiatives and outcome in the long run?

1.4. Significance of the Study

This study on analyzing Sustainable KPIs using BSC framework in WFG is important for several reasons. It provides an example of how Balanced Scorecard can help a financial corporate align their operations with long-term sustainability goals and balancing financial performance with environmental and social responsibilities, as well as responding to growing regulatory pressures and stakeholder expectations regarding sustainability. Moreover, this case study contributes to the academic literature on sustainable finance and performance measurement, offering empirical evidence from a Korean context that is valuable for researchers and practitioners. The findings offer practical guidance for other financial

institutions aiming to implement or enhance their BSC frameworks, presenting actionable insights and best practices adaptable to various organizational contexts.



2. Literature Review

2.1. KPI

“KPIs represent a set of measures focusing on those aspects of organizational performance that are the most critical for the current and future success of the organization”

(Parmenter, 2010)

KPIs or Key Performance Indicators are long time well-known as a prominent method for driving business growth and performance evaluation. The changing business environment requires quick and effective actions to stay competitive. This involves implementing relevant measurements for informed decision-making. With KPIs, businesses can assess their performance against industry benchmarks and adjust their strategies to maintain a competitive advantage (Cernisevs, 2024).

KPI in Financial Industry

KPIs are divided into Financial Indicators such as total assets, total deposit, net income, NPL ratio, ... and Non-financial Indicators such as sustainable indicators of customer satisfaction level, electricity consumption, etc. Traditionally, the financial industry has placed a strong emphasis on financial metrics like total assets, interest income, non-interest income, and non-performing loans, while giving less attention to non-financial indicators such as the number of digital customers, average employee working hours, and the volume of customer complaints. The norm in the financial sector prioritizes financial performance, often neglecting risk management, control measures, and cultural aspects.

However, alongside growing concerns about the environment and sustainable development, financial groups are now shifting their focus more toward non-financial indicators.

Many management books on KPIs often emphasize lead and lag indicators, which can complicate the discussion around performance metrics. A more modern approach eliminates these terms, replacing lag (outcome) indicators with KRIs (Key Result Indicators) and RIs (Result Indicators). KRIs typically focus on long-term activity, spanning months or quarters, while RIs address shorter timeframes, such as daily sales figures. Performance measures are now categorized as PIs (Performance Indicators) and KPIs (Key Performance Indicators), which are further classified as past-, current-, or future-focused metrics. Current metrics are those tracked daily or in real time, like late or incomplete deliveries to key customers from the previous day. Future-focused metrics, on the other hand, capture upcoming commitments, such as the scheduled date of the next meeting with a key customer, the next product launch, or a planned social engagement with clients. In the context of this research, all indicators for Sustainability management applied in WFG considered as KPIs.

The primary criterion for selecting a KPI should be its ability to provide relevant insights from a managerial perspective. To be meaningful for management, a KPI must offer information about the status and direction of something significant to the organization. Specifically, it should address one of three key areas: first, whether the organization is allocating sufficient resources to its strategic initiatives; second, whether these initiatives are progressing as planned in terms of activity level, intensity, or efficiency; and third, whether the activities are achieving the expected outcomes (Parmenter, 2010).

Sustainability KPIs in Financial Industry

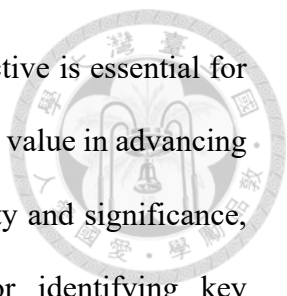
Sustainability in finance started with green finance. The history of green finance dated back to 1970s when Socially Responsible Investing began to take shape. Though the

integration of Environment, Social and Governance was introduced by United Nations since 1990s, it was not until the Paris Agreement in 2015 with the launch of Sustainable Development Goals (SDGs) were pivotal in promoting sustainable finance on a global scale. While there are so many standards, guidelines related to sustainability, Sustainability KPIs can be grouped into three groups:

- **Environmental Indicators:** These include metrics such as carbon footprint, energy efficiency, and green financing. Financial institutions are increasingly focusing on reducing their environmental impact by promoting green bonds and sustainable investment products.
- **Social Indicators:** Social KPIs measure aspects like employee diversity, community engagement, and customer satisfaction. Financial institutions are adopting policies to enhance workplace diversity and support community development initiatives.
- **Governance Indicators:** Governance KPIs assess the quality of corporate governance, including board diversity, executive compensation, and transparency.

Double materiality assessment

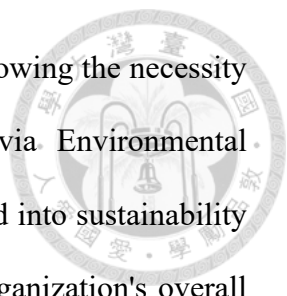
Initially introduced by the Non-Financial Reporting Directive (NFRD), the concept of Double Materiality has been reaffirmed more recently through the Corporate Sustainability Reporting Directive (CSRD), which fully replaces the NFRD and amends the Accounting Directive. Additionally, it has been further solidified under the European Sustainability Reporting Standards (ESRS) (Mezzanotte, 2023). Double materiality highlights the importance for organizations to account for both the financial impacts of their activities and



the wider environmental and social effects on society. This dual perspective is essential for offering a holistic understanding of an organization's performance and its value in advancing sustainable development (Mezzanotte, 2023). By focusing on probability and significance, the double-materiality perspective creates a natural framework for identifying key performance indicators (KPIs). Nielsen case study research implied that using the REGS model to support double-materiality assessments enables firms to determine the most relevant KPIs for their needs (Nielsen, 2023). Recent studies emphasize the challenges and complexities of implementing double materiality assessments, such as the need for clear definitions, standardized methodologies, and the inclusion of diverse stakeholder perspectives (Miettinen, 2024). The guidelines for Double Materiality from EFRA suggests considering not only impact but risk and opportunities related to the business for business strategy integration, mentioning combining “business tools” in the process (EFRAG, 2024). Indeed, to include the standpoint of different stakeholders such as investors, employees, customers etc., double materiality is not enough to paint a bigger picture.

ESG report

Under the enforcement of publishing ESG reports, financial institutions and corporates have been spending effort to fulfil the obligations. While there is proof that the disclosure of these report has a significant positive relation with financial performance (Brooks & Oikonomou, 2018), such as a study proposed a conceptual measure of financial sustainability, examining how the disclosure can help improve the return for capital investors. The study found that firms with high financial sustainability tend to achieve higher risk-adjusted returns (Gleißner et al., 2022). Hence, sustainable KPI, like the traditional KPIs, should be the set of metrics in financial institution used to evaluate their sustainability performance and adjust their strategies by incorporating the ESG value and risks in daily



process of operation and making decision. There has been researches showing the necessity of linking between KPIs and corporate strategy, such as KPIs via Environmental management systems (EMS) based on ISO 14001 should be transformed into sustainability management systems by more closely integrating the EMS with the organization's overall strategy and strategic planning processes.(Quazi, 2001), or the current trend in the financial sector prioritizes financial performance, often neglecting risk management, control measures, and cultural aspects (European Central Bank, 2023). By setting clear, purpose-driven ESG metrics tailored to specific funding objectives, financial institutions can effectively align their funding strategies with their sustainability goals. This customized approach allows institutions to prioritize ESG considerations most relevant to their business activities and stakeholder expectations, thereby enhancing their overall impact on sustainability outcomes.

2.2. Balanced Scorecard

The Balanced Scorecard (BSC), first introduced by Robert Kaplan and David Norton in 1992, has been becoming a powerful strategic management tool. It combines financial and non-financial metrics to offer a holistic perspective on organizational performance. The framework of Balanced Scorecard includes its first introduction in 1992, then continued to develop by authors to complete the framework and bring more value to corporate strategy, business operation & business performance. The value of the BSC lies not only in the categorization of measures across multiple perspectives but also, and more importantly, in the connections between those measures. The long term goal (investor value creation) is translated into sequential actions which starts from human resource and operational process, then customers, finally financial outcome. Strategic performance measurement systems (SPMSs) typically include strategic maps that position goals across various dimensions,

making the relationships between these goals clear. Establishing and conveying these cross-functional relationships helps to identify the performance drivers that support long-term organizational success and enhances the linkages between these drivers (Banker et al., 2004).

“In designing BSC, an organization must measure the critical few parameters that represent its strategy for long-term value creation”. Figure 1 below shows the role of Strategic map & BSC in the value creation process (Kaplan & Norton, 2004). “Strategy is formulated at the top, but it must be executed at the bottom: if employees don’t understand the strategy or are not motivated to achieve it, the enterprise’s strategy is bound to fail” (Kaplan and Norton, 2006, p. 261). The balanced scorecard is not merely a performance measurement tool; it is a holistic management system that assists organizations in defining their vision and strategy and converting them into actionable steps. By offering feedback on internal processes and external outcomes, it facilitates ongoing improvements in strategic performance and results (Gawankar et al., 2015). The causal relationship crossing dimensions and elements of BSC was to foster synergies within the organization by aligning all key areas, including top management, shareholders (such as customers, suppliers, and partners), as well as business and support units (Kopia et al., 2017). Figure 2 below illustrates the design of a BSC.

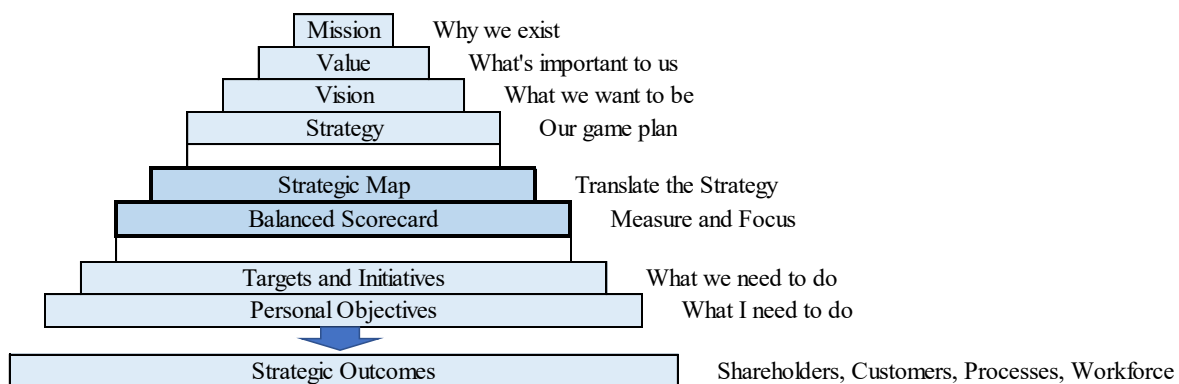


Figure 1: Balanced Scorecard in value creation continuum (Kaplan & Norton, 2004)

STRATEGY MAP		Specific, Measurable, Achievable, Realistic, Timely - SMART model		
	Objectives	Measures	Targets	Initiatives
Financial	<i>Financial objectives translated from the Strategy</i>	<i>Key Indicators to focus and measure</i>	<i>Achievable KPI target setting</i>	<i>Timely actions to pursue targets</i>
Customer	<i>Customer objectives translated from the Strategy</i>	<i>Key Indicators to focus and measure</i>	<i>Achievable KPI target setting</i>	<i>Timely actions to pursue targets</i>
Internal Process	<i>Business Process objectives translated from the Strategy</i>	<i>Key Indicators to focus and measure</i>	<i>Achievable KPI target setting</i>	<i>Timely actions to pursue targets</i>
Learning and Growth	<i>Organizational objectives translated from the Strategy</i>	<i>Key Indicators to focus and measure</i>	<i>Achievable KPI target setting</i>	<i>Timely actions to pursue targets</i>

Figure 2: General Structure of a Balanced Scorecard (Kaplan & Norton, 2004)

Balanced Scorecard in Financial Industry

Since introduced, there are numerous financial institutions in different countries applied and practiced BSC and achieved substantial financial and non-financial outcome (Makhijani & Creelman, 2011). Many researches showed that BSC mostly guided financial institutions to focus more on financial aspect and therefore perform better with risk management ((Keshavarz et al., 2014). Some other researches show that BSC help financial institution to focus more attention in Customer perspective and allocating more resources to the most needed area (Wu, 2012). Through the application of BSC, financial institutions find this method provides companies with a comprehensive view of their overall performance, helping to pinpoint issues, perform root cause analysis, and support data-driven decision-making. By integrating metrics that enable managers to better predict future performance and address potential challenges, organizations can effectively utilize the BSC to drive business

transformation (Editorial, 2010). In the era of IT transformation and IT governance becomes a critical issue, IT BSC is used to analyze the effectiveness in IT projects implementation. In the serial of this research, the authors focus on how BSC can support corporate in digital transformation from planning, resource and budget allocation to implementation and continuous development (Van Grembergen & De Haes, 2005; Hu, 2006)

Balanced Scorecard for ESG Integration

Today's performance metrics encompass a wide range of dimensions, extending beyond financial values to include various aspects of stakeholder expectations, both internally and externally. In areas such as environmental management, health and safety regulations, corporate social responsibility (CSR), and sustainable development, it is evident that performance also involves enhancing environmental practices, adhering to safety standards, and acting responsibly within the social sphere by initiating community projects. Reporting frameworks like the Global Reporting Initiative (GRI) were created to provide a standard for comparison and a tool for measurement on an international scale. The GRI has become a critical performance reporting framework in the realms of CSR and sustainability, which emphasizes economic, environmental, and social responsibilities, highlighting the importance of non-financial values. (Kopia et al., 2017).

Performance evaluation for operation and organization is different, by meaning and measurement indicators. While the evaluation of operation is measured KPIs by financial indicators, the organization indicator is measure by ROE, EPS which shows the return on investment for the investors. BSC is the key tool to help connect and align these measurements to optimize the effectiveness and sustainability in operation of an organization. A research on trend and future development of BSC based on literature review showed the

most occurrence author keywords for BSC research from 2002 to 2023 is “Performance measurement”. The Balanced Scorecard is employed to align business activities with the organization’s vision and strategy, enhance both internal and external communications, and track organizational performance relative to strategic objectives (Kumar et al., 2024).

For ESG integration, there are many research proposed the implementation of a Sustainability BSC, where Sustainability is the main focus of the business and “Non- Market Perspective” plays the role as the fifth perspective prior to the causal linkage of other elements, as illustrated in the Figure 3 below (Figge et al., 2002).

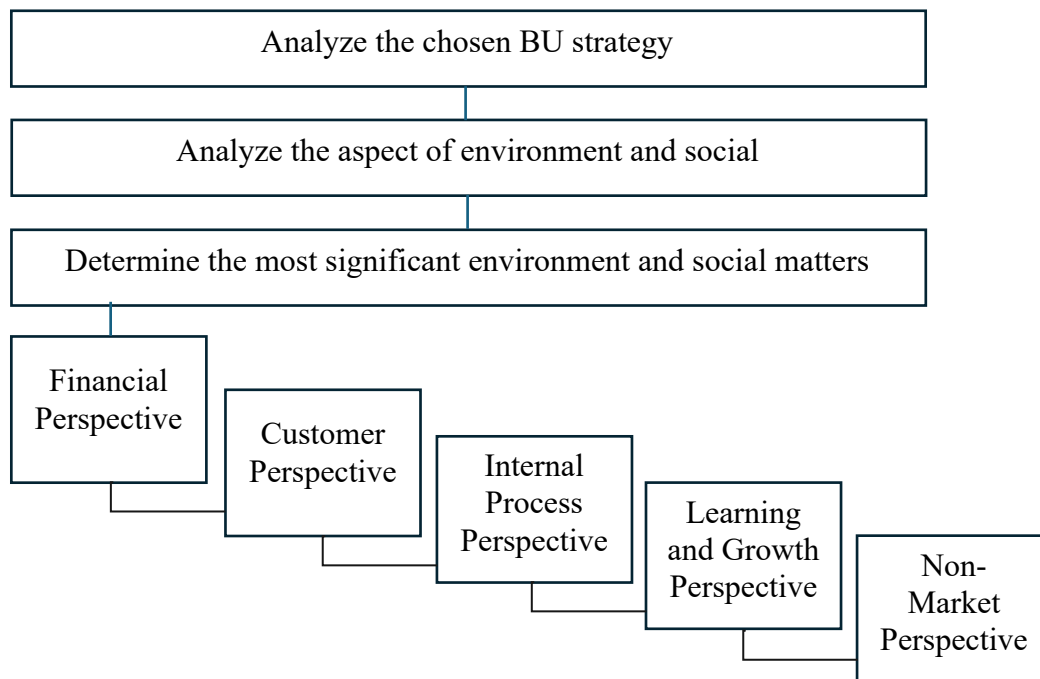


Figure 3: Construction step of a Sustainability BSC (Figge et al., 2002)

In the context of this research, there is no “non-market” perspective as the author point of view is the nature of business is market oriented. ESG issues shall reasonably integrated into the tradition market perspectives.

3. Research Methodology



3.1. Study Design

Research approach

This study adopts a qualitative research approach to examine cases through the lens of the BSC framework, with the goal of gaining a comprehensive understanding of strategic mapping, goal alignment, and the causal relationships within organizations business practice. The qualitative approach is particularly suited to this research as it enables an in-depth exploration of complex and multifaceted topics like strategic management and performance measurement, which are integral to the BSC framework. By emphasizing qualitative data, the study captures the subtle and contextual factors that shape the implementation and effectiveness of the BSC across different organizational environments.

Research Design

The research starts with collecting reports including Annual reports and ESG report of WFG from the company's website and other secondary sources as the background information. By conducting SWOT analysis and VRIO analysis for WFG, the group strategy is verified, creating the foundation for a BSC design as a deductive theory approach. At the same time, sets of Sustainable KPIs are derived from the ESG reports as the material for diagnosis through a deep dive analysis of the reports. The final step includes the comparative analysis to assess if the Sustainable KPIs align with the business strategy based on the deductive BSC design and provide respective explanation and suggestions if any for each indicator. In short, BSC framework is utilized to diagnose the current application of ESG KPIs, which is recognized through ESG reports. The research design is illustrated by the Figure 4.

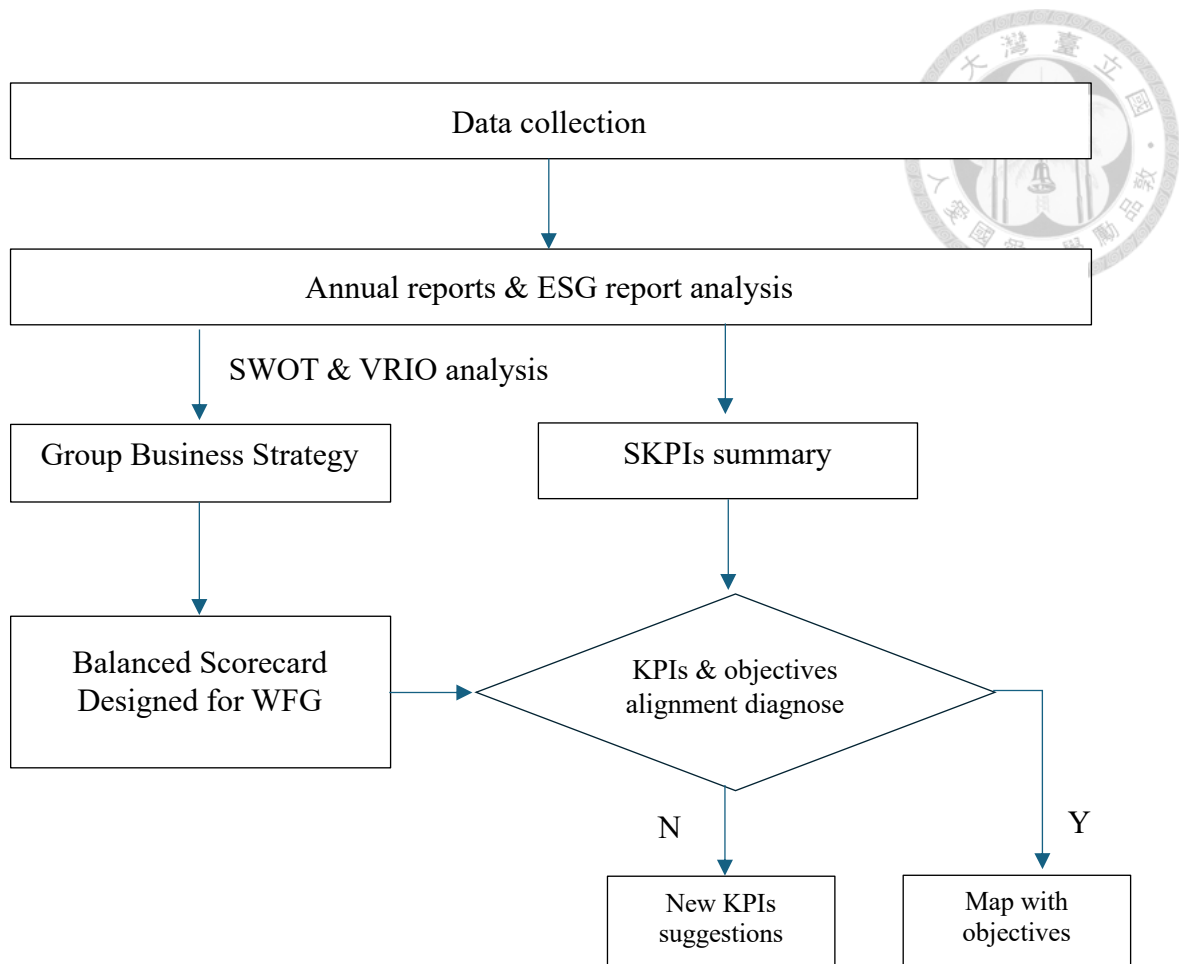


Figure 4: Research flow chart

Data collection

Unit of study is the published ESG reports and Annual Reports on Woori Financial Group website for 3 years from 2021 to 2023, secondary data type, released from 2022 to 2024 respectively.

Framework selection

This research employs content analysis to gain insights into the operations and adoption of Sustainability KPIs at WFG. To further contextualize the findings, a SWOT analysis is conducted, as it is a widely recognized framework for understanding a business's

background, identifying its strengths, weaknesses, opportunities, and threats. Complementing this, the VRIO framework is applied to delve deeper into WFG's strengths and opportunities, offering a more nuanced examination of the organization's strategic capabilities and their alignment with its business objectives. Finally, BSC, widely regarded as one of the most effective strategy and performance management tools, can be utilized to integrate and align various aspects of a business with its short- and long-term strategic goals. In this context, the BSC is employed to evaluate whether the Sustainability KPIs selected by WFG effectively support and align with its overall business strategy.

4. Case Background

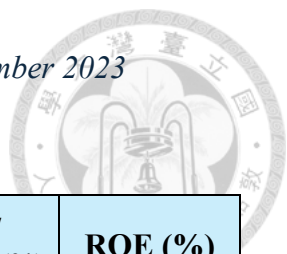
4.1. Korea Financial Institution Landscape

Korea financial institutions

Banking and Financial services in South Korea is a very competitive industry, with 1577 entities existing in FSS's directory (FSS, 2024), ranging from banks, insurance companies, financial investment service providers to other non-bank financial service providers. However, the 10 local financial holdings maintain a dominate share of the market. In the banking sector, the top five banks - Kookmin, Shinhan, KEB Hana, Woori, and NongHyup - compete fiercely in terms of total assets, maintaining a substantial lead over the other banks. Table 1 summarize the current financial status of Top 10 banks in terms of Asset in Korea market.

Table 1: Top 10 Korean banks in terms of Total assets by December 2023

(Limited, 2024)



FI	Total Assets	Total Equity	NPL (%)	Cost/Revenue(%)	ROE (%)
Kookmin Bank	530,012,900	35,265,800	0.8	52	9.3
Shinhan Bank	508,497,300	31,542,700	0.8	52.1	10.2
KEB Bank	498,843,400	31,730,600	0.9	47.0	11.4
Woori Bank	458,017,100	25,157,100	0.7	54.2	10.4
NongHyup Bank	401,325,400	21,737,800	0.7	52.4	8.2
DGB FG	93,359,784	5,669,789	0.6	55.5	7.0
Standard Bank	85,700,800	5,017,800	0.5	64.5	7.0
Busan Bank	77,271,500	5,399,300	0.6	55.0	7.2
Daegu Bank	71,446,500	4,556,700	0.7	55.8	8.2
Suhyup Bank	56,295,243	3,376,223	0.6	47.4	7.5

Regulations

The history of the FSC and financial regulation in Korea's financial sector dates back to the 1997 Asian financial crisis, when many banks were forced to merge under the government's restructuring plan. Along with the global development of frameworks such as Basel, IFRS, and ESG-related practices, the FSC has continuously provided amendments and guidance to the market, ensuring industry regulations stay aligned with global changes. Although the priority of FSC is to maintain the stable operation of the industry, Korean regulators have remained open and supportive of innovation in the local financial industry. The FSC established a regulatory framework for online-only banks in 2015, paving the way for the launch of K-Bank and Kakao Bank in 2017, and Toss Bank in 2021. Additional

initiatives include the fintech regulatory sandbox (December 2018), FSC funds for investment in fintech startups (September 2019), a legal framework for peer-to-peer lending (October 2019), the open banking service system (December 2019), and most recently, the launch of the MyData service (January 2022). Virtual asset regulations have also been introduced and updated since 2016, primarily aimed at ensuring market transparency and user protection.

Most recently, during the year from 2021 to 2023, FSC set its focus mainly on three aspects. First, it is maintaining the stability of the financial system, withstanding with the risks arising in both domestic and global economy. Being identified as the Domestic Systemically Important Banks, top 5 financial groups are expected to be more strictly regulated regarding capital buffer and internal control management. Second, ESG related matters such as green finance, inclusive finance and especially, consumer right protection have been highlighted in FSC annual Work Plans. The mandate of publishing ESG reports was originally set to be effective in 2025 but was moved to 2027 according to the unreadiness response from companies in the market. Lastly, it is the continuous innovation in the market for not only competitiveness but also to response to consumer market need. There was green signal from FSC for the approval of the online-only bank number four in the market, and new insurance players such as pet insurance or online-only insurance in the future.

Competitiveness & Market trend

By the end of 2023, Korea's financial services industry was saturated, with 20 domestic banks, 34 foreign banks, 22 life insurance companies, 31 non-life insurance companies, and 468 asset management firms. The competitive landscape is constantly evolving due to socioeconomic changes, shifting consumer perceptions, and technological

advancements. While the market has traditionally been dominated by established players, the emergence of fintech rivals has created a positive and healthy competitive environment, pushing incumbents to invest and adapt. Whereas traditional banks experienced credit growth rates of 4%-5% on average, online-only banks achieved double-digit growth. The anticipated launch of the fourth online-only bank and the first online-only insurance company is expected to further enhance the financial landscape. The dynamic business models of start-ups and fintech firms not only challenge large corporations to innovate but also shape consumer perceptions and behaviors in the Korea market. Figure 5 shows the SWOT analysis for the market as a summary view.

<i>Strengths</i> • Mature & fully supported & regulated market • Product diversification catering to different customer segments • Strong capital markets with large global corporates • Global top 15 insurance market with high insurance penetration levels.	<i>Weaknesses</i> • Intensive rivalry competitiveness reduces the banking sector profitability • Complex and tighten financial regulations can be challenging for new product development • Market is dominated by large local players
<i>Opportunities</i> • Regulation supports mobile-first financial services, insurtech products and investments • Consumers are open to adopt new fintech products and services • Regulators focus on ESG investment and Sustainable finance to drive Korea as a regional hub for financial services • Korea Stock Exchange is emerging as the regional hub for ETFs and derivatives listings	<i>Threats</i> • High household debt level, implying the risk of financial stability • IFRS 17 and Basel III implementation can be challenging for banks & insurers • Financial industry is claimed to be affected by politics and allies

Figure 5: SWOT analysis for Banking industry of South Korea 2024

(Limited, 2024)

ESG driving forces in financial industry

First, it's government. Sustainable finance in South Korea has seen remarkable growth over the past few decades, largely influenced by a combination of global trends and proactive domestic initiatives. Globally, there has been an increasing emphasis on aligning financial systems with environmental, social, and governance (ESG) criteria, a movement that has not only gained traction but has also set new standards for what is considered responsible investment. The first commitment approach from the government was 2009 (Oh & Kim, 2019), with the establishment of the Green Growth National Strategy and the Five-Year Plan, which aimed to shift the country's development model towards sustainability. This plan highlighted the importance of integrating environmental considerations into economic policies and underscored the role of finance in achieving these goals. Starting from the basic domestic needs of reducing ultra fine dust and changing to more sustainable renewable energy sources, government soon recognized that financial institution would play a big role in this heavy financial investment sections. (Oh & Kim, 2019). The government also started to promote the issuance of green bonds and encouraged financial institutions to incorporate ESG factors into their investment strategies. In 2017, government enforced commercial banks to integrate environmental risk in the loan approval process by utilizing enVinance, a platform provides environmental reports (Oh & Kim, 2019). At the same time, organization like KoSIF (Korea Sustainability Investment Forum) promote ESG management by providing necessary support to practice global initiatives such as TCFD, PCAF, RE100, EV100, and SBTi to Korean financial institutions. Besides the global framework such as GRI, TCFD, CDP, CDSB, IIRC, UN SDGs, etc. which affect the ESG scoring of financial institutions, local government initiatives from FSC/ FSS regarding ESG requires stronger response from financial institutions. The timeline for events is shown in the Table 2 below.



Table 2: Korea authority execution timeline of ESG related regulations

Year	Event	Remark
2019	FSC imposed Mandatory Disclosure of Corporate Governance Report for companies with assets totaling up to KRW 2 trillion (Large company)	
2021	Establishment of K-Taxonomy	
2021	FSC imposed Mandatory Disclosure for Environmental information for Large company, KOSPI-listed companies	
2021	FSC & FSS registered for TCFD Declaration of Support for Climate Finance to Achieve 2050 Carbon Neutrality	
2026	FSC plan to impose Mandatory Disclosure of Corporate Governance Report for all companies	Tentative
2026	FSC plan to impose non-financial disclosures for Large company	Tentative
2030	FSC plan to impose non-financial disclosures for all companies	Tentative

Second, it is Investors. Just a few decades ago, companies could succeed just by being as profitable as possible, all investors cared about was the return on investment. ESG trend came in as a natural consequence of how a business can be sustainably profitable, not for a few years or, a few decades but for generations. Investors now not only care about current profit but also the future value, environmental and social impact, and reputation. Besides researches showed that ESG is related to the stability of financial performance of Korea financial institutions (Choi et al., 2024), some surveys indicated that professional investors are also using ESG information from corporates to assess risk management and long-term returns achieving strategy (OECD, 2020). ESG disclosures and ratings have become increasingly vital in integrating sustainability factors into investment decisions, either to help

assess the financial relevance of non-financial reports, or track the societal impact of their investments for their own specific investment strategies and objectives.

Lastly, it is Customers. Consumer value has been changing from Functional (Save time, simplify) to Emotional (Anxiety reduction, Rewarding, Design), then Lifestyle Expression (Hope providing, Self-actualization, Heirloom) and currently, Societal (Self-transcendence). ESG activities have become a process of communication with consumers and society based on sincerity, as well as a condition for corporate to survive (KCCI, 2022). Given that, consumer's ESG awareness is increasing quickly in the decade of. A May 2021 survey by the Korea Chamber of Commerce and Industry (KCCI, 2022) revealed that 63 percent of respondents indicated that companies' ESG activities influenced their purchasing decisions. Additionally, over 70 percent of respondents reported that they had refrained from buying products from certain companies due to their poor ESG evaluations (Bahk, 2024). After functionality value, emotion value & lifestyle value, Korean consumers now are transferring into self-transcendence value, where they would care about the greater value such as environment, and social value that the products or service provider can bring.

On the corporate side, there has been a growing demand for ESG finance, starting with green finance and expanding into social finance. Social bonds accounted for up to 75% of the bonds issued in 2023. The surge in sustainability bonds across Korea and Asia has created a new playing field for financial institutions, whether in issuing, underwriting, advising, or distributing these instruments. Although the growth of ESG bonds has slowed, sustainability-linked bonds (SLBs) are gaining traction globally but remain relatively new to the Korean market. This presents a fresh opportunity for financial institutions in the ESG space. However, SLBs require stronger ESG strategies and more comprehensive performance

tracking and evaluation systems, demanding greater efforts from Korean financial institutions to adapt to these emerging instruments.

In other words, Korean financial institutions are at the forefront of the sustainability shift, leveraging their influence and resources to promote sustainable economic growth. By offering and promoting these diverse financial instruments, they play a critical role in driving Korea's economy toward a future where economic development and environmental responsibility go hand in hand.

ESG implementation in financial institutions

As mentioned in the previous market trend, the forces that brought ESG to financial institutions practice came from all three main stakeholders: investors, consumers and government bodies. As this awareness spreads, the number of financial institutions engaged in SDGs and ESG have been increasing rapidly. According to a survey conducted by the National Banking Association, only 45% of banks participated in the SDGs/ESG initiative in 2018, but only a year later, it increased to 80% in 2019. However, it was 77% institutions saying that “They are mapping business activities with SDGs”, only 22% “Set up KPIs to achieve key tasks” and only 23% “Integrate ESG into management” (Woo, 2023). This explained the report from PCAF (PCAF, 2022), a partnership between global financial institutions to facilitate the contribution and commitment of financials toward Paris Climate Agreement 2015. Thereby, there were 22 Korean financial institutions that have pledged to assess and report the greenhouse gas emissions linked to their loan and investment portfolios. Among them, there are only 8 corporates that already made measurement and disclosed their reports. This is a very small number comparing to the financial industry in Korea.

Fairly reasoning, ESG was initiated from western countries and while Asian economy, indeed growing awareness toward this issue, it would take longer time for corporates, especially long time established financial institutions in Korea to understand, integrate and practice. According to a survey by Ministry of Environment, six major issues in ESG finance are:

1. Improving the understanding of ESG
2. Identify local resources and issues
3. Share visions and long term goals with local governments
4. Establishment of ESG factor evaluation method
5. Expansion of support for business partner
6. Cooperation with local stakeholders

(Woo, 2023)

Despite the difficulty, the ESG bonds issuance value has been increasing since 2018, with KRW 503 trillion worth issued by financial institution in 2022. In addition to ESG-related bonds, Korea's financial landscape offers a variety of financial instruments designed to support both corporate and retail sectors. Corporate businesses have access to investments and green loans, which are specifically tailored to promote environmentally responsible practices.

In recent years, the rise of environment-linked financial products, such as eco-friendly credit cards and green savings accounts, has become increasingly popular among retail consumers. These products encourage sustainable behavior by rewarding eco-conscious choices. The diversity of ESG products is shown in Table 3.

Table 3: ESG-related financial product range in Korea market (Namyong Park, 2023)

Type	ESG Investment	ESG Loan	ESG Bond Issuance	Other ESG Financial Instruments
Detail	Stocks, Bonds, Alternative Investments in Korea or Overseas	- Personal Loan - Corporate Loan - Project Financing	Green, Social, Sustainable, Sustainable-linked Bond	- Insurance - Savings/Installments savings - Cards - Funds

Table 4 below shows Top 5 Financial Institutions in Korea and Key ESG Management Initiatives Overview. Among them, Shinhan Financial Group and KB Financial Group stand out as pioneers in integrating ESG management metrics into executive performance evaluation systems.

Table 4: Top 5 Financial Group's ESG finance major status

Financial Holding	Key initiatives (2021)
Shinhan FG	Zero Carbon by 2050 ESG-linked performance evaluation Total 833.3 billion ESG bond issued, first Korea climate bonds.
KB FG	Enhancing trust through governance & CSR activities KRW 50 trillion in ESG products by 2030 KB Social Investment Fund invested KRW 39.7 billion
Hana FG	Implementing low carbon management system KRW2.9 trillion bond, KRW5.9 loan, KRW 1.2 investment of ESG
Woori FG	Plan Zero 100% ESG KRW 100 trillion investment in ESG Finance Goal by 2030 KRW 10.21 trillion ESG bonds issued
Nonghyup FG	KRW 15 trillion investment in ESG Finance Goal by 2030 KRW 2.1 trillion in all ESG related products

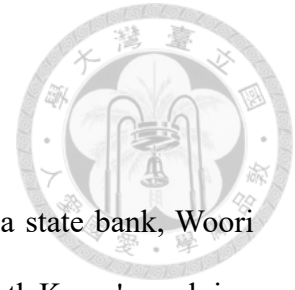
4.2. Woori Financial Group

Brief History

Founded in 1899 as Daehan Cheonil Bank, initially serving as a state bank, Woori Financial Group has undergone significant transformations alongside South Korea's evolving socioeconomic landscape. In 2001, WFG was established after the government recapitalized several struggling banks, with the Korea Deposit Insurance Corporation (KDIC) acquiring a 51% stake. Upon its launch in April 2001, WFG became South Korea's first and largest financial holding company. Starting in 2010, the government made several attempts to privatize the bank, making gradual progress with the sale of a 29.7% stake in November 2016 and an additional 9% stake in November 2021, reducing the state's holding to 6%, thereby ending its role as the largest shareholder. By the end of 2022, the remaining state-owned shares were sold to various foreign investors. This long history of government ownership has been associated with side effects such as a less innovative corporate culture and decisions not always driven by commercial interests. Despite its early status as the largest financial holding company, WFG had become the fourth-largest commercial bank in South Korea by December 2023.

Business Overview

WFG total assets was at KRW 672.5 trillion (approximately USD 510.5 billions) by the end of 2023, making WFG the 4th largest financial institution in Korea market. However, more than 90% of the group profit generated from Woori Bank, which hinder the unbalanced of the income structure, potential risk for financial stability and bias in organizational manpower. In 2023, Woori Financial Group recorded a net profit of approximately USD 2 billions, a bit lower comparing to the previous two years given a very competitive landscape



of financial institution in Korea and the slowdown in the economy growth. In the effort of increasing value for investors, a dividend of KRW 640 per share was made, recording a dividend payout ratio of approximately 29.7%, among the highest in Korea market. However, despite these efforts, Woori Financial Group's market capitalization lags far behind the four major financial groups and is also being overtaken by latecomer financial companies such as Kakao Bank (KRW 10.574 trillion vs. KRW 10.206 trillion). Details are shown in Table 5.

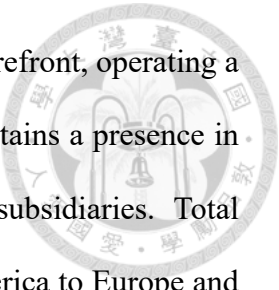
Table 5: WFG Financial overview in 2021 – 2023 (WFG, 2024)

	2021	2022	2023	YoY
Growth				
Total AUM	594.4	640.3	672.5	5.0%
Loans	332.8	343.8	365.8	6.4%
Equity	28.9	31.6	33.4	5.6%
Profitability				
Net Interest Income	6,986	8,697	8,743	0.5%
Non-interest income	1,358	1,149	1,095	-4.7%
Net Income	2,588	3,142	2,506	-20.2%
NIM (bank+card) (%)	1.62	1.84	1.82	-0.02%
CIR (%)	47.5	44.4	43.5	-0.9%
ROE (%)	10.58	11.54	8.25	-3.29%
ROA (%)	0.66	0.70	0.54	-0.16%
Asset Quality				
NPL Ratio (%)	0.3	0.31	0.37	0.06%
Coverage Ratio (%)	192.2	217.6	220.1	2.5%
Capital Adequacy				
CET (%)	11.4	11.6	12.0	0.4%
Tier 1 Ratio (%)	13.3	13.6	14.1	0.5%
BIS Ratio (%)	15.1	15.3	15.8	0.5%

The group head quarter includes 8 units and 19 departments of various functions namely Strategy Planning Unit, Finance Planning Unit, Growth Support Unit, Digital Innovation Unit, Brand Unit, Risk Management Unit, Management Support Unit and Compliance Office. Growth Support Unit is newly established in 2022 in the group effort of boosting Synergy between business units and promote ESG management. Table 6 lists out business subsidiaries of WFG in different financial service areas.

Table 6: Woori Financial Group's business area (WFG, 2024)

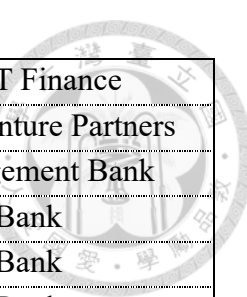
Main Subsidiary	Business Scope
Woori Bank	Loan, deposits and other banking services
Woori Card	Card services, card loan & others
Woori Financial Capital	Auto finance, corporate finance, retail finance & others
Woori Investment Bank	Banking loans, deposits & other services of investment banking products
Woori Asset Trust	Real estate trust and management services
Woori Savings Bank	Loans, deposits & others according to the Mutual Savings Acts
Woori Financial F&I	NPL investment and management services
Woori Asset Management	Asset management services and others
Woori Venture Partners	Investment in SMEs and startups
Woori Private Equity Asset Management	General Partner service for institutional private equity funds and general private equity funds
Woori Credit Information	Debt collection, credit information and lease investigation services
Woori Fund Services	General fund administration service & comprehensive asset management system service
Woori FIS	Develop, sales, maintenance IT & financial system & services
Woori Finance Research Institutes	Market research & management consulting services



WFG consists of six main subsidiaries, with Woori Bank at the forefront, operating a network of 711 branches across South Korea. In addition, the bank maintains a presence in over 23 international markets through 580 branches, offices, and subsidiaries. Total manpower is approximately 27,000 employees globally, from South America to Europe and Asia (WFG, 2024). In November 2021, Woori Bank received approval to establish an operation in Hungary, aimed at providing financing to Korean companies operating in Eastern Europe, as well as European firms through its new Budapest office. Despite efforts toward globalization, WFG's expansion has been relatively slow, with only 18 mergers and acquisitions throughout its history. The group's subsidiaries cover a broad range of financial services, including commercial banking in more than 10 countries, investment banking in emerging markets, consumer credit, asset management, private equity, non-performing loan (NPL) investment and management, financial IT solutions, and a savings bank. By March 2024, group has 14 First-level subsidiaries and 22 second-level subsidiaries, mostly in South Korea, South East Asia, America and Europe. Table 7 summarizes the geographical area where WFG operates.

Table 7: Global network of Woori Financial Group by 2023 (WFG, 2024)

No.	Region	Country/ Territory	Network number	Subsidiary
1	East Asia	Korea	711	All subsidiaries
2		China	23	Woori Bank, Venture Partners
3		Hong Kong	1+1	Woori Bank, Global Markets
4		Japan	1	Woori Bank
5	South Asia/ Pacific	India	6	Woori Bank
6		Bangladesh	9	Woori Bank
7		Myanmar	1 + 38 + 32	Bank, Finance, TUTU Finance
8		Malaysia	1	Woori Bank
9		Cambodia	143	Woori Bank
10		Vietnam	25 + 1	Woori Bank, Asset Management



11		Indonesia	161 + 75	PT Bank, PT Finance
12		Singapore	1 + 1	Woori Bank, Venture Partners
13		Philippines	25	Wealth Management Bank
14		Australia	1	Woori Bank
15	West Asia	Bahrain	1	Woori Bank
16		UAE	1	Woori Bank
17		America	28 + 1	America Bank, Venture Partners
18	America	Brazil	2	Woori Bank
19		UK	1	Woori Bank
20	Europe	Russia	1	Woori Bank
21		Germany	2	Woori Bank
22		Poland	1	Woori Bank
23		Hungary	1	Woori Bank

Key stakeholders

The first stakeholder to mention is investors. By August 2024, top three investors holding more than 5% of WFG stocks are WFG Employee Stock Ownership Association (8.72%), National Pension Service (6.71%) and Blackrock Fund Advisor related (6.07%) (FnGuide, 2024). In May 2024, BlackRock, the world's largest asset management company, announced that its stake in Woori Financial Group had increased by 1 percentage point from 5.07% to 6.07%, making Woori Financial Group's foreign ownership ratio is at an all-time high of approximately 42.8%. It has increased by 4.6 percentage points this year alone.

Secondly, it is the customers. Since the majority of WFG profit comes from Woori Bank, we consider Woori Bank's major customers are also WFG major customer. The majority of the credit portfolio comes from SMEs and Retail customers. This portfolio requires higher cost of operation, better risk management but also bringing better margin and implying higher social credit support. Meanwhile, WFG is also serving as the main creditor

for 11 out of 38 of Korea conglomerates. This somewhat shows the vital market proposition of the group and the importance of its business strategy to maintain its position.



Business Status in the past three years

Woori Financial Group has been actively pursuing privatization and maximizing investor value, achieving full privatization in 2024 after 26 years under partial government control. This milestone marked the culmination of efforts to enhance shareholder returns and regain full independence. However, despite this success, the group appears to lag behind competitors in terms of innovation and market competitiveness. While Woori has made strategic moves, such as partnering with WOO Innovation Hub to leverage AI-driven optimization in decentralized finance, these initiatives have not yet positioned the group as a leader in financial innovation. In comparison, rival financial institutions in Korea have made more substantial advancements in digital transformation and technological integration.

Additionally, Woori Financial Group has been plagued by a series of scandals (shown in Table 8 below) involving its managers and employees, which have raised concerns about governance and internal oversight. These issues underscore the need for stronger ethical standards and risk management practices within the organization. The leadership transition in 2023, with Jong-Yong Yim appointed as CEO following Tae-Seung Sohn's tenure, is a significant step towards addressing these challenges. Yim's appointment signals a renewed focus on improving governance, enhancing operational efficiency, and fostering a more competitive and sustainable future for Woori Financial Group. His leadership is expected to play a critical role in steering the group through this pivotal period of transformation and market adaptation.

Table 8: Woori Bank's major financial frauds uncovered from 2022 - 2024

No.	Time	Event
1	4/2022	USD 50 million embezzled by an employee uncovered
2	6/2024	USD 12.8 million embezzled by an employee uncovered
3	8/2024	USD 25 million improper loan involving former chairman Son Tae Seung uncovered
4	9/2024	USD 4 million improper loan credit rating incident

SWOT Analysis

As the case background is set between 2021 to 2023, Figure 6 below shows the SWOT analysis which is conducted under that time's factors.

<i>Strength</i> • Integrated IT system in business operation • Global network • Brand image & loyal customers • Best in class talents	<i>Weakness</i> • Government-owned working culture • Deteriorated Internal control & risk management procedures • Dependent on banking business
<i>Opportunity</i> • Fintech & Digitalization • ESG trend • Wealth Management	<i>Threat</i> • Tighten regulations on ESG & capital • New players in fintech industry • Scandals affect customer trusts

Figure 6: SWOT analysis for Woori Financial Group

Strengths

As a long-term established financial group, WFG has its own legacy system (WGSS – Woori Global Standard System) with its own Financial Information system company (Woori FIS) to develop and maintain the operation (WFG, 2022). The integrated digital system not only help streamline the processes but also strengthen the communication and

common operational practice between group's employees. This also means WFG possess an integrated customer data which is fundamental for digital transformation and especially, AI adoption (WFG, 2023) . WFG also plan to combine its retail financial services into a super-app, which integrated all of its business service including Woori bank, Woori card into one single mobile application, projected to launch by 2024.

Another strong point is WFG's global network, which is mostly in Asia and developing countries. Diversification in different markets plays a role in risk diversification. Noticeably, WFG financial services are served in all countries where there is also a strong presence of Korean FDI corporates such as Vietnam, Philippines, Indonesia, Cambodia, Myanmar. This brings the potential for cross-selling between retail banking and corporate banking. At the same time, the presence in different markets with different currencies open the opportunities for international trade finance services and Forex products.

The strong brand image and loyal customer base of WFG further solidify its business vibrance. In a highly trust-required field like financial services, a historical player like WFG can get a high advantage. Being one of the top five giant players in the domestic market, WFG often get the chance to be the pioneer in business trends. Serving 11 out of 38 Korean conglomerates, including Samsung, Hanwha, Hyundai, POSCO & Doosan, WFG can gain certain tractions entering new markets. The loyal local customers also provide a fundamental business growth for the bank. However, how WFG can convert this strength into its opportunities is the challenge to be discussed further in business opportunities.

Finally, the group is supported by best-in-class talents, ensuring a high level of professionalism and expertise. Being one of the biggest financial groups in Korea, WFG has an advantage in recruitment of top school graduates in Korea. Global Family program, Woori

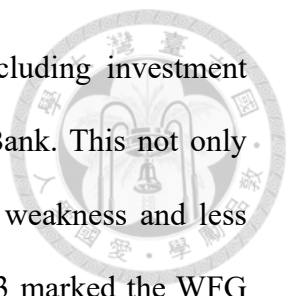
Digital Academy, global rotation program and most recently, Woori Organization Health Index (WOHI) are some initiatives to foster and nature talents for future growth.



Weaknesses

A key challenge for Woori lies in its government-owned working culture, which could hinder agility and innovation. Only fully privatized and reformed by 2021, WFG once admitted that not all of past group decisions was commercial driven in one of the organizational innovation program called OneDo (Park Hun-Joon, 2013). The culture challenges the daily operation practice in all group level, from working level to top management. This takes time to adapt and change. The new CEO Lim has been initiating several program including WOHI mentioned above to innovate the working culture. Another initiative from WFG to further prove to its shareholder is the decision of paying very high dividend in 2023, highest among its own history and top among other players in the market.

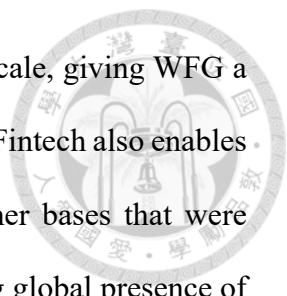
Moreover, weaknesses in internal control and risk management could expose the organization to operational risks and regulatory scrutiny. This weakness might come from the previous reason of long term government owned, the legacy management system is slower to response to new challenges emerging in the market. It can also be resulted from the ignorance from top managers when Risk management was not the top priority. It was not until recent 5 years that WFG appeared to have many problems in its internal control systems with several financial incidents and consequently, with the pressure from Korea FSS, WFG was forced to take this more seriously. The financial authorities decided to separate internal control into a separate evaluation category in the bank management performance evaluation from 2024 and significantly increase the evaluation weight (from 5.3% to 15%) is also cited as the background for Woori Financial Group's large-scale corporate culture reform.



Lastly, though operating in many financial service sectors including investment banking, asset management, the majority of profit came from Woori Bank. This not only show the risk in profitability in financial services but also shows the weakness and less competitiveness of WFG in other services. Woori Card spin off in 2013 marked the WFG effort in diversifying the source of income. In the recent years, since transitioning to a financial holding company in 2019, Woori Financial Group has consistently aimed to increase the proportion of non-banking sector revenue in its business portfolio through subsidiary acquisitions and establishments. From 2019 to 2022, the Group acquired asset management, real estate trust, capital, and savings bank businesses, and established an NPL investment company. In March 2023, the Group acquired Woori Venture Partners (formerly Daol Investment), a top-tier venture capital firm, incorporating it as a subsidiary. In the second half of 2023, the Group completed the full acquisition of Woori Investment Bank and Woori Venture Partners, previously publicly listed companies, via a comprehensive stock-exchange agreement, thereby attaining complete ownership. Currently in 2024, the group is trying to expand to insurance business through ABL Insurance takeover, which is under review for FSS approval. This strategic move enhanced the efficiency of the Group's portfolio, increased profits from controlling stakes, and strengthened group cohesion.

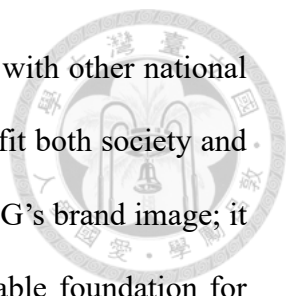
Opportunities

The rapid growth of Fintech and digitalization presents WFG with valuable opportunities to innovate and expand its service offerings. Continuous technological development drives transformation within the financial industry, and WFG is particularly well-positioned to benefit due to its robust internal IT resources, including the Woori Financial System and the integrated core banking system (WGSS). While sophisticated IT



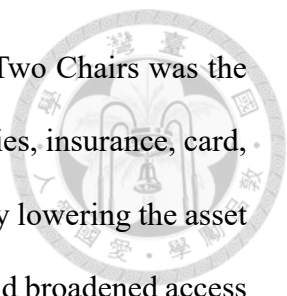
infrastructure is common in Korea, it is still relatively rare on a global scale, giving WFG a unique advantage in the competitive landscape of digital transformation. Fintech also enables WFG to bridge geographic barriers, opening new markets and customer bases that were previously difficult to reach. Through its strong network and the growing global presence of Korean investments, WFG can leverage Fintech to extend its services to international markets. By doing so, the group is not only able to reach a wider audience but can also deliver a seamless digital experience to a more diverse clientele. Additionally, WFG's Universal Banking services allow it to integrate both core and non-core financial services across its subsidiaries, creating a unified digital ecosystem that reflects a forward-thinking approach to banking. Another critical element of WFG's digitalization strategy is data accumulation and analysis. With a wealth of data collected over the years, WFG has a substantial lead in understanding customer behavior and market trends. WFG dedicated data platform enables the collection, storage, and effective use of this data, fostering a data-driven management approach that enhances collaborative marketing across subsidiaries. This platform allows for efficient sharing of marketing information, optimizing synergies within the Group and creating value at every customer touchpoint. If WFG can successfully implement its Universal Banking and data-driven management model in Korea, it will be well-positioned to replicate this success globally, building a powerful digital banking presence worldwide.

Secondly, the increasing emphasis on ESG (Environmental, Social, and Governance) practices offers WFG a valuable opportunity to reinforce its leadership by aligning with global sustainability initiatives. As one of Korea's top five financial institutions, WFG is well-positioned to lead the way in ESG within the financial sector. Its commitment to ESG has been recognized through several prestigious accolades, including an AAA ESG rating from



MSCI and an A rating from KCGS in 2023. These achievements, along with other national awards, underscore WFG's dedication to responsible practices that benefit both society and the environment. Embracing ESG principles goes beyond enhancing WFG's brand image; it also supports the Group's efforts to build a more resilient and sustainable foundation for future growth. ESG aligns with the UN Sustainable Development Goals (SDGs) by promoting profitability through ethical and sustainable operations. WFG is committed to achieving Carbon Net-Zero across its operations and asset portfolio by 2050. Additionally, the Group has pledged KRW 100 trillion (USD 71.5 billion) in ESG financing by 2030, aiming to allocate 30% of its loans to ESG sectors. This ambitious commitment represents both a challenge and an opportunity for WFG, as it paves the way for more sustainable financing solutions that can offer solid, long-term returns for stakeholders. True integration of ESG practices requires embedding these principles into the very core of WFG's operations and culture. For ESG to be effective, it must go beyond mandatory disclosures and become an intrinsic part of decision-making at all levels of the organization. This involves ensuring that each manager and employee understands and upholds ESG values in every transaction. Moreover, WFG's commitment to ESG extends beyond Korea, encompassing its entire global network. By fully embracing ESG, WFG can create a competitive advantage that is unique, meaningful, and difficult for competitors to replicate.

Lastly, the rise in demand for wealth management services offers WFG a promising area for growth and differentiation. One of WFG's flagship brands in this space, "Two Chairs," launched in 2003 as a Private Banking (PB) specialized service through Woori Bank, stands out for its tailored offerings. The brand segments customers into specific groups—such as CEOs, celebrities, and other professionals—based on occupational characteristics



and financial assets, allowing for highly personalized service. Initially, Two Chairs was the first in Korea to introduce one-stop banking, integrating banking, securities, insurance, card, and tax services. With a strategy aimed at popularizing private banking by lowering the asset threshold to KRW 30 million (USD 25,000 in 2003) (Lee, 2010), the brand broadened access to PB services and positioned itself as a leader in wealth management. Currently, the Two Chairs W brand is undergoing expansion to cater to high-net-worth individuals with AUM of KRW 3 billion (USD 2.2 million). Recent surveys show an increase in Korean individuals with a net worth exceeding KRW 1 billion (USD 750,000) by 7.5%, reaching 465,000 people in 2023 (Lee, 2024). This growth reflects rising wealth in Korea and a strong demand for specialized wealth management services among affluent clients. WFG's tailored approach enables it to cater to both traditional wealthy families, known as "chaebols," and the rapidly growing sector of new wealth generated by start-up unicorns, blockchain technology, and the latest wave of generative AI innovations. With its established brand, deep industry experience, and strong market presence, WFG is well-positioned to capitalize on this growth in wealth management. Its global network and digital start-up ecosystem provide additional opportunities for value creation and synergy across the Group. By leveraging these strengths, WFG can continue to expand its wealth management services and capture a larger share of the growing market, ultimately reinforcing its competitive advantage in both Korea and international markets.

By seizing new opportunities and integrating them with its existing competitive advantages, WFG is focused on building sustainable core competencies. The strengths of WFG are summarized in the Table 9 below using a VRIO analysis.

Table 9: Competitive advantage of WFG through VRIO analysis

Strength	Value	Rare	Inimitable	Organization	Remark
Strong network in Korea and Asia Pacific	Yes	Yes	Yes	Yes	Maintain
Brand image & loyal customer	Yes	Yes	Yes	Yes	Maintain
Best in class talent	Yes	Yes	Yes	Yes	Maintain
Digital & ESG leader	Yes	Yes	Yes	Not yet	Develop
Excellent wealth management service	Yes	Yes	Yes	Not yet	Develop

Threats

In the face of challenging economic conditions both in Korea and globally, the FSS has mapped out a plan to tighten capital requirements for financial institutions, increasing the Common Equity Tier 1 (CET1) ratio by an additional 2.5% as a crisis buffer (Jung, 2024). Although WFG currently maintains a relatively low NPL ratio of 0.6%, its CET1 ratio stands at 12.04%, the lowest among Korea's five major financial holding companies. This could place further pressure on WFG, especially as it moves forward with acquisitions of Tongyang Life Insurance and ABL Life Insurance. To support its expansion plans, WFG will need to work harder to assure regulators of its financial stability and management capabilities. Furthermore, the rapidly evolving regulations and guidelines on ESG practices present a compliance risk for the group, adding another layer of regulatory challenges.

Another significant threat to WFG is the rise of new fintech players, which intensifies competition within the financial sector. This competition not only comes from domestic challengers like Kakaobank, K-Bank, and Toss Bank but also from global markets. With the proliferation of blockchain technology, fintech innovations, and emerging partnerships

reshaping the industry landscape, traditional players like WFG face growing pressures to keep up. To address these challenges, WFG established DINNOlab (Digital Innovation Lab) in 2016, a program focused on discovering and nurturing startups. Through DINNOlab, WFG aims to support external fintech and innovative startups, strengthening linkages across the group to stay competitive in a rapidly changing environment.

Finally, recent financial scandals present a reputational risk that could negatively impact customer trust in WFG. The FSS has also scheduled a regular audit of WFG for the end of 2024, amid recent uncovering of financial incidents involving the group. This scrutiny, coupled with ongoing regulatory and competitive pressures, underscores the need for WFG to prioritize transparency and robust internal controls to maintain stakeholder confidence and adapt to evolving market conditions.

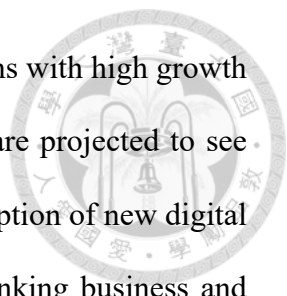
Business Strategy

From the analysis above, it is critical for WFG to stay competitive by pursuing a strategy that leverages its strengths, seizes growing opportunities, and mitigates weaknesses and threats. Therefore, WFG should focus on digitalization, expanding its global financial ecosystem, and improving its risk management practices.

This analysis result aligns with WFG's strategic focus over the past three years. The themes of “Digitalization,” “Globalization,” and “Risk Management” are prominently detailed in the strategy section of WFG's annual reports. WFG's vision for the past three years has been to “Innovate Today, Create Tomorrow,” with core values centered on “Customer, Trust, Expertise, and Innovation” (WFG, 2024). The group has demonstrated a clear desire to transition from a heavily government-dependent corporation to a fully private, commercially oriented financial holding company. With the ambition to “become a leading

global financial group with digital prowess” (WFG, 2024), WFG has emphasized enhancing core business competencies, fostering synergy between strategic business units (SBUs), and improving communication across organizational hierarchies. To achieve this vision, WFG must embed innovation, digitalization, and risk management into its organizational culture.

Regarding digitalization, WFG is advancing in three directions simultaneously: internal governance, digital systems, and ecosystem transformation. Within internal governance, WFG has set the objective of “Fortifying the Foundation for Digital Innovation”(WFG, 2024). Over the past three years, the group has made significant progress through initiatives such as appointing its first-ever Chief Digital Officer, establishing a Biz-IT collaboration framework, and launching career development programs like the Woori Digital Academy. These efforts aim to identify and nurture talent across key subsidiaries, including Woori Bank, Woori Card, and Woori FIS, cultivating a pool of specialists to drive the future of digital finance. For digital systems, WFG’s goal is “Enhancing Technological Competitiveness” (WFG, 2024). A major project in this area is the development of a universal banking app set to launch in late 2024, leveraging group-wide data and AI governance systems to enhance data sharing and integration across subsidiaries. In ecosystem transformation, WFG is driving innovation through collaborations and fintech investments, aspiring to lead the “next generation of digitalization” (WFG, 2024). The startup discovery and nurturing program, DINNOlab, is central to this effort. Since 2016, DINNOlab has identified 137 startups and facilitated 42 collaborations with WFG subsidiaries, operating four offices in South Korea and one in Vietnam.



In terms of global business expansion, WFG is prioritizing regions with high growth potential, such as South Asia, India, and Eastern Europe. These areas are projected to see significant growth in consumer banking services alongside the rapid adoption of new digital technologies. Concurrently, WFG aims to strengthen its investment banking business and increase its market share in EXIM-related services.

Finally, risk management is the most urgent and critical issue for WFG under current circumstances. The group plans to upgrade its risk management system to enhance crisis response capabilities, proactively manage credit risks for various asset types and portfolios and strategically adapt to changes in risk-related regulations. Key initiatives include managing its capital ratio, particularly risk-weighted assets (RWAs), and ensuring stable compliance with new Basel regulations. Additionally, WFG is linking its climate risk management to its broader climate change response system. The appointment of a new outside director with expertise in ESG and the launch of a finance emission management system project in 2023 demonstrate WFG's commitment to addressing emerging ESG risks.

4.3. Sustainability KPIs of WFG in the past 3 years

Woori Financial Group's ESG reports have aimed to align with multiple globally recognized reporting frameworks and standards. These include the GRI Universal Standards, GRI Topic-specific Standards, SASB Standards, the TCFD Framework, the PRB Framework, and the UN Global Compact. Among these, the GRI Topic-specific Standards alone cover 44 disclosures, addressing areas such as economic performance, environmental performance, and social performance.

While WFG has chosen to report on these indicators, they do not necessarily represent the core performance indicators used for the group's internal performance evaluation. Instead,

Woori Financial Group's ESG strategy is crafted around the key management issues identified through a double materiality assessment (WFG, 2024). Therefore, the Sustainability KPIs evaluated in this paper are derived from the ESG reports, reflecting the group's prioritized issues based on the results of its double materiality assessment.

Although WFG has been reporting on sustainability indicators for several years, it was not until 2022 that the group began applying the Double Materiality Assessment to select key material topics that are both financially relevant to the company and have significant impacts on ESG factors.

2021 report was applied a materiality assessment, which resulted in the selection of 5 key sustainable management issues below. Due to the selection method, these topics are more highly relevant to WFG financial aspect.

- Stable economic performance
- Digital transformation
- Financial consumer protection
- ESG Financing
- Inclusive finance and social contribution

Among those, 'ESG finance' such as green bonds and the Equator Principles was highlighted as the top priority core issue.

In contrast, the core ESG management issue selected by Woori Financial Group in 2022 was more of 'social and governance' than 'environment'. In 2022 Sustainability report, there were 7 key topics selected from a pool of 48 topics and the Sustainability report in 2023 highlighted 10 key topics selected from 21 issued. The materiality issues with KPIs are

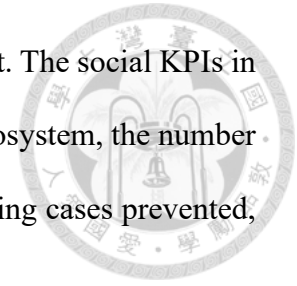
summarized in Table 11. It can be seen that in just one year, Woori Financial Group's interest in ESG management has shifted significantly from environmental issues to social and governance issues.



In the Environmental dimension, there was no change in the selected indicators between 2022 and 2023. The focus remained on tracking internal GHG emissions, carbon emissions from clients receiving loans and investments, and the use of renewable energy. These metrics are standard and integral to ESG reporting, adhering to the GRI framework, which WFG has been using since 2019. While these indicators have been consistently reported for several years, there was initially no formal linkage between these KPIs and performance evaluations. It was not until 2023, the performance of the GHG emissions indicator became a part of the sales performance of the group's eco-friendly products, including green finance initiatives. Emissions associated with these products and services are classified as Scope 3, Category 15 for financial institutions, commonly regarded as the most significant component of the institution's GHG emissions inventory (PCAF, 2022).

Unlike the stability of indicators in the environmental section, WFG used different metrics and topics to assess its social performance. While the focus on the expansion of digital platforms and social contributions remained consistent, the 2023 double materiality assessment introduced new focus areas, including inclusive and co-prosperity finance as well as customer service quality and protection. Meanwhile, the topic of respect for human rights in corporate culture was removed from the assessment. In 2023, the indicator shifted from simply tracking the number of customers on digital platforms to tracking monthly active users (MAU), emphasizing the importance of customer engagement quality in addition to quantity. Similarly, reporting both the number of beneficiaries and the amount of support provided in

social contributions offered a more comprehensive view of social impact. The social KPIs in 2023 also introduced new metrics, such as investments in the fintech ecosystem, the number of beneficiaries in inclusive finance, and the number of fraud and phishing cases prevented, reflecting an evolving approach to measuring social responsibility.



In the Governance area, while customer information protection, cybersecurity, and employee ethics and compliance training remain key topics, the focus on economic value has shifted. Additionally, ESG integration into loan and investment decision-making processes was introduced, measured by ESG finance amounts and the number of projects adopting the Equator Principle, a growing framework for assessing environmental and social risks in investment due diligence. WFG enhanced its project finance risk management by adopting the Equator Principle in mid-2021 (Woori, 2024). It is claimed that ESG finance achievements and ESG-linked products and services are tied to management evaluations, though it's unclear if this linkage applies to the Environmental section as well. A notable topic added in 2023 is the soundness and transparency of governance, likely in response to WFG's various scandals in 2022 and 2023. WFG asserts its commitment to a stable and robust governance structure by ensuring checks and balances among its BOD members. It also upholds transparency in governance by disclosing its BOD business standards, procedures, and outcomes. According to the GRI framework, this includes indicators such as the diversification of the BOD, total annual compensation ratio (between different employee levels) and percentage of remuneration variability and even the use of malus for material risk takers (MRTs). The latter is considered as the key in this issue since the diversification of the BOD is duplicated in the issue of inclusive working environment, which is not selected in Double Materiality Assessment. In 2022, the WFG's CEO annual compensation is 15 times

higher than the median of employees' and in 2023, the ratio reduced to 9.5 times. For the percentage of variable income, in 2023, WFG reported that 46% to 67% of the CEO's and management's variable compensation - based on performance evaluation scores - is deferred and paid over the next three years. However, the specific percentage breakdowns of these variants were not disclosed. Detail is shown in Table 10 below.

Table 10: Variable compensation of WFG for different executive levels (WFG, 2024)

Classification	Management				
	CEO	President	Director Level 3	Director Level 2	Director Level 1
% of performance-linked compensation	71%	63%	62%	60%	58%
% of compensation deferred	67%	53%	50%	47%	43%
Deferral period	3 years excluding the current year				
Compensation ratio comparing to median of employees	9.5 times	N/A			

Table 11: WFG Sustainable KPIs in 2022 & 2023 (WFG, 2023, 2024)

Sector	Topics	Key Performance Indicator			Measurement method	KPI Linked to Management Compensation (2023*)
		2021	2022	2023		
E	Evaluating climate risks and building a response mechanism	N/A	Internal Greenhouse gas emissions	Unchanged	Annual GHG emissions from SCOPE 1,2,3 (GRI 300 standard), exclusion of Financed emission	Sales performance of ecofriendly products, including green finance
			Financed emission	Unchanged	TCFD Financed emission guideline Approach	
			The use of renewable energy	Unchanged	Annual renewable energy consumption ratio	
S	Expanding digital finance and platforms	Undefined	Number of customers using Group's comprehensive digital services	Group-wide MAU for digital services	Count of MAU at year end*	Operation KPI*
			N/A	Investment amount on expanding digital finance ecosystem	Cumulative	
	Creating values for communities through social contribution	Undefined	Cost of investment in Social contribution	Support amount, number of recipients	Sum of total investment amount & recipients on different projects in the year	
	Instilling respect for human rights in the corporate culture	N/A	Total number incidents of Discrimination and Corrective Actions	N/A	Count of incidents in the year	
	Expansion of inclusive and co-prosperity finance	N/A	N/A	Number of beneficiaries of inclusive financial products	Count of the related products user in the year	
	Enhancement of customer-centered product and service quality and financial consumer protection	Undefined	N/A	Financial fraud prevention accounts Number of prevented phishing cases	Count of prevented accidents in the year	

Sector	Topics	Key Performance Indicator			Measurement method	KPI Linked to Management Compensation (2023*)
		2021	2022	2023		
G	Enhancement of protecting customer information and reinforcing cyber security	N/A	The number of leaks in information security and privacy data	Unchanged	GRI 218	Linked to the protection and enhancement initiatives & achievements
	Strengthen ethics and compliance management	N/A	Employee ethics training by numbers and hours Number of confirmed corruption cases	Unchanged	GRI 205-2, GRI 205-3	
	Creating reliable economic performances	Undefined	Economic value (Operating profit, net profit) & Distribution (Shareholders, investors, employees, governments, local communities)	N/A (reported but not the key focus)	Financial report based amount	
	Expanding consideration of ESG factors in loan and investment decision-making	Undefined		ESG finance amount Number of Equator Principles applied cases	Count of cases during the year	Achievements related to ESG financial products and services
	Ensuring soundness and transparency of governance	N/A		Percentage of total remuneration that is variable for Material Risk Takers (MRTs) and one with malus or clawback provisions Annual compensation ratio	Percentage regulated in remuneration policy	Deferred Payment of Performance Compensation and linkage of compensation package to stock price at the time of payment

5. Case Analysis



5.1. Balanced Scorecard for WFG

From the Core competency and SWOT analysis, the group is in the right direction of building its long term and sustainable strategy. WFG should first focus on **“strengthen risk management while aggressively invest in digitalization and globalization.”**

Strategic Map

As a big financial group with various business units, it is crucial to utilize the causal relationships in Balanced Scorecard design to make sure the goal alignments from high level of business strategy to initiatives, from head quarter to business units, and from business support back-office divisions to business promotion divisions at WFG. The balanced score card design start with building a strategy map which specify objectives in corresponding four key perspectives: Learning and Growth, Internal Process, Customer, and Financial according to the ultimate strategy that WFG pursue. Each perspective builds upon the one before it, creating a cause-and-effect chain from developing internal skills and capabilities to operational improvements, customer satisfaction, and, ultimately, enhanced financial performance. The design of Strategy map for WFG is illustrated in Figure 7.

Beginning with the Learning and Growth Perspective which focuses on cultivating WFG organization’s internal capabilities, particularly by investing in its workforce and organizational culture. Key objectives include nurturing fintech talents across the group, fostering a culture of innovation, empowering the workforce in areas such as risk management and ESG integration, and strengthening management-level competencies. To compete in a fast technology developing field like finance, the human capital is the crucial

factor to drive the system and technology innovation. These ensure that WFG has a skilled, adaptable workforce that can respond to industry changes and support the broader strategic vision.



Building on that foundation, the Internal Process Perspective can aim to enhance operational efficiency and effectiveness. Objectives here include launching a universal digital app as planned to streamline customer interactions, promoting financial ecosystem synergy to improve service offerings, integrating ESG practices into core operations to support sustainability goals, and reinforcing robust risk management and internal control systems. These internal processes enable WFG to provide better services and operate more efficiently, forming a strong base for improving customer experience and achieving financial success.

The Customer Perspective then can focus on delivering value to clients by leveraging improvements made in internal processes. Key objectives include increasing customer convenience, satisfaction, and retention; growing the digital customer base; excelling in asset management services; and WFG's reputation as a trusted and respected brand. Meeting these objectives is intended to strengthen customer loyalty and expand the customer base, especially within digital channels, which aligns with shifting consumer expectations and supports sustainable growth.

At the top of the strategy map, finally, the Financial Perspective highlights the financial outcomes that WFG aims to achieve by building on the improvements in learning, processes, and customer satisfaction. Financial objectives include increasing non-bank service income through products like wealth management and ESG investments services, diversifying revenue sources to reduce reliance on traditional banking, creating synergies in cost sharing and revenue across business units, and investing resources in digitalization and

ecosystem expansion. Achieving these financial goals reflects the value created through investments in talent development, process improvement, and customer satisfaction.

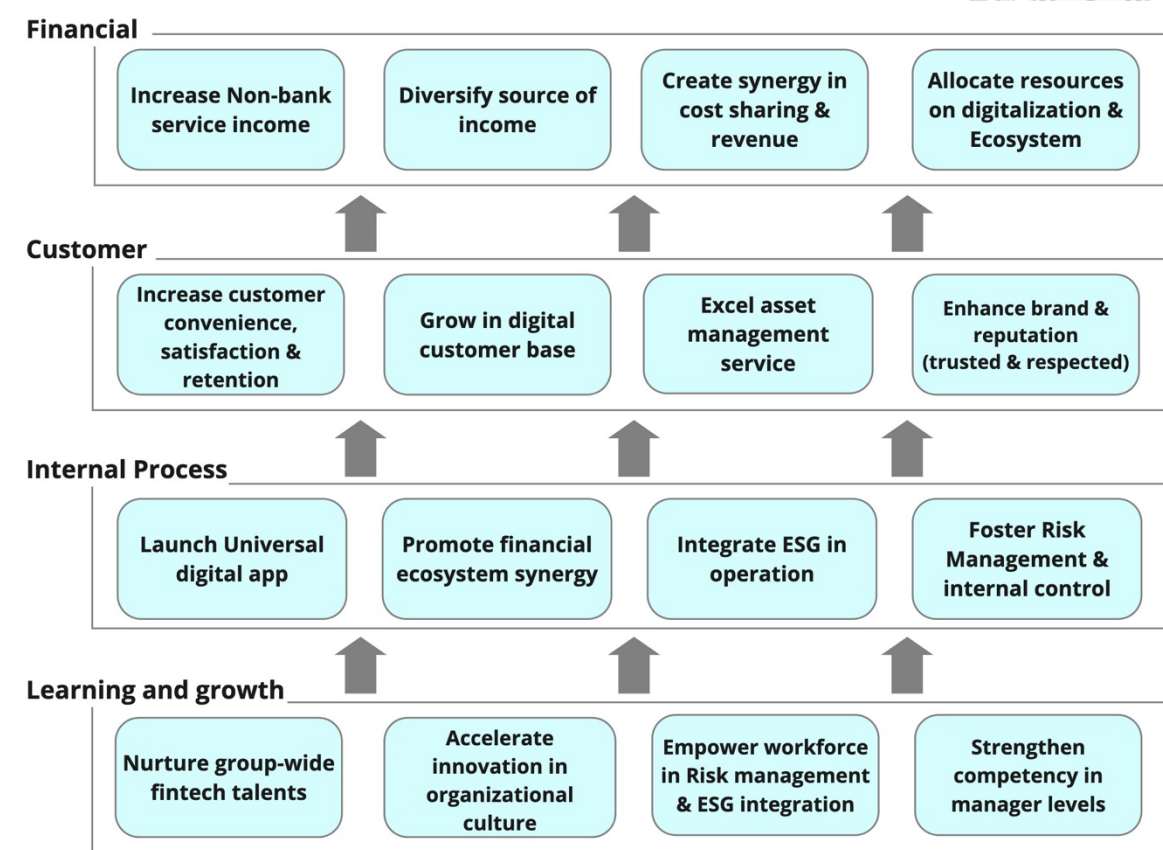


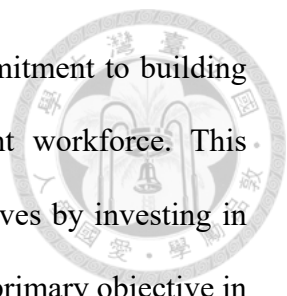
Figure 7: Strategy Map designed for Woori Financial Group

With these objectives formed and remain unchanged throughout a mid to long term period, for each year, WFG can modify the measurements, the target to achieve suitable initiatives and result accordingly. Below is an illustration BSC designed for year 2023.

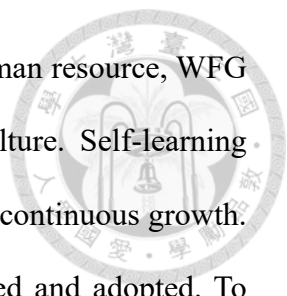
Balanced Scorecard for year 2023 (Illustration)

Table 12: Balanced Scorecard design for WFG in 2023

	Objectives	Measures	Initiatives
Financial perspective	Diversity source of income rather than relying on banking service	Growth of income from other business units	Focus more on Private Equity, Asset Management subsidiaries
	Increase non-interest income	Proportion of non-interest income (ESG bonds services)	Promote ESG financing service Promote WM service
	Create revenue synergy and cost synergy between Business Units	Total value of revenue sharing & cost-saving	Recognize bonus performance on synergy
	Allocate resources on digitalization and ecosystem expansion	Cumulative ROI Number of new investment projects	Focus on strategic investment instead of portfolio investment
Customer perspective	Increase customer's convenience, satisfaction, and retention (both individual and corporate)	Customer retention rate Customer satisfaction rate	Customer satisfaction survey
	Growth in digital customer	Inclusive finance digital user number Total transaction value	Combining inclusive finance service on digital channels
	Excellent asset management service	AUM value Customer retention rate	ESG investment service
	Reinforce the trusted and respected brand & reputation of the group	Brand rating	Media focus on financial incidents prevention for customers and social finance for stakeholders
Internal Process perspective	Successfully launch WFG universal app for launch in 2024	Project timeline completion	Enhance data analysis capability
	Integrate new businesses including fintech start-ups into group core operation	Revenue growth of start-ups in synergy projects	Utilize fintech service in the ecosystem for cross-border transfer service
	Integrate ESG in the operation & decision-making process	Financed emission ESG training hours Number of Inclusive finance products and product users	Reward ideas that promote ESG in product or operation innovation
	Strengthen internal control for better risk management	Percentage of employees at different levels to have enterprise risk management certificate Number of improper practices (if any)	Create a budget for ERM certificate acquisition. Applying AI in continuous monitoring Empower whistle-blowing action
Learning and Growth perspective	Develop a group-wide digital workforce for agility & innovation	Internal Criteria of Digital Points in assessment surveys	Rewards & promotion tracks for digital talents
	Empower the workforce for Risk management and ESG integration	Personal training hour on relatively related Risk factors & assessment score	ESG training Risk management training
	Strengthen employee competency in the management level	Labor turnover of manager level	Special career development program for core competency employees
	Accelerate innovation in organizational culture	Number of innovative ideas proposed or adopted	Group wide business communication channel for ideas sharing,
		Employee culture survey	Initiate cross-function networking session Quarterly anonymous as an option employee survey

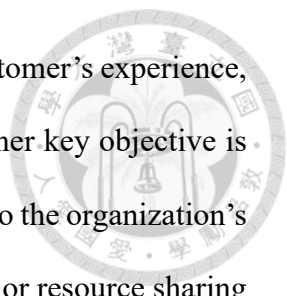


The Learning and Growth Perspective emphasizes WFG's commitment to building internal capabilities, fostering innovation, and developing a resilient workforce. This perspective lays the groundwork for achieving broader strategic objectives by investing in human capital, organizational culture, and knowledge sharing. The first primary objective in this perspective is the development of a group-wide digital workforce geared toward agility and innovation. WFG can measure progress through employee's digital competencies or "Digital Points," assessed through self and peer evaluations conducted semi-annually. The result from the survey can be used as a compass to identify digital talents and motivate continuous learning for employees in the fast-changing digital landscape. Related rewards or special training, promotion program should also be adopted accordingly. By nurturing a digitally skilled workforce, WFG can position itself to respond effectively to technological changes, enabling quicker adaptation. Another crucial objective is empowering employees in risk management and ESG integration. This should be achieved through training programs in risk management and ESG awareness which are provided to enhance employees' competency in these areas, particularly at the management level. WFG can monitor the personal training hours dedicated to these topics, along with assessment scores, to track competency growth. ESG training, including governance, risk management topics help ensure that employees are equipped to make informed decisions that align with ethical and risk management standards, supporting WFG's objectives in Internal Process perspective of ESG control and internal control. In addition, strengthening competencies at the management level should be a key priority. To achieve this, WFG can implement specialized career development programs targeting core competency employees, supporting the growth and loyalty of these high-potential individuals. The target of reducing managerial turnover can help enhance organizational stability, playing a major role in synergy seeking and internal



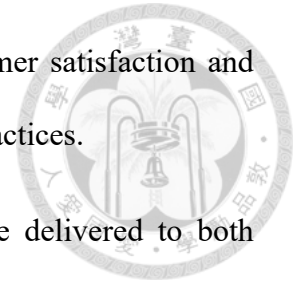
control improvement objective in Internal process. While stabilizing human resource, WFG should also aim to accelerate innovation within its organizational culture. Self-learning organization is the ultimate target of system dynamic, and is the key for continuous growth. This objective is measured by the number of innovative ideas proposed and adopted. To facilitate this, WFG can create platforms for idea-sharing, such as group-wide business communication channels and cross-functional networking sessions. It is important to mention that, however, to truly motivate not only Korean local employees but global workforce to participate, WFG needs to make non-bias approach, from the languages to the assessment and rewards. This will also a contribution to Governance aspect in ESG integration, and promote promising group-wide synergy. Additionally, quarterly employee culture surveys (with an anonymous option) can help provide insights into WFG's cultural strengths and areas for improvement. By focusing on skills development and cultural transformation, WFG will empower its employees to support complex initiatives across other BSC perspectives, driving sustainable success.

The Internal Process Perspective includes four main objectives which achievement can be supported by objectives attained from Learning and Growth. One of goal that WFG has been planning for years is the successful launch of the "WFG Universal App," slated for release in late 2024. This platform is designed to streamline WFG's customer experience by consolidating all group-wide retail services into a single platform, which will not only improve accessibility but also enhance data analysis capabilities. Having been on the to-do list for years, it is important for WFG to track the project timeline, ensuring the timely aspect of the project. Together with the development of Korea MyData, WFG data analysis capability (a part of digital competency strengthens through Learning and growth) and the



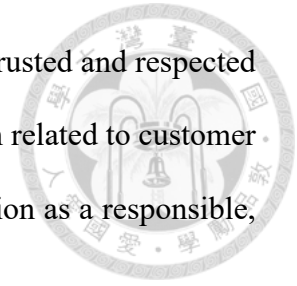
integration of services in one single platform, WFG can further foster customer's experience, which is the first and foremost objective of Customer perspective. Another key objective is the integration of new businesses, including fintech start-ups invested, into the organization's core operations. This strategic move is expected to drive revenue growth or resource sharing for cost saving in Financial perspective through synergy projects. An example can be utilizing fintech services within the ecosystem to facilitate cross-border transfers not only for individuals but also for corporate customers, enhancing Import-export related services. The assessment of synergy growth to start up can motivate innovative start-ups to be proactive in generating ideas in this vertical integration. Reciprocally, the sharing channel initiative from Learning and growth perspective can support this, and the participation of start-ups in the core business can further stimulate an innovative organization culture. Similarly, the incorporation of ESG principles into the organization's operations and decision-making processes can help achieve a sustainability business goal. Financing is the most powerful power of financial groups and therefore, financed emission and social finance are the key measurements for these objectives. Key initiatives can include providing ESG training to employees and rewarding innovative ideas that contribute to ESG integration in products or operations. For the objective of strengthening internal control to enhance risk management, WFG can also measure the awareness by regular internal tests, and motivate employees at manager levels to learn and obtain ERM certifications. This will improve the organization's ability to identify and manage risks proactively. Furthermore, initiatives such as applying AI in continuous monitoring and empowering whistle-blowing actions are put in place to detect and address any improper practices effectively. By focusing on digital innovation, strategic integration of new business lines, ESG incorporation, and strengthened risk management,

WFG can build a solid operational foundation that supports its customer satisfaction and financial performance goals through sustainable and ethical business practices.

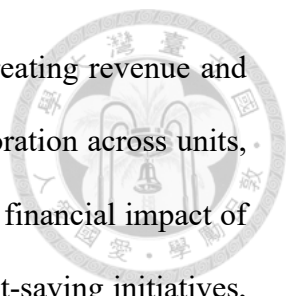


The Customer Perspective is centered on enhancing the value delivered to both individual and corporate clients, ultimately aiming to improve customer satisfaction, retention, and brand reputation. This perspective emphasizes building strong, lasting relationships with customers by aligning services with their needs, improving the digital experience, and ensuring high-quality asset management services. One key objective within this perspective is to increase customer convenience, satisfaction, and retention. Through carrying out customer satisfaction survey, WFG can measure and evaluate its service quality, both offline and online channels, and navigate the improvements necessary for its operation, especially for its digitalization strategy. The objective of growth in the organization's digital customer base can be measured by an indicator such as total transaction value or an ESG related indicator such as number of users of inclusive finance products. particularly by expanding access to inclusive financial services on digital platforms. This aligns with the broader industry shift toward digitalization, making financial services more accessible and convenient for users. By increasing the number of digital inclusive finance services, WFG can meet the needs of underserved populations, promoting financial inclusion and expanding its reach in the digital space. Meanwhile, providing excellent asset management services is also a priority within the Customer Perspective. Metrics like total AUM and customer retention in asset management services are used to measure the success of this objective. It is expected that WFG can utilize the ESG integration & start-up fintech to provide comprehensive value and successfully acquire more AUM such as specialized services, including ESG investment options. Lastly, with the strong foundation built through Learning

and Growth, Internal Process, WFG can aim to reinforce its brand as a trusted and respected one. By maintaining a high brand rating and focusing on media outreach related to customer protection and social finance, the organization seeks to build its reputation as a responsible, customer-centered financial institution.



For the Financial Perspective, as a long term establishment financial group in Korea, the question for WFG is how they can maximize the shareholder value, securing the organization's long-term financial resilience and sustainability. In the financial aspect, looking into the SWOT analysis, especially the Strength, Weaknesses and Opportunity factors, WFG group objectives should be revenue diversification, increasing their non-interest income, optimizing groupwide synergies, and strategically allocating resources to high-potential growth areas such as technology and digitalization. One of the weaknesses of WFG is that they are heavily dependent on banking income. In 2023, 99% of the net income came from Woori Bank (WFG, 2024), hence one core objective is reducing dependency on traditional banking by fostering income growth from other business units. By focusing more on Private Equity and Asset Management subsidiaries, WFG can aim to establish sustainable income sources outside its core services. The developing of AUM in Customer perspective and the preparation in the Internal process, WFG subsidiaries can promote more services in Private Equity and Asset Management business. Similarly, the objective of increase non-interest income, moving beyond traditional banking services can be achieved with the expansion into socially responsible investment products and wealth management offerings. This shift may focus on ESG bonds, which appeal to clients interested in ethical investments, and an enhanced wealth management service suite to attract high-net-worth individuals. Indicator such as the proportion of revenue derived from non-interest income sources can be



used to evaluate the progress in diversifying WFG revenue streams. Creating revenue and cost synergies between business units is also a priority. Through collaboration across units, WFG can reduce costs and boost revenue, maximizing profitability. The financial impact of these synergies is captured by the total value of revenue sharing and cost-saving initiatives, indicating how efficiently its internal resources being utilized. This objective is supported by initiatives that tie performance bonuses to synergy achievements, encouraging teams to find cost-saving or revenue-generating opportunities through joint efforts. A critical focus area within this perspective is digitalization and ecosystem expansion investment. Recognizing the competitive advantages provided by digital transformation, WFG can dedicate resources to developing advanced digital platforms and partnerships that enable it to engage customers more effectively and streamline operations. Initiatives also include strategic investments in technology that improve customer experience, operational efficiency, and service delivery capabilities. Rather than simply investing in any digital assets, the organization concentrates on projects that offer long-term strategic benefits. This strategic investment approach aims to position the organization at the forefront of financial technology and market innovation, prioritizing initiatives that open new revenue streams or support high-potential growth areas like ESG. The cumulative ROI from digital projects and the number of new investment projects measure the impact of these initiatives, ensuring that investments are aligned with the broader goals of digital leadership and ecosystem expansion.

5.2. Diagnose the Sustainability KPIs using BSC

Advantage

The KPIs at WFG were carefully selected through a Double Materiality Assessment, which considered both ESG and financial impacts. These KPIs address the most pressing

issues that WFG needs to tackle in the short term, such as adapting to changes in domestic regulation (e.g., the Customer Information Protection Act) and strengthening ethics and compliance in response to recent financial fraud scandals.



While WFG's sustainability focus encompasses all three pillars—environmental, social, and governance—social and governance aspects dominate, which is appropriate given WFG's position as a financial institution and the broader societal trends. The company's chairman has emphasized the growing importance of corporate social responsibility, not only in environmental matters like the climate crisis and resource issues but also in social topics such as human rights, diversity, and inclusion within the supply chain (WFG, 2023). This highlights WFG's commitment to social responsibility and inclusive finance as key contributions to society.

All the sustainability KPIs selected align with global ESG standards, making them suitable for both ESG reporting and internal performance tracking. Some of these KPIs are tied to managerial performance to drive initiatives, though the connection between the two is somewhat vague and not well-defined. Certain KPIs also align with WFG's core competencies and strategic direction, even though this alignment was not explicitly mentioned in the ESG report. Metrics like Monthly Active Users (MAU) of digital platforms, investments in expanding the digital finance ecosystem, and ethics training targets all contribute to strengthening WFG's competitive edge.

There have also been positive changes in how certain indicators are selected. For instance, digital platform performance now focuses on MAU rather than total users, and social contribution tracking includes both the number of recipients and total investment amounts. The evolution of WFG's Sustainable KPIs is evident: in 2021, no clear KPIs were

defined; in 2022, the KPIs were more relevant to ESG value; and in 2023, the selected KPIs are more comprehensive and likely to be more effective.



Disadvantage

Without BSC, WFG faces several challenges related to the alignment and integration of its sustainable KPIs with its overall business strategy. First, there is a lack of understanding of the causal relationships between various ESG-related KPIs. For instance, ESG or ethics training could positively influence other performance metrics, such as increased sales of financial products or improved risk management. Similarly, nurturing digital talent could organically drive platform user growth. A deeper understanding of these interconnections would enable managers to make better-informed decisions, achieving multiple KPIs simultaneously and creating operational synergies across different business units.

Second, there is a disconnect between sustainable KPIs and the broader business strategy. ESG should be an integral part of the overall business strategy, but the failure to link ESG strategy with Woori Financial Group's core strategy leads to confusion in decision-making and business practices. This misalignment can also result in flawed or incomplete performance measurement methods, which in turn lead to misguided initiatives. For example, the group's decline in green finance sales due to inadequate risk management frameworks could also stem from a misunderstanding of sales priorities or insufficient incentives for selling ESG products. Sales teams are typically rewarded based on loan profits, but since ESG-related financing offers lower interest rates and thus lower profit margins, sales compensation is negatively impacted. This disconnects between business strategy and ESG KPIs leads to inappropriate performance evaluations, further contributing to low ESG product sales. The increase in financed emissions from 2022 to 2023, from an estimated 44

million to 58.17 million tCO₂e, underscores the ineffectiveness of Woori's ESG finance management.



Third, a lack of understanding regarding the objectives of these KPIs results in the use of inappropriate or ineffective indicators. For example, the current KPI for Woori's digital platform is Monthly Active Users (MAU), a metric related to the "Customers" perspective on the strategy map. However, there are no KPIs for "Internal Processes" or "Learning and Growth," both critical for long-term digital sustainability. Metrics such as customer transaction response time or staff cybersecurity knowledge could be included in the digital platform's KPIs to foster a more holistic approach to digitalization. Additionally, a better understanding of initiatives could lead to improved synergies and greater efficiency. For example, inclusive finance could prove profitable in the long run, especially given the rising interest in ESG portfolio diversification. By integrating financial digitalization and a robust ESG management system, Woori could enhance the value it offers to both private banking clients and marginalized customers.

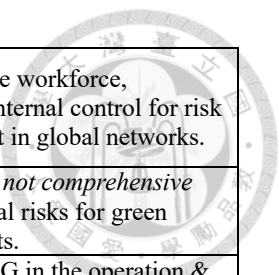
Another issue is the heavy reliance on lagging indicators rather than leading ones, particularly in governance. This focus hampers Woori's goal of fostering an innovative working culture, as employees are not incentivized to be proactive in their daily operations. A lack of clarity around the objectives of KPIs can also lead to ineffective practices. For instance, while compliance officers have been appointed across Woori Financial Group's business units to address corruption and support whistleblowing systems (WFG, 2022), these roles may be rendered ineffective if the officers are not adequately trained or do not understand their core objectives.

Detail Indicator Analysis

The Table presents the alignment of ESG indicators, selected through the Double Materiality Assessment in 2022 and 2023, with the business strategy as outlined by the BSC. Each indicator is evaluated based on its aspect, the year of implementation, and its strategic relevance from a BSC perspective

Table 13: Detail analysis of Strategic value for Sustainable KPIs

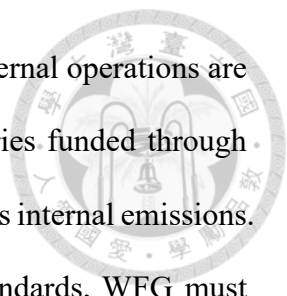
No.	Indicator	ESG	Year	Perspective	Strategic value
1	Internal Greenhouse gas emissions	E	2022, 2023	Internal Process	<i>Not suitable</i> because the impact on GHG is unremarkable
2	Financed emission	E	2022, 2023	Internal Process	Integrate ESG in the operation & decision-making process. Consider separating KPIs for Loan & Investment projects.
3	The use of renewable energy	E	2022, 2023	Internal Process	<i>Not suitable</i> because the impact on GHG is unremarkable
4	Number of customers using Group's comprehensive digital services	S	2022	Customer	<i>Suitable but not comprehensive</i> because it only focuses on quantities
5	Group-wide MAU for digital services	S	2023	Customer	<i>Suitable but not comprehensive</i> with potential risks in customer satisfaction.
6	Investment amount on expanding the digital finance ecosystem	S	2023	Financial	Allocate resources to digitalization and ecosystem expansion
7	Social contribution support amount	S	2022, 2023	Internal Process	ESG integration
8	Number of recipients from Social contribution	S	2023	Internal Process	ESG integration
9	Total Number of Incidents of Discrimination and Corrective Actions Taken	S	2022	Learning and Growth	Empower the workforce for ESG integration in globalization
10	Number of beneficiaries of inclusive financial products	S	2023	Customer	Increase customer's (both individual and corporate) convenience, satisfaction, and retention & Growth in digital customer
11	Financial fraud prevention accounts	S	2023	Internal Process	Strengthen internal control for better risk management
12	Number of prevented phishing cases	S	2023	Internal Process	Strengthen internal control for better risk management, especially in digitalization
13	The number of leaks in information security and privacy data	G	2022, 2023	Internal Process	Strengthen internal control for better risk management
14	Employee ethics training by numbers and hours	G	2022, 2023	Learning & Growth	Empower the workforce for Risk management and ESG integration
15	Economic value and distribution	G	2022	Financial	<i>Align but might be duplicated</i>



16	Number of confirmed corruption cases	G	2022, 2023	Learning & Growth, Internal Process	Empower the workforce, strengthen internal control for risk management in global networks.
17	ESG finance amount	G	2023	Financial	<i>Suitable but not comprehensive</i> with potential risks for green wash projects.
18	Number of Equator Principles applied Cases	G	2023	Internal Process	Integrate ESG in the operation & decision-making process
19	Percentage of total remuneration that is variable for Material Risk Takers (MRTs) & one with claw back provision	G	2023	Internal Process	Integrate ESG in the operation & decision-making process
20	Annual compensation ratio	G	2023	Internal Process	Integrate ESG in the operation & decision-making process

Each indicator is evaluated based on its aspect, the year of implementation, and its strategic relevance from a BSC perspective. The assessment includes 3 indicators under the environmental aspect, 9 under the social aspect, and 7 under governance. Among these, 2 environmental indicators, while commonly used in business practices, were found to provide limited support to the business strategy. Additionally, two KPIs under the social aspect and one under governance were identified as areas for improvement to better align with strategic goals and minimize unnecessary business initiatives.

In the Environmental aspect, Internal GHG Emissions and Use of Renewable Energy were tracked in 2022 and 2023, probably categorized under the Internal Process perspective. However, these indicators are considered less impactful due to their minimal influence on overall GHG reduction. As of 2023, WFG reported total emissions of 72,857 tCO₂eq, comprising 10,955 tCO₂eq from direct emissions (Scope 1), such as vehicle use, and 61,902 tCO₂eq from indirect emissions (Scope 2), primarily from electricity consumption in offices and branches. This represents only 0.125% of WFG's financed emissions in 2023, falling short of the group's target of 67,678 tCO₂eq. The shortfall was attributed to the expansion of new offices, highlighting a misalignment between the target and the group's business growth



plans. While business expansion is inevitable, the GHG savings from internal operations are relatively insignificant compared to the emissions generated by industries funded through WFG's capital. This does not diminish the importance of WFG reducing its internal emissions. As a responsible financial group adhering to global ESG reporting standards, WFG must continue tracking and reporting its internal GHG emissions while striving to increase renewable energy usage. However, these indicators are not recommended as primary metrics for the group's strategic focus. Instead, they could serve as tools to assess the performance of subsidiaries or employees, managed at the compliance level to ensure alignment with WFG's broader direction. Additionally, South Korea's current electricity infrastructure does not widely enable firms to choose renewable energy sources, unlike in some European countries. WFG could consider revisiting and prioritizing these metrics in the future as the energy landscape evolves, aligning with emerging opportunities and technological advancements.

Financed Emissions, in contrast, highlight WFG's significant influence on environmental outcomes. Tracked in 2022 and 2023 as a measurement for Internal Process perspective, this indicator strongly supports the objective of integrating ESG principles into operations and decision-making. As a major financial institution in South Korea, WFG plays a critical role in driving capital allocation within the economy. In 2023, WFG's financed emissions totaled 58.17 million tCO₂eq, representing approximately 9.3% of South Korea's total GHG emissions for that year. From a risk management perspective, financed emissions can be segmented into those arising from loans (including bonds) and those from investments. These distinctions enable WFG to apply tailored standards and policies that address the specific characteristics and risks associated with borrowers and investors. By doing so, WFG can

better align its initiatives with ESG goals, ensuring a comprehensive approach to reducing environmental impacts across its financial portfolio.



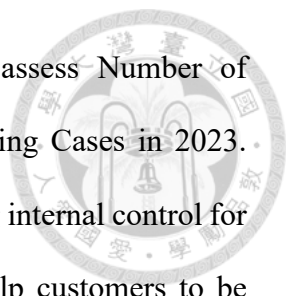
In the Social aspect, the Number of Customers Using the Group's Comprehensive Digital Services was tracked in 2022 under the Customer perspective. While this indicator aligns with WFG's strategic objective of increasing the customer base, it may also include customers who were encouraged to join but lack genuine interest in utilizing digital services. Similarly, the replacement metric, Group-wide Monthly Active Users (MAU) for Digital Services, adopted in 2023, could lead to employees pressuring customers to switch to digital platforms. This may inadvertently impact customer satisfaction if the transition does not meet their needs or preferences. To address these concerns, digital performance metrics could focus on more insightful measures, such as analyzing customer behavior patterns or tracking growth in the use of exclusive digital services like the WON Concierge. These refined metrics could provide a clearer understanding of customer engagement and satisfaction with WFG's digital offerings. Additionally, the Investment Amount in Expanding the Digital Finance Ecosystem, introduced in 2023, strongly supports WFG's goals of globalization and ecosystem development. This indicator aligns with the Financial perspective by reflecting the strategic allocation of resources toward digital transformation and ecosystem growth. However, to ensure investment quality, this metric should be complemented by measures of effectiveness, such as cumulative ROI, to evaluate the outcomes and long-term impact of these investments.

The two additional social contribution indicators selected by WFG are Social Contribution Support Amount and Number of Recipients from Social Contributions, with the latter added to the Sustainability KPIs in 2023. Both indicators align well with the Internal Process objective of integrating ESG into operations. To further enhance their alignment with

WFG's objectives, more detailed metrics, such as the number of stakeholders among the recipients of social contributions, could be introduced. This approach would ensure that funds allocated to social activities are not only impactful from an ESG perspective but also strategically beneficial for the business by prioritizing the needs of its stakeholders.

Total Number of Incidents of Discrimination and Corrective Actions Taken is another indicator of social aspect, which was first selected in 2022 but not in 2023. This indicator is indeed important to the objective of empower the workforce for ESG integration in globalization in Learning and Growth perspective. According to Human Rights Watch, South Korea faces widespread and systemic discrimination against various groups, including women and girls, LGBTQ+ individuals, racial minorities, migrants, older adults, and people with disabilities. Alongside Japan, it remains one of the few OECD countries without comprehensive anti-discrimination legislation (Watch, 2024). With branches and offices in 23 countries ranging from Asia Pacific, West Asia to Europe and America, and are still expanding, human right through non-discrimination is a critical issue for WFG to focus on. The adoption of the indicators can show WFG willingness to build an inclusive global working culture, indirectly create motivation for global employees and enhancing the group brand image.

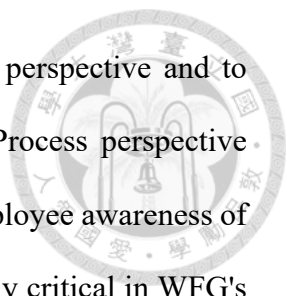
Inclusive finance is one of the big topics for financial group social aspect. WFG measure it through Number of Beneficiaries of Inclusive Financial Products, started in 2023. This metric can support Customer perspective's objective to increase customer convenience, satisfaction, and retention, as well as grow the digital customer base. WFG can develop more digital inclusive finance product to bring financial services to more vulnerability targets while achieving its goal of expanding number of customers.



Regarding financial consumer protection issue, WFG chose to assess Number of Financial Fraud Prevention Accounts and Number of Prevented Phishing Cases in 2023. These indicators support the Internal Process's objective of strengthening internal control for better risk management. Through better internal control, WFG can help customers to be scammed or phished, especially in the digitalization trend. There are many new emerging risks in the digital finance and the selected indicators will require continuous learning and improving in risk management. In 2023, there were 884 accounts prevented from frauds and 200 cases prevented from phishing. Through fulfilling its internal control and risk management objectives, WFG can strengthen its strategy in digitalization and gain creditability with customers.

The Governance aspect focuses on actions a firm should take to enhance its organizational culture, operations, and management, independent of ESG trends. The indicator Number of Leaks in Information Security and Privacy Data was tracked in both 2022 and 2023, playing a significant role in achieving the objective of strengthening internal controls to enhance risk management within the Internal Process perspective, especially given WFG's digitalization strategy. Initiatives such as ongoing vulnerability analysis and the implementation of mitigation measures are essential to support this objective. In 2023, WFG also established a group-wide Advanced Persistent Threat (APT) response system, demonstrating proactive efforts to address cybersecurity risks. Hence, the adoption of the indicators is creating positive initiatives toward digitalization strategy and its commitment to robust governance practices.

The indicators Employee Ethics Training (by Numbers and Hours) and Number of Confirmed Corruption Cases were tracked in both 2022 and 2023. These metrics support



objectives to empower the workforce under the Learning and Growth perspective and to strengthen internal controls for risk management within the Internal Process perspective across WFG's global network. Ethics training is expected to enhance employee awareness of business transparency, reducing the risk of corruption. This is particularly critical in WFG's globalization strategy, where maintaining consistent ethical standards across countries is essential. WFG's expansion through mergers and acquisitions in markets like Indonesia, Cambodia, and Myanmar, where transparency in business practices may vary, makes these indicators vital for supporting globalization efforts and preserving the company's brand reputation.

The indicator Economic Value and Distribution, introduced in 2022, was discontinued in 2023. This decision is reasonable, as this metric reflects the outcomes of other performance indicators rather than serving as a direct driver of strategic objectives.

Governance issues also include ESG Finance Amount, which is adopted in 2023. Though this indicator supports the Financial perspective regarding allocating resources for integration of ESG but this metric can hinder potential risks for greenwash projects for KPI achievement. As one of the current market-leading financial institution in ESG, the cost for a greenwash scandal can be unbearable since it can enormously impact WFG reputation. Because ESG integration (Internal Process) is an objective to support WFG in globalization and digitalization strategy, ESG financial amount can be adopted separately in some certain countries, either in environment aspect, or social aspect, depending on the development of the market where WFG expanding. At the same time, the adoption of Number of Equator Principles Applied Cases, started from 2023 can help better reduce the risk of greenwash. It

also helps WFG make better decision when there can be conflicts between globalization & digitalization strategy vs. ESG risk management.

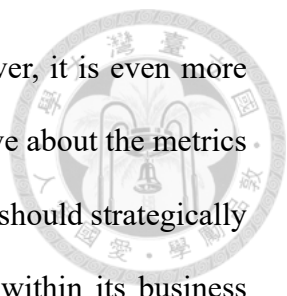


The final governance indicators include Percentage of Total Remuneration That Is Variable for Material Risk Takers (MRTs), Percentage of Variable Remuneration for MRTs with Malus or Clawback Provisions, and the Total Annual Compensation Ratio. These metrics, adopted in 2023, align with global standards such as GRI (Universal Standards 2-19, 2-21) and SASB (FN-IB-550b.1, FN-IB-550b.2). They are designed to mitigate risks at the executive level and build trust with investors, demonstrating WFG's commitment to integrating ESG principles into its operational processes. For the variable remuneration percentage, WFG could tailor the indicator to its business model by clearly defining the target group—whether it applies to all executives, Board of Directors (BOD) members, or exclusively to the Investment Banking division. Regarding the compensation ratio, the adoption appears effective, as the CEO's compensation in 2023 was 9.5 times the median employee compensation, a significant improvement from the 15 times ratio in 2022 (WFG, 2024).

In summary, the majority of WFG's Sustainable KPIs introduced in 2022 and 2023 effectively support its mid- to long-term strategies of globalization and digitalization while strengthening internal risk management. However, some indicators could be refined or replaced to better align with the group's overarching objectives.

5.3. Recommendation

The global ESG trend, along with the various guidelines surrounding it, can create confusion for companies, especially financial institutions. As the demand for ESG reporting



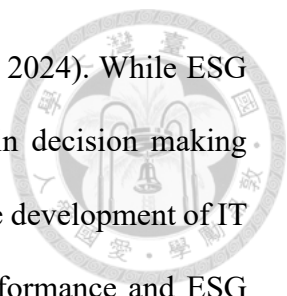
grows, the need for a robust tracking system becomes essential. However, it is even more critical for financial institutions like WFG to remain focused and selective about the metrics they manage and promote. Given the diverse nature of ESG fields, WFG should strategically allocate resources to build strong and sustainable competencies, both within its business strategy and its ESG initiatives. ESG strategy should not stand alone but be integrated into the overall business strategy and the strategies of all individual business units.

Strategy maps and BSC is the most common and useful tool to embed ESG strategy into business strategy and put in into daily operation decision-making process cross business units (Hristov & Chirico, 2019). ESG integration should be approached both from the top-down and bottom-up. At the group level, WFG can establish broad strategic objectives, while each business unit can adopt and develop its own BSC based on their own “strategic themes”, ensuring alignment with the unit's business domain and core competencies (Kaplan & Norton, 2004). At the same time, the group level can monitor and consolidate practices across business units, identifying “common” or “shared” objectives that can create greater synergy for the organization as a whole (Takehiko Nagumo, 2002). The BSC offers an "integrative perspective," promoting "strategic alignment" between WFG's "business strategy" and its "sustainable development" goals. Additionally, the BSC provides a comprehensive framework for "system thinking," enabling WFG to effectively manage the interplay between ESG practices and other business objectives, such as risk management (Tawse & Tabesh, 2022). Once again, the BSC serves as a valuable tool to map, consolidate, and prioritize resources, enabling more effective practices that will deliver greater long-term value.

5.4. Discussion

First, there are many researches about KPIs, integration of ESG, double materiality assessment along with BSC for the practice of building a business strategy but there are very few research provide a combination view of these tools. Despite arising trends in the market, it is essential for corporate to focus on its vision and core value to be sustain in the long run. How BSC as a consolidation tool can be adopted together with other strategy building tools in critical aspect such as ESG, enterprise risk management, for financial groups remained undiscovered. Some researches pointed out the shortcomings of BSC in integrating sustainability into corporate strategy such as lack of consideration about the complexity in contradiction of different stakeholders' interest (Hahn & Figge, 2018). Though the research argument is based on the assumption that BSC is a top-down approach, it made a point of how a holistic view from different stakeholder perspectives is important in identifying the ESG issues for corporate to focus on. This strongly supports the idea of combining Double Materiality Assessment with BSC to build up a comprehensive roadmap for corporates. Recent research by Hristov and Searcy presents a framework that outlines four essential steps for integrating sustainability with corporate governance. These steps include identifying material themes, conducting an initial assessment, formulating and implementing strategies, and engaging in sustainability reporting (Hristov & Searcy, 2024). This approach can be considered as a general guidance in combining Double Materiality and BSC.

Secondly, the adoption of BSC can support ESG accounting in specific and ESG reporting in general. There have been many researches showing the difficulty in tracking ESG metrics for report due to the incompleteness of ESG regulations, duplicated requirements from different organizations and unconsolidated guidelines, the application of using BSC for



ESG reporting in both strategic level and compliance level (Yoon et al., 2024). While ESG reports are becoming more and more significant for all stakeholders in decision making process, a real time Sustainability report system is equally important. The development of IT management system can allow real time linkage between business performance and ESG performance. The adoption of BSC can help deal with the difficulty of ESG accounting by pre-established mathematical rules. More important, the linkage of BSC and ESG report can allow employees to track the root causes, execute operation analysis and make strategic actions to achieve corporate goals.

Lastly, the integration of Artificial Intelligence (Medne & Lapina, 2019) into BSC framework can facilitate the BSC adoption and facilitate the combining BSC with other ESG framework such as Double Materiality. AI can automate routine tasks associated with BSC creation and report, at the same time, facilitate the customization of the BSC to suit the unique needs of different departments within an organization thank to the combination of internal data shared within organization. With the ability of data processing and analytical capabilities, AI can enhance the BSC's effectiveness by providing real-time data analytics, predictive insights, provide suggestion for metrics selection and target setting for organizations. This capability enables timely decision-making, data-driven choices in selecting this KPI over another and ensures that strategic objectives are being met (Hügler & Grek, 2023).

6. Conclusion

6.1. Key takeaways

WFG has enhanced its adoption of Sustainable KPIs with the support of the Double Materiality Assessment conducted in 2022 and 2023. This approach provides a more

comprehensive set of metrics that are better aligned with WFG's business strategy. The Double Materiality Assessment is particularly valuable in a rapidly evolving business environment, as it enables organizations to identify and prioritize key ESG issues relevant to both stakeholders and the business itself. This alignment is crucial for WFG to maintain its competitive edge while addressing sustainability challenges effectively. The adoption of BSC in the next step to carefully integrate the ESG issues into business strategy is crucial due to the below reasons:

First, the Double Materiality Assessment methodology is relatively new and, like other ESG frameworks, is subject to continuous updates. For corporations like WFG, this necessitates ongoing efforts to stay abreast of changes and adapt accordingly. Such adaptations can significantly impact the group's operations and strategic direction, potentially influencing its ability to achieve long-term goals. The dynamic nature of ESG standards underscores the need for a structured approach to ensure that chosen metrics consistently support overarching business objectives and BSC is the most effective tool to assess this consistency.

Second, by employing the BSC framework to evaluate WFG's Sustainability KPIs, gaps between the current metrics and the business strategy have been identified. Some misaligned indicators result from the disconnect between the units responsible for ESG metrics development and the group's broader strategic planning. This misalignment can also arise from relying on common market practices or mimetic isomorphism (Dragomir et al., 2024) without thoroughly assessing whether these practices effectively support WFG's specific business goals. Such issues highlight the importance of a cohesive strategy to bridge these gaps.

Third, in a large organization like WFG, the separation of responsibilities across different units is common. This structural division underscores the significance of the BSC as a guiding framework. The BSC not only provides direction to teams responsible for developing ESG metrics but also serves as a unifying tool for other business units across subsidiaries. It ensures that all metrics align with the organization's strategic objectives, fostering a consistent approach to performance measurement.

Forth, different ESG metrics can be tailored to various units within the organization, as long as there is a clear "map" within the BSC framework to trace their relevance and impact. This traceability helps determine whether the chosen indicators make sense and whether the initiatives they drive effectively support WFG's broader goals. The BSC thus acts as a critical instrument for aligning diverse efforts with the group's long-term vision.

With the sustainability landscape evolving rapidly and technological advancements reshaping business practices, there is a growing urgency for research to explore the role of the BSC in addressing these challenges. Specifically, there are three critical areas where BSC's potential value demands further investigation.

First, as organizations increasingly adopt ESG frameworks to guide sustainable practices, it is essential to understand how the BSC can serve as an integrative tool. Research is needed to explore how the BSC can align with existing ESG frameworks, such as GRI, SASB, Double Materiality to translate high-level sustainability goals into actionable business strategies.

Second, more research on BSC's contributions to comprehensive financial and ESG reporting are necessary. Stakeholders are demanding more transparent and holistic reporting

that includes both financial and non-financial metrics. This creates an opportunity for BSC to act as a unifying framework for integrating financial performance with ESG outcomes, providing stakeholders with a clearer picture of an organization's overall value creation. Future research should examine how BSC can enhance the coherence and reliability of these reports, ensuring they meet the growing expectations of investors, regulators, and other stakeholders while driving accountability.

Lastly, the increasing complexity of sustainability issues and the decision-making landscape requires more agile and informed strategic tools. Research is urgently needed to investigate how an empowered BSC - potentially enhanced through technology like artificial intelligence (Medne & Lapina, 2019) and advanced analytics - can support more effective decision-making. By integrating real-time data and predictive insights, the BSC could enable organizations to proactively address challenges, balance competing priorities, and achieve long-term objectives with greater precision.

6.2. Limitations

First, this research relies exclusively on publicly available resources provided by WFG, including official publications and disclosures. As a result, the analysis operates under the assumption that these resources accurately reflect the company's actual business practices and priorities. While such an approach ensures that the study is based on credible and accessible data, it also creates a dependency on the transparency and comprehensiveness of WFG's reporting. Any discrepancies between reported information and internal practices could influence the accuracy of the findings.

Secondly, the research focuses on evaluating WFG's Sustainability reports and Annual reports from a three-year period (2021–2023). While this time frame allows for the

examination of recent trends and strategies, it restricts the ability to assess WFG's broader, long-term objectives and their evolution over time. A longer historical review might provide deeper insights into the consistency of WFG's sustainability efforts and their progression toward long-term goals. Thus, the findings are inherently limited to the context of the selected period and may not capture the full trajectory of the organization's ambitions.

Lastly, the core focus of this research is to analyze the alignment of WFG's Sustainable KPIs with its stated goals and strategies, rather than evaluating the performance of these metrics. Any observed changes in KPI performance are treated as supplementary insights that support the main analysis of how well the metrics align with WFG's sustainability objectives. By prioritizing alignment over performance, the research seeks to understand whether WFG's KPIs are strategically structured to reflect its sustainability vision, rather than just tracking outcomes. This focus highlights the strategic intent behind the metrics, offering a framework to evaluate how WFG embeds sustainability within its operations and reporting.

6.3. Future research

Looking ahead, there is a strong need for academic research to propose an integrated model that incorporates Double Materiality Assessment, Risk Management, and BSC into business practices. Such a model could serve as a valuable reference, addressing the evident gap between identifying key sustainability issues, formulating business objectives, and implementing actionable solutions to address those challenges effectively.

Another important research direction involves evaluating the continuous improvement of sustainability performance in corporations that have adopted the BSC

framework. As ESG reporting, alongside financial reporting, becomes the standard in corporate disclosures, it is essential to explore how BSC can contribute to these reports and drive performance enhancements. Understanding its role in aligning sustainability metrics with strategic goals will be critical for businesses navigating this new reporting norm.

Lastly, exploring the integration of AI into the BSC framework offers significant potential to advance digital transformation in strategic management. Specifically, research on AI-powered BSC models could assess their ability to address the complexities of decision-making in the context of ESG issues. By leveraging data-driven intelligence, AI can complement the causal relationships within BSC, providing more comprehensive options for prioritizing objectives and achieving goals in both the short and long term. This integration would not only enhance decision-making but also help businesses adapt to an increasingly dynamic and complex operational landscape.

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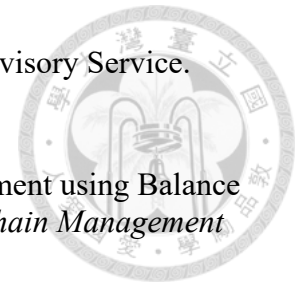
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