Journal of Janta Multiple Campus- JJMC, 5 (1), 2026, ISSN: 3021-9515 (Print)
https://doi.org/10.3126/jjmc.v5i1.97985

Impact of Sustainable and Digital Management Accounting Practices on Organizational Performance of Commercial Banks in Developing Countries

Atmaram Khatiwada[1*]

[1] *Assistant Professor, Triveni Multiple Campus, Jogbudha, Dadeldhura.*

** Email: atmaramkhatiwada@gmail.com*

Article Info

Article History:

Submitted 10 January 2026

Reviewed 23 February 2026

Revised 20 May 2026

Accepted 26 May 2026

Corresponding Author:

Atmaram Khatiwada

Email:

atmaramkhatiwada@gmail.com

ORCID:

Article DOI:

https://doi.org/10.3126/jjmc.v5i1.97985

Publisher:

Research Management Cell (RMC)

Janta Multiple Campus

Itahari, Sunsari

Tel.: 025-81300

Email: rmcjantacollege@gmail.com

Abstract

The present study investigates how management accounting practices such as sustainable and digital management accounting influence the organizational performance of commercial banks in Nepal, while Digital Capability is used as a moderating variable. The study is based on Resource-Based View, Contingency Theory, and Institutional Theory. It examines the effect of Sustainability Management Accounting (SMA), ESG Performance Measurement, Green Banking Accounting Practices (GBAP), and AI-Driven Accounting Decision Support (AID) on organizational performance. A quantitative research design was followed, and primary data were collected from 175 respondents, including accounting and finance professionals from 20 commercial banks in Nepal. Descriptive statistics, correlation analysis, and hierarchical moderated regression analysis were used to analyze the data. The study results show that the variables SMA, ESG Performance Measurement, GBAP, and AID have significant positive effects on organizational performance. The most positive impact that can be noted is the variable Sustainability Management Accounting. The findings also show that Digital Capability makes a significant contribution to the relationships between SMA, ESG, AID, and organizational performance. The moderating influence of Digital Capability on the relationship between GBAP and organizational performance is not statistically significant, however. The study contributes to the growing body of research on sustainable and digital management accounting, with an empirical perspective of the Nepalese banking sector. The results indicate that the combination of investments in sustainability-oriented accounting systems and digital capabilities has the potential to significantly enhance the financial, operational, and strategic performance in commercial banks.

Keywords: AI-driven accounting, ESG performance measurement, green banking, organizational performance

Introduction

Global business is undergoing fast digital transformation, facing greater pressure for sustainability, and demands more transparency and accountability. The use of emerging digital technologies like artificial intelligence (AI), big data analytics, cloud computing, and integrated information systems has revolutionized how organizations create, handle, and apply information to make strategic decisions (Brynjolfsson & McAfee, 2014; Moll & Yigitbasioglu, 2019). At the same time, there is a growing focus on environmental, social and governance (ESG) reporting and tangible progress on sustainable development goals (SDGs) (World Bank, 2022). So, sustainability has moved from being a 'soft' issue to a 'hard' strategic area of focus, embedded within the organization's planning, control and performance management systems (Kaplan & Norton, 2001; Schaltegger & Burritt, 2018).

In this dynamic context, management accounting systems are key to transforming sustainability goals into relevant information for decision making. Sustainable Management Accounting (SMA) is a tool that allows organizations to incorporate environmental and social data into the managerial planning, performance measurement and strategic decision-making process (Burritt & Schaltegger, 2010). Concurrently, Digital Management Accounting Capability (DMAC) improves the capacity of any organization to capture, analyze, and disseminate up-the-minute financial and non-financial information using cutting-edge digital technologies (Granlund, 2011). While substantial investments in the digital transformation and sustainability agenda have been made, many organizations are still facing the challenge of translating these investments into sustainable organizational performance, suggesting that technology must be accompanied by the effective integration of accounting and the strategic use of managerial tools (Moll & Yigitbasioglu, 2019).

Banking is one of the industries that has been most impacted by digitalization and sustainability reforms. Demands for commercial banks to disclose ESG practices, adopt green banking policies and practices, establish better sustainability reporting mechanisms and develop digital financial tools to improve operational efficiency and competitiveness are gaining ground (Hussain et al., 2018). Nepal Rastra Bank has undertaken a series of regulatory measures that led to significant structural changes in the banking sector in

Nepal, including merger and acquisition policies, digital banking guidelines, and sustainable finance policies (Nepal Rastra Bank, 2023). The reforms have driven commercial banks to be more competitive and put a greater emphasis on the need for effective strategic management accounting systems that can work alongside the sustainability and digital transformation goals.

The theoretical bases of this study are complementary points of three theories. First, the Resource-Based View (RBV) suggests that the intangible resources and capabilities of an organization, such as the digital capability and accounting systems that support sustainability initiatives, can provide sustainable competitive advantages when they are valuable, rare and effectively put to use (Barney, 1991). Secondly, it said that the performance of management accounting systems is contingent on the organizational and environmental factors, such as technology, and regulatory pressures (Chenhall, 2003). Third, Institutional Theory accounts for external forces affecting organizations to implement sustainability reporting and digital accounting, including those from regulators, stakeholders and industry norms (DiMaggio & Powell, 1983).

Digital technologies have been shown to enhance the quality of information, the operational effectiveness, the strategic responsiveness and the effectiveness of managerial decisions (Brynjolfsson & McAfee, 2014; Warren et al., 2015). Likewise, sustainable management accounting has been found to be linked to higher quality environmental social governance reporting, better environmental cost management and superior organizational performance (Burritt & Schaltegger, 2010; Hussain et al., 2018). Studies also have shown that AI-based reporting and accounting software can help in quicker and more accurate managerial decisions and help in sustaining an organization in the long term (Granlund, 2011). Most previous research focuses on sustainability accounting, digital capability, ESG reporting and organizational performance individually, however, without considering them in an integrated framework.

Although there is much literature available internationally, empirical evidence from developing countries, especially Nepal, is still limited. Existing studies in Nepal have mainly explored the general management accounting practices or the adoption of digital banking but failed to combine sustainability-oriented accounting systems and digital capability into a single explanatory model (Adhikari, 2019; Shrestha, 2021).

Furthermore, how Digital Capability moderates the relationship between sustainable management accounting practices and organizational performance has not been widely studied in the context of emerging banking.

Hence, the purpose of this study is to analyze the relationship between Sustainable Management Accounting Practices, ESG Performance Measurement, Green Banking Accounting Practices and AI-Driven Accounting Decision Support to organizational performance of commercial banks in Nepal. The study also explores the ways that Digital Capability is a possible moderator of these relationships. This paper brings together the two concepts of sustainability accounting and digital transformation in one analysis, and thus enriches the emerging literature on sustainable and digital management accounting practices in developing economies.

Methodologically, this study is quantitative with a survey technique based on accounting and finance professionals of commercial banks of Nepal. To test the proposed relationships, statistical means such as descriptive analysis, correlation analysis, and hierarchical moderated regression analysis are used. The study is theoretically meaningful by integrating the Resource Based View, Contingency Theory and Institutional Theory into a comprehensive Sustainable and Digital Accounting framework. From practice perspective, the results have significant implications for bankers, bank managers, policy makers, regulators, and accountants in strengthening sustainability performance and digital transformation efforts in the banking sector in Nepal**.**

Literature Review

As sustainability and digital technologies become a bigger part of management accounting systems, organizational decision-making and performance management have been changing. Sustainable and Digital Management Accounting Practices (SDMAPs) are the combination of sustainability accounting principles and advanced digital tools used for strategic, operational and environmental decision making. Sustainable management accounting integrates into traditional accounting systems the principles of environmental, social and governance (ESG) reporting, allowing companies to maintain financial goals along with social and environmental responsibility (Burritt & Schaltegger, 2010). At the same time, digital management accounting is the

implementation of enterprise resource planning (ERP) systems, artificial intelligence (AI), data analytics and digital reporting systems to enhance the quality of decision-making, operational efficiency, and real-time financial reporting (Brynjolfsson & McAfee, 2014; Moll & Yigitbasioglu, 2019).

Sustainability and digital accounting are changing the paradigm of organizational management as they can aid companies to improve accountability and strategic responsiveness. This transformation matters especially in the banking industry where the performance of the organization is measured by multiple performance indicators such as profitability, operational efficiency, customer satisfaction, and the performance in the areas of ESG (Banker et al., 2004; Kaplan & Norton, 1996). Empirical evidence indicates that organizations with sustainable accounting practices perform better in operation, their environmental image is more positive, there is more trust from stakeholders, and they are more financially successful, as they manage their resources and risks better (Ali et al., 2020; Hussain et al., 2018).

Likewise, digital management accounting technologies enhance the speed, accuracy, and quality of managerial decisions by providing automated reporting, predictive analytics, and real-time information processing (Warren et al., 2015). The technologies enable organizational agility, minimize operational mistakes, and enhance strategic planning capabilities (Brynjolfsson & McAfee, 2014). The number of studies focusing on SDMAPs has increased rapidly worldwide, but empirical evidence on SDMAPs is limited in developing countries, especially in Nepal. Previous research on management accounting practices in Nepal has focused on either traditional management accounting or digital technologies but not combined with sustainability aspects (Adhikari, 2019; Shrestha, 2021).

Theoretically, this study is based on Resource Based View (RBV), Contingency Theory and Institutional Theory. The RBV suggests that a set of accounting systems and digital capacity that is oriented towards sustainability can become strategic organizational resources that create a competitive advantage (Barney, 1991). Contingency Theory is a theory that highlights the need for the management accounting system to adjust to the organization and the environment (such as the trend towards digitalization, sustainability pressures etc.) (Chenhall, 2003). In addition to this, the

institutional theory is used to explain how regulatory and stakeholder pressure affects organizations to follow sustainability and digital accounting practices (DiMaggio & Powell, 1983). Theories and empirical results suggest the following hypothesis:

H1: Sustainable Management Accounting Practices have a significant positive effect on organizational performance of commercial banks.

Management accounting practices are "systematic processes used to gather, analyze and report financial and non-financial information to aid planning, control and managerial decision making" (Horngren et al., 2018). In addition to financial reporting, the advent of ESG indicators and digital accounting systems has broadened the scope of management accounting to include sustainability-oriented performance management (Burritt & Schaltegger, 2010).

Sustainable Management Accounting Practices (SMAPs) are practices that incorporate the environmental and social and governance (ESG) aspects into accounting and control systems so as to allow organizations to track and manage social and environmental impacts along with financial performance (Burritt & Schaltegger, 2010). ESG performance measurement in banking comprises of disclosure of environmental reports, ethical loan policies, social responsibility, transparency in governance and disclosure of sustainability (Hussain et al., 2018). They help to build trust among stakeholders, ensure regulatory adherence, and manage strategic risks, all of which contributes to long-term value creation (Ioannou & Serafeim, 2017).

Empirical research suggests that organizations that adopted accounting systems with ESG concepts are able to gain reputation, customer confidence, operational efficiency and financial stability (Ali et al., 2020; Schaltegger & Burritt, 2018). But there is limited empirical evidence of ESG-based management accounting practices in the commercial banks of Nepal (Adhikari, 2019; Shrestha, 2021). This makes it imperative to explore the link between ESG performance measure and organizational performance in the banking context in Nepal.

Digital management accounting further enhances the integration of ESG practices by leveraging sustainability related information through automated reporting technologies, ERP systems and AI based decision-support systems (Moll & Yigitbasioglu, 2019). These systems enable near-real-time monitoring of sustainability

and improve the quality of the managerial information for strategic decision-making (Brynjolfsson & McAfee, 2014; Warren et al., 2015). Hence, the following hypothesis is formulated:

H2: ESG Performance Measurement positively influences the organizational performance.

Green Banking Accounting Practices (GBAPs) is an important strategic tool for promoting the sustainability and financial performance of commercial banks. The goal of green banking accounting is to measure, record and report environmentally-conscious banking activities such as green lending, carbon-risk accounting, sustainable investment financing, environmental compliance reporting, etc. These practices ensure that financial reporting is aligned with environmental sustainability goals and regulatory requirements.

The ESG framework also extends the definition of performance measurement to include the environmental, social accountability, and transparency that are already part of an organization's decision-making process. The practical fact is that companies with more robust ESG practices have higher financial stability, improved liquidity situations, and greater long-term viability of the companies (Yuan et al., 2025). Likewise, the contribution of sustainability efforts towards improving firm value and organizational competitiveness has been observed as a result of implementing a good financial management system (Sari & Valdiansyah, 2024).

Digital management accounting systems are essential to the implementation of green banking and ESG reporting programmers. AI technologies, big data analytics, blockchain-based systems, and automated reporting platforms enhance the accuracy of sustainability data, real-time environmental reporting, and bolster sustainability-related risk management (Xu, 2024). Moreover, digital technologies improve accounting efficiency by minimizing the reporting costs and also by developing integrated financial and sustainability reporting systems (Kanaparthi, 2024).

The literature on banking has indicated that green banking practices are propped up to enhance the operational efficiency, environmental performance and institutional legitimacy, and to sustain the organizational long-term sustainability. So, it is suggested that the following hypothesis is accepted:

H3: Green Banking Accounting Practices positively influence on the organizational performance.

Embracing AI for Accounting Decision Support and Performance.

With the advent of digital transformation, the banking sector has seen a rise of AI-powered accounting decision support systems, which are essential tools for managing financial operations. In the era of digital transformation, AI-powered accounting decision support systems have become a cornerstone in the banking sector for efficiently managing financial operations. AI powered systems, predictive analytics, machine learning, and automated reporting tools allow banks to enhance the efficiency, precision, and trustworthiness of their financial reporting and managerial choices. The digitalization process also improves internal control, internal efficiency, and internal risk management, which allows banks to adapt to the volatile market environment and regulatory compliance (García-Sánchez et al., 2020). Specifically, AI-powered accounting software enables businesses to process information in real-time, forecast future performance, detect fraud, and monitor performance strategically, all of which contribute to the overall effectiveness of an organization.

Preliminary research in emerging markets suggests that digital accounting systems have a positive impact on operational performance, decision making, customer satisfaction and service efficiency in financial institutions (Al-Htaybat & von Alberti-Alhtaybat, 2018; Olatunji & Oba, 2020). These technologies also minimize human errors, enable better visibility and facilitate evidence-based managerial planning. Despite the increased focus on digital accounting transformation in the world, empirical studies on AI-based accounting systems in the context of commercial banks in Nepal are limited (Shrestha, 2021). This is even more critical as Nepal's banking system is rapidly being digitized and is facing growing regulatory requirements for transparency, sustainability, and efficiency.

Commercial banks' organizational performance consists of a multidimensional variable including financial, operational, social and customer-related aspects. Return on assets (ROA), return on equity (ROE), profitability and capital efficiency (Banker et al, 2004) are all indicators used to assess financial performance. Operational performance is a measure of the efficiency of processes, cost optimization and quality of service, as well

as internal effectiveness (Chenhall, 2003). Social and governance performance encompasses ethical behaviour, adherence to the rules and regulations and corporate social responsibility (CSR) efforts and these are being more assessed with the help of ESG related indicators (Hussain et al., 2018). Customer-oriented performance is all about customer satisfaction, customer loyalty, customer retention and perceived service quality, which support in maintaining competitive advantage in the banking field (Ali et al., 2020). Thus, AI-based accounting decision support systems are likely to have a positive impact on various aspects of organizational performance—such as information quality, strategic responsiveness, and managerial effectiveness.

H4: Accounting Decision Support using AI has a positive large effect on organization performance.

Moderating Role of Digital Capability

Digital Management Accounting Capability (DMAC) is now seen as a strategic capability that enhances the link between sustainable management accounting practices and organizational performance in recent literature. Digital capability is the capacity of an organization to use digital technologies and data analytics, integrated information systems and automated accounting platforms effectively to enable informed business decisions and control of the organization. Johri et al., (2024) claimed that sustainable management accounting helps in enhancing corporate governance and long-term sustainability of the organization by incorporating environmental and social data into the decision making of managers. Likewise, Fuzi et al. (2022) state that a sustainability-based accounting system can positively influence organizational performance by facilitating sustainability reporting, the management of environmental components and the management of organizational resources.

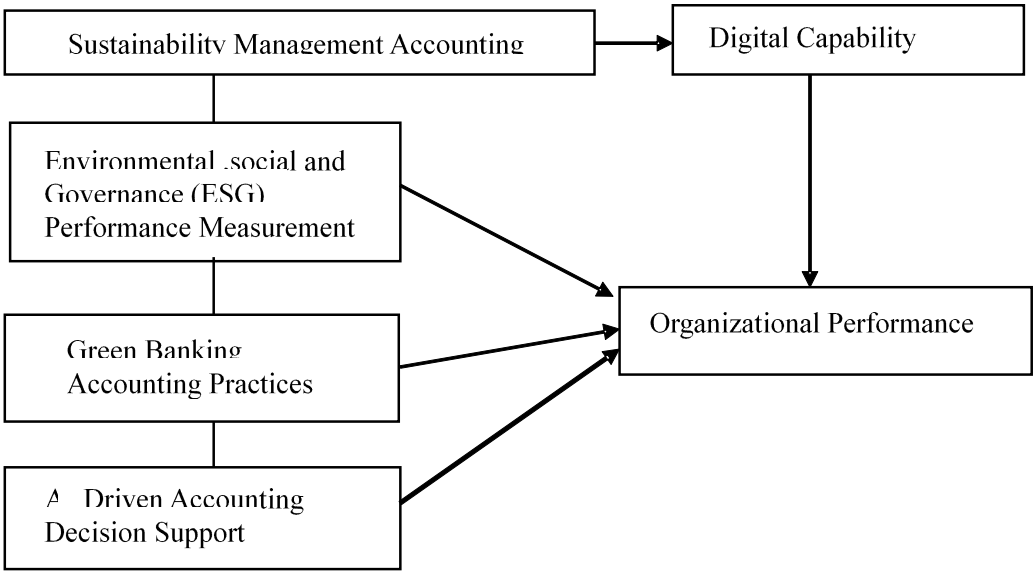
Organizations are increasingly going digital, and this enhances the impact of sustainability-focused accounting systems. The findings by Badii et al. (2025) indicate that the combination of digital technology and green accounting measures can substantially enhance financial performance measures, such as return on assets and operational efficiency, especially in developing economies. Similarly, Seidu et al (2025) found that digital transformation benefits the ESG performance via innovation capability, operational integration, and decision quality. Digital accounting systems

enable managers to receive more timely and accurate information, track and monitor sustainability aspects in real time, and provide integrated decision-making support. Theoretically, an organization that has high digital interaction capability can make more of the organization's accounting information for sustainability to become information that is valuable for strategic and performance-enhancing actions. Advanced digital technologies like artificial intelligence, cloud computing, integrated enterprise systems and big data analytics contribute to the accuracy, availability and strategic value of sustainability data. The positive relationship between sustainable management accounting practices and organizational performance is therefore expected to be reinforced by digital capability because it enables more efficient use of accounting information for sustainable management and its implementation and monitoring. Therefore, Digital Management Accounting Capability is expected to contribute to the effectiveness of sustainable accounting in improving performance outcomes such as financial, operational and ESG-related outcomes in commercial banks.

H5: Digital Capability significantly moderates the relation between Sustainable Management Accounting Practices and organizational performance.

Table 1

Conceptual Framework



Methods and Materials

Research Design

This study is of a quantitative research type, and aims to identify the relationship among Sustainable Management Accounting Practices (SMAPs), Digital Management Accounting Capability (DMAC) and organizational performance in commercial banks of Nepal. The research model combines Sustainability Management Accounting, Environmental, Social and Governance (ESG) Performance Measurement, Green Banking Accounting Practices, AI-Driven Accounting Decision Support, Digital Capability and Organizational Performance. A quantitative approach is appropriate because there is an attempt to test hypothesized relationships among variables and measure causal associations among variables, which are done through statistical techniques. The study is based on the positivist research philosophy which focuses on the objective measurement, empirical verification, and hypothesis testing to explain the theoretical relationship (Creswell, 2014).

The study uses multiple regression and moderation analysis to explore both direct and interaction effects between the study variables. The Statistical Package for Social Sciences (SPSS) is used for statistical analyses that are suitable for investigating predictive relationships, explaining relationships and moderating effects in complex organizational models.

Research Context and Selection of Areas for Research

The study is carried out in commercial banking industry in Nepal. The sector is chosen due to the current rapid digital transformation, growing ESG-related sustainability pressures and new regulatory requirements for commercial banks in Nepal around ESG reporting, green financing, and digital banking systems. Digital technologies are widely applied in commercial banks in financial reporting, financial operations management, risk management and customer service delivery; hence, a suitable context to explore sustainable and digital management accounting practices is commercial banks.

Nepal Rastra Bank (NRB) has recently undertaken structural reforms including merger and acquisition policies, which has substantially changed the banking system by making large banks with wider operations and technologies. Given these developments,

research on the relevance of sustainability accounting and digitalization to the banking sector in Nepal for investigating their impact on organizational performance is highly relevant.

Target Population

The study target population is middle and senior level accounting and finance professionals of commercial banks in Nepal. The respondents are Chief Financial Officers, Chief Accountants, Finance Managers, Management Accountants, Senior Accountants, ESG/Sustainability Officers who are directly involved in accounting systems, sustainability reporting, digital transformation projects and strategic decision-making processes. These professionals are chosen as they have relevant knowledge and hands-on experience with sustainability accounting, ESG measurement, digital accounting systems and organizational performance evaluation. Because of their professional involvement, they are able to offer valid evaluations of the constructs that are being studied.

Sampling Method and Sample Size

For this, a purposive sampling method is used in the study so that respondents who have the necessary expertise in accounting, sustainability and digital systems are analyzed. Purposive sampling is appropriate because of the fact that general employees might not have adequate information about sustainable management accounting practices or digital accounting skills.

All the 20 commercial banks operating in Nepal are covered in the study. Each bank will provide nine respondents including one Chief CFO, one CPA (Chief Accountant), two Finance Managers, two Management Accountants, two Senior Accountants, and one ESG/Sustainability Officer. Thus, there were 180 respondents in total.

The number of samples to be taken is chosen from the basis of several methodology criteria. The sample size of Krejcie and Morgan (1970) for a population of 180 is 123 respondents. Also, according to the guidelines of the factor analysis, a minimum ratio of 5 respondents per item of measurement is indicated. There are 30 measurement items in the study, thus, a minimum of 150 samples must be responded. An extra 15% contingency (23 respondents) is added to the targeted sample size for possible non response, bringing the final sample size to 175 respondents. Thus, 180

questionnaires are sent out, in order to obtain the reliability and adequacy of the response.

The final sample size is larger than the minimum sample size required for exploratory factor analysis, multiple regression analysis, and moderation analysis. Hence, the sample was found to be statistically adequate and representative for the aim of this study to analyze the relationships among sustainable and digital management accounting practices with organizational performance in commercial banks of Nepal.

Instrument Development

The primary data were obtained using a structured questionnaire that was created using validated measurement scales from previous empirical studies on Sustainable Management Accounting, Digital Accounting Capability, ESG Performance Measurement, AI Accounting Systems, and Organization Performance.

All constructs are operationalized as reflective latent variables measured by a five point Likert scale (ranging from strongly disagree to strongly agree). Sustainability Management Accounting items include environmental cost allocation, sustainability reporting and integration of environmental performance. ESG Performance Measurement items cover governance practices, social initiatives, environmental disclosure and systems of compliance. Green Banking Accounting Practices comprise green financing, environment cost tracking and sustainable banking practices. AI-Driven Accounting Decision Support refers to the application of AI platforms, predictive analytics, and automated reporting tools. Digital Capability comprises IT infrastructure, digital skills, analytics capability and digital integration systems. Organizational Performance includes financial, operational, customer, decision and employee productivity. A pilot study is conducted prior to the actual administration of the survey to test content validity, clarity and reliability of the questionnaire items.

Reliability and Validity of the Instruments

Cronbach's alpha coefficients are used for estimating the reliability of the measurement instrument. The results showed an acceptable internal consistency for all constructs (alpha from 0.78 to 0.86), which is higher than the recommended value of 0.70.

Table 1

Reliability Statistics of the Variables

Variables Name	Number of Items	Cronbach's Alfa
Sustainability Management Accounting	5	0.80
Environmental, Social, Governance	5	0.83
Green Banking Accounting Practices	5	0.78
AI-Driven Accounting Decision Support	5	0.86
Digital Capability	5	0.81
Organizational Performance	5	0.82

The Sustainability Management Accounting construct has a Cronbach's alpha coefficient of 0.80, which shows good internal consistency between the items that measure environmental cost allocation, sustainability reporting, and environmental integration. The alpha for ESG Performance Measurement is 0.83 which indicates good reliability and the alpha for the Green Banking Accounting Practices is 0.78 indicating acceptable reliability. The reliability coefficient ($\alpha = .86$) of AI-Driven Accounting Decision Support shows the best consistency of items measuring AI usage, predictive analytics, and automated decision-support systems. The alpha coefficients for Digital Capability and for Organizational Performance are 0.81 and 0.82, respectively, which are considered good measurements of reliability.

Content validity is determined by a thorough review of the literature and by being evaluated by three academic and industry experts. The experts evaluate the clarity, comprehensiveness and context of the questionnaire in relation to the banking sector in Nepal.

Data Collection Procedure

The data are gathered by making use of structured questionnaires which are sent to the managerial level of commercial banks. Participants are told the purpose of the survey, that their responses are confidential and that participation is voluntary before taking the survey. These questionnaires are directly sent and communicated electronically to collect data efficiently and maximize the response rates.

Ethical Considerations

The study follows standard ethical principles in conducting research. There is no compulsion to participate and respondents are made aware of the aim and academic purpose of the study. Responses are kept confidential, anonymous and no personally identifiable information is shared. Data gathered are only used for academic and research purposes.

Statistical Analysis

Data collected are analyzed with SPSS statistical software. Descriptive statistics are used to summarize the characteristics of the respondents and to build characteristics. Correlation analysis is carried out to investigate relationships between variables and to check for problems of multicollinearity.

Multiple regression analysis is employed to assess the direct effects of Sustainability Management Accounting, ESG Performance Measurement, Green Banking Accounting Practices and AI-Driven Accounting Decision Support on Organizational Performance. Moderation analysis is also performed to examine how Digital Capability affects the strength and/or weakening of the relationships between sustainable management accounting practices and organizational performance.

The regression coefficients are evaluated for their statistical significance by the use of p-value, β coefficient or F value, and R^2 value. The Durbin-Watson statistic is also investigated to make sure that no autocorrelation exists between residuals. The methodological approach is overall rigorous and empirical that can be used to study the effects of sustainable and digital management accounting practices on organizational performance in Nepalese commercial banks.

Results and Discussion

The demographic characteristics of 175 respondents selected from 20 commercial banks in Nepal is presented in Table 2. The majority of respondents in this sample were male (67.4%) with most of the sample between the ages of 30-40 (44.6%) and 41-50 (26.9%). As far as educational qualifications were concerned, the majority of respondents had Master's Degree (64.0%) followed by MPhil/PhD (6.9%) and professional certification (5.7%) among others, which suggests a well-qualified group of respondents.

Table 2

Demographic Profile of the Respondents

Demographic	Categories	Respondent	Percentage
Gender	Male	118	67.4
	Female	57	32.6
Age Group	Below 30 years	32	18.3
	30-40 years	78	44.6
	41-50 years	47	26.9
	Above 50 years	18	10.3
Educational	Bachelor's Degree	41	23.4
	Master's Degree	112	64
	MPhil/PhD	12	6.9
	Professionals	10	5.7
Professional Experience	Less than 5 years	28	16
	5-10 years	63	36
	11-15 years	52	29.7
	Above 15 years	32	18.3
Designation	Chief Financial Officer	18	10.3
	Chief Accountant	19	10.9
	Finance Manager	38	21.7
	Management Accountant	39	22.3
	Senior Accountant	41	23.4
	Sustainability Officer	20	11.4

In terms of the experience, 36.0% of the respondents had 5-10 years of experience and 29.7% had 11-15 years, indicating a high level of expertise and practical experience in the banking industry. Respondents held a variety of managerial and accounting roles, such as Chief Accountants (10.9%), Chief Financial Officers (10.3%), Sustainability Officers (11.4%), Management Accountants (22.3%) and Senior Accountants (23.4%).

The demographic breakdown shows that the participants were highly experienced and professionally qualified individuals directly engaged in the accounting, sustainability reporting, digital systems and strategic decision-making processes. Hence, it is deemed adequate to study sustainable and digital management accounting practices and its effect on the performance of commercial banks in Nepal.

Descriptive and Inferential Statistics

As described in the research methodology correlation analysis was conducted to explore the relationship among the variables. In contrast, regression analysis was utilized to evaluate the influence of the independent variables i.e., sustainable management accounting. In Environmental, Environmental, social and Governance (ESG) Performance Measurement, Green Banking Accounting Practices, AI-Driven Accounting Decision Support and Organizational performances, the moderating variable is digital capability which effects variables.

Table 3

Descriptive Statistics and Correlations

Variable	Mean	SD	SMA	ESG	GBAP	AID	DC	OP
SMA	3.42	0.7	1					
ESG	3.68	0.7	0.48**	1				
GBAP	3.25	0.6	0.44**	0.46**	1			
AID	3.51	0.7	0.38**	0.41**	0.39**	1		
DC	3.76	0.7	0.42**	0.45**	0.43**	0.47**	1	
OP	3.84	0.7	0.51	0.53	0.48	0.49	0.5	1

Table 3 shows the results of the correlation and descriptive statistics show that the proposed research model is statistically valid and can be further analyzed with hierarchical regression. All the obtained Pearson correlation results are positive and significant related to organizational performance ranging from $r = 0.48$ for Green Banking Accounting Practices (GBAP) to $r = 0.53$ for ESG Performance Measurement ($p < 0.01$). The results indicate that the commercial banks that have robust sustainability accounting systems, ESG performance measurement practices, green banking programs, and AI-based accounting decision support systems are more likely to have a solid organizational performance. Digital Capability is also highly significantly positively related to organizational performance ($r = 0.50$; $p < 0.01$), which allows the inclusion of Digital Capability as a moderator variable in the regression framework. The intercorrelation analysis also indicates that there is no multicollinearity issues. The intercorrelations between the independent variables are within the range of 0.38 to 0.48,

well below the conservative value of 0.80. This means that the constructs are conceptually linked but they represent different aspects of sustainable and digital management accounting practices. Furthermore, moderate correlation with predictor variables of Digital Capability (r = 0.42– 0.47) indicates that this construct is sufficiently related to the independent constructs, but not strongly correlated with them, which is suitable for moderation analysis.

The construct distribution is also satisfactory from the descriptive statistics. The mean score (M = 3.76, SD = 0.70) of Digital Capability was the highest, indicating that Nepalese commercial banks were relatively well-prepared in the digital area. The mean score for Green Banking Accounting Practices was the lowest (M = 3.25, SD = 0.60), which indicates that green accounting are still in the development phase in the banking sector. Generally, the mean score for Organizational Performance (M = 3.84, SD = 0.70) was rather high, which indicated that respondents generally had positive perceptions of the bank's performance. Overall, the strong correlations, the satisfactory intra-variable relationships, and the lack of multicollinearity indicate that the empirical validity of the model is satisfactory, and that it would present a solid statistical framework for the analyses of direct effects and moderating effects of both sustainable management accounting practices and digital management accounting practices on organizational performance.

Table 4

Model Summary Statistics

Statistic	R^2	Adjusted R^2	ΔR^2	F	F-change	Durbin–Watson
Value	0.57	0.543	0.06	24.63***	5.42**	1.892

Table 4 provides model summary statistics the hierarchical moderated regression model demonstrates strong explanatory power and statistical robustness in explaining organizational performance among Nepalese commercial banks. The final regression model (Model 3), which incorporated control variables, main effects, and interaction terms, produced an R^2 value of 0.57, indicating that 57% of the variance in organizational performance is explained by sustainable and digital management accounting practices together with the moderating effect of Digital Capability. In social

science research, an R^2 value exceeding 0.50 is generally considered indicative of substantial predictive capability.

The adjusted R^2 value of 0.543 further supports the reliability of the model after accounting for the number of predictors included in the regression analysis. The relatively small difference between R^2 and adjusted R^2 confirms that the included predictors contribute meaningfully to the explanatory power of the model and that the results are unlikely to be affected by model overfitting. This finding suggests that the regression model is likely to maintain similar predictive performance across the broader population of Nepalese commercial banks.

The inclusion of the interaction terms (SMA × DC, ESG × DC, GBAP × DC, and AID × DC) increased the explanatory power of the model by 6% ($\Delta R^2 = 0.06$), indicating that Digital Capability contributes additional variance beyond the direct effects of the independent variables. Although moderate in magnitude, this increase is statistically meaningful and provides empirical evidence supporting the moderating role of Digital Capability in the relationship between sustainable and digital accounting practices and organizational performance.

The overall regression model was statistically significant, as reflected by the F-statistic ($F = 24.63$, $p < 0.001$), confirming that the predictors collectively explain organizational performance better than chance alone. Similarly, the F-change statistic (F-change = 5.42, $p < 0.01$) indicates that the addition of the interaction terms significantly improved the predictive power of the model compared to the direct-effects model. Furthermore, the Durbin–Watson statistic of 1.892 falls within the recommended range of 1.5 to 2.5, indicating the absence of serious autocorrelation among residuals and confirming that the regression assumptions are satisfied.

Taken together, these findings confirm that the hierarchical moderated regression model is statistically sound, theoretically meaningful, and appropriate for examining the moderating influence of Digital Capability on the relationship between sustainable and digital management accounting practices and organizational performance in Nepalese commercial banks.

Table 5

Moderating Effect of Digital Capability on the Relationship Between Sustainable and Digital Management Accounting Practices and Organizational Performance in Nepal. Hierarchical Regression Coefficients Analysis

Variables	Model:1 Control	Model:2Main Effect β	Model:3 Moderation β
Control Variables			
Bank Size	—	0.082	0.074
Respondent Experience	—	0.067	0.061
Independent Variables			
Sustainable Management Accounting (SMA)	—	0.321***	0.284***
ESG Performance Measurement (ESG)	—	0.246**	0.215**
Green Banking Accounting Practices (GBAP)	—	0.198**	0.176*
AI-Driven Accounting Decision Support (AID)	—	0.268***	0.231***
Digital Capability (DC)	—	0.214**	0.192**
Interaction Terms (Moderation)			
SMA × DC	—	—	0.156**
ESG × DC	—	—	0.128*
GBAP × DC	—	—	0.076 (ns)
AID × DC	—	—	0.142**

Table 5 explains the hierarchical regression analysis findings demonstrate that all five sustainable and digital accounting practices have statistically significant predictive relationships with the organizational performance of Nepal commercial banks. The most salient predictor is identified as Sustainability Management Accounting (0.321, $p<0.001$), then AI-Driven Accounting Decision Support (0.268, $p<0.01$), and ESG Performance Measurement (0.246, $p<0.01$), Digital Capacity, and Green Banking Accounting Practices (0.198, $p<0.01$). These results support the idea that the investment

in the sustainable and digital accounting practice is directly related to the improvement of the bank performance. More importantly, Digital Capability plays a strong moderating role in three out of the four relationships enhancing the positive impact of SMA (0.156, $p < 0.01$), ESG (0.128, $p < 0.05$), and AID (0.142, $p < 0.01$) on organizational performance. It implies that banks with well-developed digital infrastructure and capabilities gain more performance benefits out of the sustainability accounting, ESG initiatives, and AI-driven systems. Contrastingly, the Digital Capability fails to mediate the relationship between Green Banking Accounting Practices and performance (0.076, $p > 0.05$), which suggests that the green banking accounting practices produce performance benefit without much reliance on the Digital Capability, presumably, because such practices are regulatory in nature. Control factors, such as the size of the bank and the experience of the respondents are also non-significant during the analysis, and as a result, it can be concluded that sustainable and digital practices, rather than demographic traits, are the principal drivers of organizational performance in Nepalese commercial banks.

Table:6

Summary of Hypothesis Testing Results

Hypothesis	.	p-value	t-value	Outcome	Path
H1	0.321	< 0.001	4.82	Supported	
H2	0.246	< 0.01	3.94	Supported	ESG→OP
H3	0.198	< 0.01	3.12	Supported	GBAP→OP
H4	0.268	< 0.001	4.21	Supported	AID→OP
H5a	0.156	< 0.01	2.88	Supported	SMA×DC→OP
H5b	0.128	< 0.05	2.39	Supported	ESG×DC→OP
H5c	0.076	> 0.05	1.69	Not Supported	GBAP×DC→OP
H5d	0.142	< 0.01	2.67	Supported	AID×DC→OP

The Table 6 shows the findings of the hierarchical moderated regression analysis to test the effects of sustainable and digital management accounting practices on organizational performance and the moderation effects of Digital Capability are

presented in Table 7. The results suggest that all direct effect hypotheses (H1 – H4) were confirmed. The overall results indicated that Sustainable Management Accounting ($\beta = 0.321$, $p < 0.001$), ESG Performance Measurement ($\beta = 0.246$, $p < 0.01$), Green Banking Accounting Practices ($\beta = 0.198$, $p < 0.01$), and AI-Driven Accounting Decision Support ($\beta = 0.268$, $p < 0.001$) all had a significant positive impact on the organizational performance, with Sustainable Management Accounting being the strongest predictor. The results in this study highlight the role of the sustainable accounting systems and technology in integrated commercial banks' strategy.

The moderation analysis also found that Digital Capability significantly bolstered the relationships between Sustainable Management Accounting and organizational performance ($\beta = 0.156$, $p < 0.01$); ESG Performance Measurement and organizational performance ($\beta = 0.128$, $p < 0.05$); and AI-Driven Accounting Decision Support and organizational performance ($\beta = 0.142$, $p < 0.01$), thereby supporting H5a, H5b, and H5d. However, the interaction between Green Banking Accounting Practices and Digital Capability was found not to be statistically significant ($\beta = 0.076$, $p > 0.05$), so that H5c is rejected. Overall, the hypotheses were partially accepted, seven out of eight hypotheses were supported and it was confirmed that these sustainable and digital management accounting practices have a significant role in improving the organizational performance and Digital Capability reinforces most of these relationships in the commercial banks of Nepal.

Discussion

Organizational performance of commercial banks in Nepal has been the subject of the present study, taking into account the relationship between sustainable and digital management accounting practices and Digital Capability as moderating variable. The results are strong and empirical evidence that shows how much sustainable and digital accounting practices contribute to organizational performance and provide valuable context-specific insights to the banking sector in Nepal.

The findings are broadly in line with previous international research and contribute to the existing literature in the context of a developing economy. Sustainable Management Accounting ($\beta = 0.321$, $p < 0.001$) was the strongest determinant of organizational performance, corroborating previous research which found that

sustainable accounting systems have a positive impact on strategic decision making, operational efficiency and long-term competitiveness (Schaltegger & Burritt, 2018; Ali et al., 2020). Likewise, ESG Performance Measurement ($\beta = 0.246$, $p < 0.01$) and AI-Driven Accounting Decision Support ($\beta = 0.268$, $p < 0.001$) had significant positive effects, mirroring the rising importance of integrating an ESG approach and implementing AI-driven accounting technologies to boost banking performance (Hussain et al., 2018; Brynjolfsson & McAfee, 2014). Green Banking Accounting Practices was also found to positively influence the dependent variable ($\beta = 0.198$, $p < 0.01$), but the coefficient is relatively small, which may be due to the fact that the implementation of green banking is in an early stage in Nepal.

The moderating effect of Digital Capability is a significant contribution of the study. The high interaction effect of Sustainable Management Accounting, ESG Performance Measurement and AI-Driven Accounting Decision Support suggests that the effectiveness of sustainable accounting systems is enhanced when they are supported by strong digital infrastructure and technological competencies. The non-significant interaction between Green Banking Accounting Practices and digital readiness, however, indicates that the implementation of green banking seems to be driven more by compliance than by the level of digital readiness. In summary, the study contributes to the scarce literature available in Nepal by offering a comprehensive and integrated evidence of the combined impact of sustainability and digitalization on banking performance.

Conclusions

This study investigated the impact of sustainable and digital management accounting practices on the organizational performance of commercial banks in Nepal, with Digital Capability examined as a moderating variable. Using a quantitative research design under the positivist paradigm, primary data were collected through structured questionnaires from managerial and accounting professionals of 20 commercial banks. A total of 175 valid responses were analyzed using SPSS through reliability analysis, Pearson correlation, and hierarchical moderated regression analysis.

The findings revealed that Sustainable Management Accounting (SMA), ESG Performance Measurement, Green Banking Accounting Practices, and AI-Driven

Accounting Decision Support significantly and positively influence organizational performance. Among these, SMA emerged as the strongest predictor, highlighting the importance of integrating sustainability-oriented accounting systems into strategic and operational decision-making. The moderation analysis further demonstrated that Digital Capability significantly strengthens the relationships between SMA, ESG Performance Measurement, AI-driven accounting systems, and organizational performance. However, the moderating effect of Digital Capability on Green Banking Accounting Practices was statistically insignificant, suggesting that such practices contribute to performance largely through compliance and regulatory mechanisms.

The study contributes to Resource-Based, Contingency, and Institutional theories by emphasizing the combined role of sustainability, digital capability, and institutional pressures in improving organizational outcomes. The findings provide practical implications for commercial banks, policymakers, and Nepal Rastra Bank to promote sustainable and digital accounting practices for long-term competitiveness and sustainability.

The results suggest that the sustainable and digital management accounting practices can be strategic resources that increase organizational performance in commercial banks in Nepal. A combination of investments in Sustainability Management Accounting, ESG Performance Measurement, Green Banking Accounting Practices, and AI-Driven Accounting Decision Support, further supported by strong Digital Capability, can positively impact financial and operational results. The findings also indicate that Digital Capability enhances the impact of the majority of sustainability efforts, highlighting the importance of ongoing investments in digital infrastructure and skills. Moreover, Nepal Rastra Bank can leverage these results to enhance the standards of Environmental, Social, and Governance reporting and support the banking industry's digital transformation.

References

Asian Development Bank. (2021). *Digital transformation and financial inclusion in developing economies*. Asian Development Bank.

Adhikari, R. (2019). Management accounting practices in Nepalese commercial banks. *Journal of Business and Social Sciences Research, 4*(2), 45-58.

Ali, W., Frynas, J. G., & Mahmood, Z. (2020). Determinants of corporate social responsibility (CSR) disclosure in developed and developing countries: A literature review. *Corporate Social Responsibility and Environmental Management, 24*(4), 273-294. https://doi.org/10.1002/csr.1410

Al-Htaybat, K., & von Alberti-Alhtaybat, L. (2018). Big data and corporate reporting: Impacts and paradoxes. *Accounting, Auditing & Accountability Journal, 31*(4), 1405-1427. https://doi.org/10.1108/AAAJ-07-2016-2619

Aslam, E., & Jawaid, S. T. (2022). Green banking practices and operational efficiency: Evidence from developing economies. *Environmental Science and Pollution Research, 29*(12), 17482-17495. https://doi.org/10.1007/s11356-021-17080-1

Badii, M., Khan, A., & Hussain, M. (2025). Green accounting, digital transformation and financial performance in developing economies. *Sustainability Accounting, Management and Policy Journal, 16*(1), 55-74.

Banker, R. D., Potter, G., & Srinivasan, D. (2004). An empirical investigation of an incentive plan that includes nonfinancial performance measures. *The Accounting Review, 75*(1), 65-92. https://doi.org/10.2308/accr.2000.75.1.65

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99-120. https://doi.org/10.1177/014920639101700108

Brynjolfsson, E., & McAfee, A. (2014). *The second machine age: Work, progress, and prosperity in a time of brilliant technologies*. W. W. Norton & Company.

Burritt, R. L., & Schaltegger, S. (2010). Sustainability accounting and reporting: Fad or trend? *Accounting, Auditing & Accountability Journal, 23*(7), 829-846. https://doi.org/10.1108/09513571011080144

Chenhall, R. H. (2003). Management control systems design within its organizational context: Findings from contingency-based research and directions for the future. *Accounting, Organizations and Society, 28*(2-3), 127-168. https://doi.org/10.1016/S0361-3682(01)00027-7

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approach* (4th ed.). SAGE Publications.

DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American*

Sociological Review, 48(2), 147-160. https://doi.org/10.2307/2095101

Fuzi, N. M., Habidin, N. F., & Ong, S. Y. Y. (2022). Sustainability management accounting and organizational performance: The mediating role of environmental management systems. *Sustainability, 14*(6), 3310. https://doi.org/10.3390/su14063310

García-Sánchez, I. M., Hussain, N., Khan, S. A., & Martínez-Ferrero, J. (2020). Do markets punish or reward corporate social responsibility decoupling? *Business Ethics Quarterly, 30*(2), 318-365. https://doi.org/10.1017/beq.2019.41

Ghimire, R., Sharma, P., & Karki, B. (2025). Service quality and customer satisfaction in Nepalese commercial banks. *Journal of Nepalese Business Studies, 18*(1), 34-49.

Granlund, M. (2011). Extending accounting boundaries: Hybrid accounting practices in the digital era. *Accounting, Auditing & Accountability Journal, 24*(7), 998-1034.

Horngren, C. T., Datar, S. M., & Rajan, M. (2018). *Cost accounting: A managerial emphasis* (16th ed.). Pearson Education.

Hussain, N., Rigoni, U., & Orij, R. P. (2018). Corporate governance and sustainability performance: Analysis of triple bottom line performance. *Journal of Business Ethics, 149*(2), 411–432. https://doi.org/10.1007/s10551-016-3099-5

Ioannou, I., & Serafeim, G. (2017). The consequences of mandatory corporate sustainability reporting. *Harvard Business School Research Working Paper*, 11-100.

Johri, A., Sharma, N., & Verma, R. (2024). Sustainable management accounting and organizational sustainability: The role of corporate governance. *Journal of Cleaner Production, 420*, 140102. https://doi.org/10.1016/j.jclepro.2023.140102

Kanaparthi, R. (2024). Artificial intelligence and blockchain in accounting efficiency and sustainability reporting. *International Journal of Accounting Information Systems, 52*, 100667. https://doi.org/10.1016/j.accinf.2024.100667

Kaplan, R. S., & Norton, D. P. (1996). *The balanced scorecard: Translating strategy into action*. Harvard Business School Press.

Kaplan, R. S., & Norton, D. P. (2001). *The strategy-focused organization*. Harvard Business School Press.

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement, 30*(3), 607-610. https://doi.org/10.1177/001316447003000308

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook* (2nd ed.). SAGE Publications.

Mohamed Omran, M. A., Khasharmeh, H. A., & Al-Qudah, A. A. (2021). Non-financial performance disclosure and organizational performance: The moderating role of quality management strategy. *International Journal of Productivity and Performance Management, 70*(8), 1998-2017.

Moll, J., & Yigitbasioglu, O. (2019). The role of internet-related technologies in shaping the work of accountants: New directions for accounting research. *The British Accounting Review, 51*(6), 100833. https://doi.org/10.1016/j.bar.2019.04.002

Olatunji, T. E., & Oba, V. C. (2020). Digital accounting systems and operational performance in emerging economies. *International Journal of Accounting and Finance, 9*(2), 88-104.

Nepal Rastra Bank. (2023). *Unified directives for commercial banks and financial institutions*. Nepal Rastra Bank.

Risal, N., & Joshi, S. K. (2018). Green banking practices in Nepalese banks. *Journal of Business and Management Research, 3*(1), 45-58.

Sari, D. P., & Valdiansyah, R. H. (2024). ESG initiatives and firm value: The mediating role of financial performance in banking institutions. *Corporate Governance and Sustainability Review, 8*(2), 44–57.

Schaltegger, S., & Burritt, R. (2010). Sustainability accounting for companies: Catchphrase or decision support for business leaders? *Journal of World Business, 45*(4), 375-384. https://doi.org/10.1016/j.jwb.2009.08.002

Schaltegger, S., & Burritt, R. (2018). Contemporary environmental accounting: Issues, concepts and practice. Routledge.

Seidu, A. A., Boateng, E., & Mensah, J. (2025). Digital transformation and ESG performance: The mediating role of innovation capability. *Technological Forecasting and Social Change, 201*, 123456.

Shrestha, P. (2021). Digital accounting adoption and organizational performance in

Nepalese banks. *Nepalese Journal of Management, 8*(2), 77-93.

Subedi, R., & Bhandari, S. (2024). Corporate social responsibility and social performance of Nepalese commercial banks. *Journal of Contemporary Nepalese Studies, 6*(1), 22-39.

Warren, J. D., Moffitt, K. C., & Byrnes, P. (2015). How big data will change accounting. *Accounting Horizons, 29*(2), 397-407. https://doi.org/10.2308/acch-51069

World Bank. (2022). *Sustainable finance and financial sector development report*. World Bank.

Xu, L. (2024). Artificial intelligence and ESG analytics in financial institutions: Implications for sustainability accounting. *Journal of Sustainable Finance & Investment, 14*(1), 102-120.

Yuan, H., Li, X., & Zhao, W. (2025). ESG performance and financial stability in the banking sector. *Finance Research Letters, 65*, 105321. https://doi.org/10.1016/j.frl.2024.105321

●●●