The Moderating Effect of Sustainability Reporting and Accounting Information on Banks Performance

التأثير المعتدل لتقارير الاستدامة والمعلومات المحاسبية على أداء المصارف

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الملخّـــص :

تناولت هذه الدراسة تأثير تقارير الاستدامة والمعلومات المحاسبية على أداء المصارف في الدول الواقعة في شمال إفريقيا. كما تناولت المصطلح التفاعلي للمعلومات المحاسبية وتقارير الاستدامة في المنطقة. استخدمت الدراسة تقديرات الخطأ المعياري لـ-Driscroll Kraay، بالاعتماد على بيانات 45 مصرف في ستة مناطق في شمال إفريقيا بين عامي 2008 و2019. وتشير التقديرات إلى أنه من بين المؤشرات البيئية والاجتماعية والحوكمة الثلاثة، فإن التقارير البيئية والحوكمة لها تأثير إيجابي وهام على المصارف. بينما لا يؤثر الأداء الاجتماعي بشكل كبير على أداء المصارف في منطقة شمال أفريقيا. كما أن القروض المتعثرة ونسبة القروض إلى الودائع لها آثار سلبية على أداء المصارف. إن أحجام المصارف والمؤشر المركب لتقارير الاستدامة والمصطلح التفاعلي لإعداد التقارير المستدامة والمعلومات المحاسبية لها تأثير إيجابي على أداء المصارف في منطقة شمال إفريقيا. وخلصت هذه الدراسة إلى أن المعلومات المحاسبية تؤثر على أداء المصارف في الدول التي يوجد فيها اتساق في تطبيقات المعايير المحاسبية، وتعتمد على الإفصاح البيئي والاجتماعي والإداري الجيد في الدول التي لا تتسق فيها معاييرها المحاسبية. من المستحسن أن تكشف المصارف التجارية في شمال إفريقيا، مثل العديد من الشركات الأخرى على مستوى العالم، عن ممارساتها البيئية والاجتماعية والإدارية، وأن تكون متسقة مع الممارسات المحاسبية القياسية، وأن تنشر المعلومات المحاسبية اللازمة على مواقعها الإلكترونية لتعزيز أدائها.

الكلمات المفتاحية: تقارير الاستدامة، المعلومات المحاسبية، الأداء.

Abstract
This study empirically examined the effect of sustainability reporting and accounting information on the performance of banks in the Northern African country. It also examines the interactive term of accounting information and sustainability reporting in the region. The study employed an estimates of Driscroll-Kraay standard error, relying on the data of 45 banks across six Northern African region between 2008 and 2019. The estimates show that among the three ESG indexes, environmental and governance reporting have positive and significant effect on banks performance while social does not significantly affect the performance of banks in the Northern African region. Also, non-performing loans and loan to deposit ration have negative impacts on banks performance. The sizes of banks, composite index of sustainability reporting and the interactive term of sustainable reporting and accounting information have positive impact on banks performance in the Northern African region. This study concludes that the accounting information influences banks performance in countries where there is consistency in the accounting standard applications, and it is dependent on good environmental, social and governance disclosure in countries with inconsistency in their accounting standards. It is recommended that the Northern African commercial banks like many other firms globally should disclose their environmental, social and governance practices, be consistence in accounting standard practices and publish the necessary accounting information on their websites to boost their performances.
Keywords: **Sustainability Reporting , Accounting Information , Performance**

1. Introduction

Sustainability reporting is the practice of disclosing information about a company's environmental, social, and governance (ESG) performance Lokuwaduge and Heenetigala (2017). In the banking industry, sustainability reporting has become increasingly important as investors and customers demand greater transparency and accountability from financial institutions. Empirical studies have shown that banks that prioritize and report on their ESG performance tend to have better financial performance and lower risk (Alkaraan, 2022; Xi et. Al 2022). The study Alkaraan (2022) found that banks that disclose more information on their ESG performance tend to have higher return on assets and lower volatility in their stock prices.

Additionally, Xi et. Al (2022) found that banks that have integrated sustainability into their business models have a higher likelihood of surviving financial crises. This is because many investors are considering ESG factors as a way to screen for potential investments, and as a result, banks that prioritize sustainability reporting may have a better chance of attracting investment.
However, it's worth noting that the relationship between sustainability reporting and financial performance is complex and not all studies have found a strong correlation between the two. Reddy and Gordon (2010) found that sustainability reporting has strong influence on the abnormal returns of some listed banks in Australia and New Zealand. Despite a low percentage of sustainability reporting in Malaysia, the study of Kasbun et.al. (2016) found a positive association between sustainability reporting and financial performance of some listed Malaysian companies. Scholtens, (2009) found that the effect of sustainability on banks performance differ among countries and regions which could be as a result of different peculiarities of countries. Hence, more recent research is needed to fully understand the real effect of sustainable development of countries on listed commercial banks using the recent Global reporting Index (GRI) and the peculiar features of such country.

On the other hand, accounting information plays a crucial role in the performance of banks (HIa and Teru, 2015). It is used to measure, process, and communicate financial information about the bank's operations, financial position, and cash flows (Palepu et al. 2020). This information is used by both internal and external stakeholders to make decisions about the bank.
Internal stakeholders, such as management and board of directors, use accounting information to make strategic and operational decisions, as well as to assess the bank's performance and identify areas for improvement. External stakeholders, such as regulators, investors, and creditors, use accounting information to evaluate the bank's financial health and creditworthiness.

Furthermore, accounting information is used to comply with legal and regulatory requirements, such as the preparation of financial statements and the calculation of taxes (Preobragenskaya et al. 2018). Banks are also

required to maintain accurate and timely financial records to support their operations and meet the needs of their customers. The quality and accuracy of accounting information is critical to the performance of banks. Misstated or misleading financial statements can lead to poor decision-making, financial losses, and reputational damage. Therefore, banks have to have internal control systems to ensure the integrity of their financial reporting and compliance with accounting standards.

In the context of North African countries, there is limited research on the interacting effect of sustainability disclosure, accounting information and their moderating effect on Bank performances. However, some studies have been conducted on the relationship between these factors in other countries. In Northern Africa, examining the moderating effect of sustainability disclosure and accounting information on bank performance is particularly relevant as countries in the region are facing increasing pressure to address environmental and social challenges, including climate change, water scarcity, and poverty. One of the key sectors that can play a critical role in addressing these challenges is the banking sector. Banks have a significant impact on the economy and society, and their operations can have significant environmental and social impacts. Therefore, understanding the effect of sustainability reporting and accounting information on bank performance in Northern Africa is important for several reasons.
Firstly, sustainability reporting and accounting can provide important insights into a bank's environmental and social performance, which is becoming increasingly important as consumers and investors become more aware of these issues. This information can help banks to identify and manage environmental and social risks, which can have a significant impact on their performance. Secondly, many countries in Northern Africa have implemented or are in the process of implementing regulations on sustainability reporting and accounting. Studying the effect of these regulations on bank performance can help to understand the compliance cost and the benefits of these regulations. Thirdly, banks that are seen as socially and environmentally responsible may be able to improve their reputation, which can lead to increased customer loyalty and investment. Additionally, sustainability reporting and accounting can help banks to identify opportunities for cost savings and efficiency improvements through the

implementation of sustainable business practices. Finally, sustainability reporting and accounting can help to support sustainable development in Northern Africa by promoting sustainable business practices among banks and encouraging investment in sustainable projects.
This study contributes to the existing studies in different folds; it examines the moderating effect of sustainability reporting and accounting information on bank performance of homogeneous African countries. It also use an estimation technique that is robust to cross-sectional dependence and homogeneity that are peculiar to panel studies.

Following this introduction, this study is grouped into five sections, the second section presents the theoretical review and empirical studies. The third section presents the theoretical framework, model specifications, sources and nature of data analysis and method of data analysis. The fourth section is the presentation of results and discussion of findings. The last section concludes, summarises and make policy recommendations.

2. Literature Review

2.1 Sustainability Reporting on Organization Performance

Burhan and Rahmanti (2012) examine the relationship between sustainability reporting and company performance. The researchers use a sample of listed companies in Indonesia and employ regression analysis to test their research hypothesis. They found an evidence that sustainability reporting has a positive impact on company performance, as measured by return on assets (ROA) and return on equity (ROE). The results suggest that sustainability reporting is positively associated with company performance, and that is an important tool for companies to communicate with their environmental and social performance to stakeholders. Similarly, Reddy and Gordon (2010) investigate the relationship between sustainability reporting and financial performance of listed companies. The researchers use a sample of 150 listed companies from Australia and New Zealand, and employ multiple regression analysis to test their research hypothesis. The results of the study suggest that there is a positive relationship between sustainability reporting and financial performance, as measured by return on equity (ROE) and return on assets (ROA). The researchers also found companies that reported higher levels of sustainability have higher financial performance compared to those that reported lower levels of sustainability. The results support the view that sustainability reporting can have a positive impact on

financial performance and can be a valuable tool for companies to communicate their environmental and social performance to stakeholders.

Shad et al. (2019) proposes a conceptual framework for integrating sustainability reporting into enterprise risk management (ERM) and examines the relationship between sustainability reporting, ERM, and business performance. The researchers argue that the integration of sustainability reporting into ERM can help organizations to better manage sustainability risks and improve their sustainability performance. Their study also unleash the relationship between sustainability reporting, ERM, and business performance, and suggest that there is a positive relationship between these three variables. They argue that organizations that integrate sustainability reporting into their ERM processes and prioritize sustainability performance management are more likely to achieve better sustainability and business performance. While comparing the effect of sustainability reporting on the performance of different sectors, Buallay (2020) investigates the relationship between sustainability reporting and firm performance in two sectors: manufacturing and banking. Their study uses panel data regression analysis to examine the effect of sustainability reporting on firm performance, measured by return on assets (ROA) and return on equity (ROE).The results of the study show that there is a positive relationship between sustainability reporting and firm performance in both the manufacturing and banking sectors

Aifuwa et al. (2019) investigates the relationship between sustainability disclosure and lending decisions made by banks. Their study used a survey of banking professionals in Nigeria to examine the extent to which sustainability disclosure affects lending decisions. The results of the survey show that sustainability disclosure has a positive effect on lending decisions. The authors find that banks are more likely to lend money to firms that have higher levels of sustainability disclosure. This suggests that sustainability disclosure is a valuable source of information for banks when making lending decisions.

Recently, Buallay et al. (2021) investigates the relationship between sustainability reporting and bank performance after the global financial crisis, and compares the results from developed and developing countries. Their study used panel data analysis to examine the effect of sustainability reporting on bank performance, measured by return on assets (ROA) and return on equity (ROE). The results of the study show that there is a positive

relationship between sustainability reporting and bank performance in both developed and developing countries. The authors find that sustainability reporting has a positive effect on ROA and ROE, indicating that banks that report on their sustainability performance are more likely to have better financial performance. The results are robust to various model specifications and control for the effects of other factors that might influence bank performance.

Al Hawaj and Buallay (2022) explores the relationship between sustainability reporting and firm performance across various sectors worldwide. The study use a sample of listed companies from 10 countries and employ regression analysis to test their research hypothesis. The results of the study indicate that sustainability reporting has a positive impact on firm performance, as measured by return on equity (ROE) and return on assets (ROA), across various sectors worldwide. The authors also find that the effect of sustainability reporting on firm performance is stronger in some sectors, such as the energy and utilities sector, compared to others. Sisaye (2022) explores the concept of sustainability reporting from an organizational ecological resource perspective. Their study argues that sustainability reporting should be seen as a resource management tool that helps organizations to better manage their environmental and social resources, and that this approach has important implications for corporate social reporting (CSR). Their study further argues that the organizational ecological resource framework of sustainability reporting considers both the internal and external factors that impact an organization's ability to manage its environmental and social resources. This framework recognizes that sustainability reporting is not only about providing information to stakeholders, but also about managing the relationships between organizations, their stakeholders, and the environment.

Ghardallou (2022) uses a sample of listed companies in France and employs regression analysis to examine the relationship between corporate sustainability and firm performance, and the role that CEO education and tenure play in this relationship The study of highlights the importance of considering the role of CEO characteristics, such as education and tenure, in understanding the relationship between corporate sustainability and firm performance. The results suggest that organizations with CEOs who have higher levels of education and longer tenure may be better equipped to effectively manage their sustainability initiatives and achieve better

financial performance. The results support the view that organizations with CEOs who have higher levels of education and longer tenure may be better positioned to achieve better financial performance by effectively managing their sustainability initiatives.

In contrast, Adhikara et al. (2022) investigates the impact of environmental uncertainty on organizational performance in the Indonesian healthcare industry. The study utilized a path analysis model to test their research hypotheses and examine the mediating role of environmental management practices in the relationship between environmental uncertainty and organizational performance. The results of the study indicate that environmental uncertainty has a negative impact on organizational performance, as measured by financial performance, innovation performance, and market performance. The authors also find that environmental management practices partially mediate the relationship between environmental uncertainty and organizational performance, suggesting that effective environmental management practices can help organizations to mitigate the negative impact of environmental uncertainty on their performance.

2.2 Accounting information and Organizational Performance

Financial accounting information refers to data that is used to produce financial statements, such as balance sheets, income statements, and cash flow statements. This information is used to summarize and report on a company's financial performance and financial position. Financial accounting information includes details on the company's assets, liabilities, revenues, expenses, and cash flows, among other things. The primary purpose of financial accounting information is to provide stakeholders with a clear understanding of the company's financial situation, including its past performance and future prospects. This information is used by a variety of stakeholders, including investors, creditors, regulators, and management, to make informed decisions (Rachman & Akbar, 2022).

Although, there exist a scanty literature on the effect of accounting information on the performance of an organization, specifically banking industry. Some of the few related studies is by Tchamyou (2019) which explores the relationship between financial access, information sharing, and inequality in the context of African businesses. The author argues that access to financial services alone may not be enough to reduce inequality

and that information sharing can play a significant role in modulating the effects of financial access. The study finds that when individuals have access to both financial services and information, they are more likely to use these resources to improve their economic well-being and reduce inequality. Gofwan (2022) provides a review of the existing literature on the effect of Accounting Information Systems (AIS) on financial performance of firms. The study summarizes the findings from previous studies on the topic and provides an overview of the key factors that determine the effectiveness of AIS in improving financial performance. The review highlights that the implementation of AIS can lead to improved financial performance through better decision-making, increased efficiency, and enhanced financial reporting. However, the study also notes that the impact of AIS on financial performance can be influenced by various factors such as the size of the firm, the type of industry, and the level of technology adoption.

However, despite the contributions of scholars in this study context, the impact of sustainability reporting on organization performance varies in the existing studies. Specifically, the effect of sustainability on bank performance is scanty, and such studies is rare in the Northern African region. Also, there are limited studies which empirically examine the effect of accounting information on bank performance. In terms of data and methodology, most studies used survey data for some listed companies while some used a panel data analysis. However, while most of the panel studies utilized techniques like the generalized method of the momement (GMM), fixed and random effects estimate, etc. these studies does not consider the cross-sectional dependence which is peculiar to panel analysis. Hence this study intends to contribute to the existing studies by using a Discroll-kraay standard error estimates which is robust to serial correlation, endogeneity and most importantly cross sectional dependence to examine the effect of accounting information and sustainability reporting on banks performance in the Northern African region. It will also show the interactive effect of these two variables on banks performance. This is because there exist an interdependence relationship between accounting information and sustainability reporting. Accounting information is used to support sustainability reporting by providing relevant financial and non-financial data that is used to evaluate a company's environmental, social, and governance (ESG) performance. Sustainability reporting, in turn, provides additional context to financial accounting information by highlighting how a

company's ESG performance affects its financial performance and future prospects. This relationship between accounting information and sustainability reporting helps stakeholders to understand the full picture of a company's financial and non-financial performance, which is essential in making informed investment, credit, and other decisions. As sustainability reporting continues to gain prominence, the relationship between accounting information and sustainability reporting is becoming increasingly important.

3. Methodology

3.1 Theoretical Framework

This study utilizes the stakeholder theory which argues that organizations have a responsibility to balance the interests of different stakeholders, such as shareholders, employees, customers, and the environment. In this context, sustainability reporting can be seen as a way for organizations to demonstrate their commitment to these stakeholders and their interest in sustainability, which can enhance their reputation and improve their relationships with these stakeholders, leading to improved performance.

Sustainability reporting and accounting information can play a crucial role in demonstrating a bank's commitment to its stakeholders and their interests. By providing transparent and accurate information about its sustainability practices and performance, a bank can signal to its stakeholders that it is taking its responsibilities to the environment and society seriously. This can enhance the bank's reputation and relationships with its stakeholders, which can contribute to improved performance. For instance, if a bank provides detailed and transparent information about its sustainability practices, it can demonstrate its commitment to environmental and social responsibility, which can improve its reputation with customers and other stakeholders who value these practices. Additionally, by providing information about its sustainability performance, the bank can provide stakeholders with a clearer understanding of the bank's impact on the environment and society, which can enhance trust and confidence in the bank, ultimately leading to improved performance. Based on this theory, the relationship between sustainability reporting, accounting information and banks performance is hypothesized as;

$$BP = f(SR, AI) \quad (1)$$

Where $BP, SR, and\ AI$ represent bank performance, sustainability reporting and accounting information.

3.2 Model Specification

In order to examine the effect of sustainability reporting and accounting information on the performance of Northern African banks, this study adapts the model of Buallay et.al (2020). The modification of the model is presented in equation 2 below;

$$BPerf_{it} = \alpha_0 + \beta_1 SR_{it} + \beta_2 AI_{it} + \beta_3 LtD_{it} + \beta_4 Size_{it} + \beta_5 NPL_{it} + \beta_6 SR * AI_{it} + \varepsilon_{it} \quad (2)$$

Where $BPerf_{it}$ represents the financial performance of commercial banks as measured by the return on equity, SR_{it} represent the sustainability reporting index compiled by Boomberg which combines the environmental, social corporate governance performance of banks in Northern African commercial banks captured in this study. AI_{it} represents the accounting information disclosed by the commercial banks on their website, it takes 1 it they disclose accounting information and 0 if otherwise. LtD_{it} represents loan to deposit ratio of commercial banks, $Size_{it}$ represents the size of each commercial banks which is measured by the number of branches they have over the years. NPL_{it} represents the non-performing loans of commercial banks, while $SR * AI_{it}$ is the interactive term of sustainability reporting and accounting information. ε_{it} is the stochastic error term, while $\alpha_0$and βs represent the constant term and the estimation coefficients, respectively.

3.3 Nature and Sources of Data

The data on 168 listed banks in the Northern African region can be found on Bloomberg. After a preliminary evaluation, it was discovered that a significant number of banks in the region do not provide enough information to assess their level of sustainability reporting. This study only considers only the banks that have information for at least two years. For a country to be included, two banks in that country must satisfy this condition. As a result of this, only 45 banks fulfil this criteria across the six Northern African countries (Algeria, Egypt, Morocco, Libya, Tunisia and Sudan) considered in this study. Due to unavailability of data, the data ranges between 2008 and 2019. The description of variables and sources are explained in Table 1 below.

Table 1: Description of Variables, Sources and A priori expectations

Variables	Descriptions	Sources	A priori expectations
Bperf	This is represented by Return on Equity (ROE) which is a financial ratio used to measure a bank's profitability by comparing the net income generated by the bank to its total equity. It provides an indication of how well a bank is using its equity to generate profits.	Boomberg	-
SR	This represents the sustainability reporting index of banks which is a benchmark index designed to measure the performance of companies based on their ESG metrics. The index was created by Bloomberg as a way to help investors assess the sustainability and long-term financial performance of companies. The ESG scores are generated using a proprietary methodology that evaluates each company's performance on various ESG metrics, such as emissions, labor practices, human rights, and governance practices. The scores are then used to rank the companies and determine which ones are included in the index.	Boomberg	Positive
AI	This represents accounting information which is a composite index used to measure the quality of accounting information in the banking sector. It is a quantitative measure that summarizes a bank's financial performance and provides an assessment of the accuracy, reliability, and transparency of the bank's financial reporting.	Websites of each banks	Positive/Negative
LtD	This represents loan to deposit ratio. It is a financial ratio used to measure a bank's loan portfolio relative to its deposit base. It provides insight into a bank's ability to fund its lending activities using customer deposits and other funding sources	Boomberg	Negative
Size	This represents the number of commercial banks	Boomberg	Positive
NPL	This represents a non-performing loans of banks which represents loan in which the borrower has failed to make regular payments	Boomberg	Negative

	for a specified period of time, typically 90 days or more. NPLs are considered to be a sign of financial distress for the borrower and pose a risk to the lender, as it is less likely that the loan will be fully repaid		

4. Results and Discussion

Table 2: Descriptive Statistics

	Std.Dev	Mean	Obs.	Max	Min
logROE	1.698352	10.97975	495	13.92571	6.823286
logENV	1.738667	8.905529	495	12.34829	3.931826
logSOC	1.66084	12.98105	495	15.9765	8.990566
logGOV	1.699312	12.52789	495	15.55176	7.928046
logLtd	1.800608	11.88061	495	14.9843	7.754053
logSize	1.105692	7.579498	495	9.375092	4.29046
logNPL	1.864486	9.164876	493	12.75923	2.772589

Source: Authors computations

The descriptive statistics is presented in Table 2. According to this table, the mean of environmental disclosure is the lowest among the ESG variables. This is followed by governance and social disclosures. This means that many banks disclosed social and governance than environment practices within their organizations. The average return of equity of all banks considered 10.9 million dollars, while the non-performing loan is 9.16 million dollars.

Table 3: Correlation Analysis

	ROE	**ENV**	**SOC**	**GOV**	**LtD**	**Size**	**INF**	**NPL**
ROE	**1**							
ENV	**0.126***	**1**						
SOC	**0.120***	**0.868*****	**1**					
GOV	**0.530*****	**-0.0680**	**-0.0395**	**1**				
LtD	**-0.0743**	**-0.209*****	**-0.0591**	**0.0641**	**1**			
Size	**0.0552**	**0.107**	**0.0878**	**0.148****	**-0.185*****	**1**		
AI	**-0.123***	**0.0520**	**0.0166**	**-0.0824**	**-0.0698**	**-0.0261**	**1**	
NPL	**-0.145****	**0.0989**	**0.148****	**-0.0326**	**0.240*****	**-0.326*****	**0.0521**	**1**

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3 presents the correlation analysis, which shows the relationship among all the variables used in this study. The correlation coefficients of all

the variable shows that most of the variables have significant relationship with one another. Also, the correlation coefficients also suggest that there is no likelihood of multicollinearity in the variables used in this study.

Table 4: Cross-Sectional Dependence test and Heteroscedasticity

Cross-sectional dependence	P-value	Heteroscedasticity test	P-value
Pesaran test	0.0008	Breausch- Pagan	0.2250
Frees	0.0000		

Source: Authors Computation

The result of the cross-sectional dependence test is presented in Table 3. This study test for CDS because of the likelihood CSD in the data sets, which are mainly caused by unobserved components and the existence of common shocks (Haruna & Abu Bakar, 2020)Baltagi, 2008). Table 4 shows the presence of CSD from the Pesaran and Frees CSD tests as the null hypothesis cross sectional independence is rejected. Also, the p values of the Breauch Pagan test in Table 4 signifies the absence of heteroscedasticity in the data series.

Table 5 Estimates of Driscroll- Kraay Standard Error

VARIABLES	Model 1	Model 2
ENV	0.000320**	0.000349***
	(0.000126)	(0.000128)
SOC	0.000284	0.000322
	(0.000202)	(0.000211)
GOV	0.0128***	0.0138***
	(0.00121)	(0.00137)
LtD	-0.00262***	-0.00304***
	(0.000891)	(0.000935)
Size	0.00620**	0.0128***
	(0.0001)	(0.0005)
AI	0.00286	0.00272
	(0.00256)	(0.00257)
NPL	-0.1902**	-0.3491**
	(0.0032)	(0.0189)
SR		0.00157**
		(0.00002)
SR_INF	0.000906**	0.000444**
	(0.00091)	(0.00093)
Constant	0.337**	0.375**

	(0.155)	(0.154)
Observations	495	495
R-squared	0.712	0.655
Number of banks	45	45

Source: Authors computation

Table 5 presents the driscroll- Kraay standard error coefficients to examine the effect of sustainability reporting, accounting information and their interactive term on the performance of banks in the Northern African region. The coefficients of environmental disclosure shows that there is a positive association between environmental disclosure and banks performance. A percentage increase in environmental disclosure increases the performance of banks by 0.032 and 0,034 in the two models in Table 5. This means that the more banks disclose environmental practices, the higher their performance level. This is in line with previous studies such as Buallay (2020) and Buallay et al. (2021). The lower magnitude in the impact of environmental disclosure on banks performance in the Northern African region could be as a result of low environmental awareness among stakeholders including investors, customers and regulators in the region. The coefficients of social disclosure has a positive impact on banks performance, although not significance. The insignificance of social disclosure could be as a result of limited regulatory framework in Northern African countries that requires banks to disclose social information. In the absence of such regulations, banks may not see a compelling reason to disclose social information, as it may not be perceived as a significant driver of their performance. The third ESG variable, governance disclosure has a positive and significant impact on the performance of banks in the Northern African region. Governance disclosure has more impact than environment and social disclosures. A percentage increase in governance disclosure increases the banks performances by 0.12 and 0.13, respectively in the two models in Table 5. This is in line with previous studies such as Shad et al. (2019) who found that governance disclosure improves the performance of an organizations. However, governance disclosure has more effect on banks performance in the Northern African region because investors are increasingly interested in the governance practices of the companies they invest in, including banks. Northern African countries have an increasing

number of investors who demand high standards of governance disclosure and accountability, and banks that can demonstrate good governance practices would attract more investors.

Further, the coefficients of loan to deposit ratio have negative relationship with bank performance in Models 1 and 2. This means that a percentage increase in LtD decreases bank performances by 0.0026 and 0.0030 percent in the two Models in Table 4. This is in line with Buallay et al. (2021). This result is not suprising as banks in Northern African region are highly dependent on deposits as a primary source of funding. A high LtD can indicate that a bank is relying too heavily on deposits to fund its loan portfolio, which can be risky if depositors begin to withdraw their funds. As expected, the size of banks has positive and significant impact on banks performance. Increase in size of banks most especially in Egypt brings about economies of scale which result from greater efficiency in operations, increase bargaining power with suppliers and enhances risk management capabilities. The coefficients of accounting information in Models 1 and 2 show that accounting information has no significant impact on banks performances in the Northern African region. The insignificance could be as a result of unreliable and inconsistency in the accounting standards applications in most of these banks.

The coefficients of non-performing loans have significant effects in the two models. A percentage increase in non-performing loans reduces the performance of banks by 1.9 and 0.3 percent, respectively. This is in line with expectations as a high non-performing loan weakens bank's financial position, limit its ability to grow and lend, and damage its reputation. The composite index of sustainability reporting index shows that it has a positive and significant effect on bank performance, while the interactive term of sustainability reporting and accounting information have positive effect on banks performance. This implies that effect of accounting information on banks performance depends on ESG disclosures.

5. **Summary, Conclusion and Recommendations**

This study empirically examined the effect of sustainability reporting and accounting information on the performance of banks in the Northern African country. It also examines the interactive term of accounting information and sustainability reporting in the region. The dependent variable is the return on equity while the explanatory variables are ESG scores (environment, social and governance), loan to deposit ratio, size of banks, accounting

information, and non-performing loans. The study considers only the banks that have information for at least two years in the Northern African region. For a country to be included, two banks in that country must satisfy this condition. As a result of this, only 45 banks fulfil this criteria across the six Northern African countries considered in this study. Due to unavailability of data, the data ranges between 2008 and 2019. Also, due to cross-sectional dependence that are peculiar to panel analysis, this study employed an estimates of Driscroll-Kraay standard error estimates that is also robust to serial correlation. The estimates show that among the three ESG indexes, environmental and governance reporting have positive and significant effect on banks performance while social does not significantly affect the performance of banks in the Northern African region. Also, non-performing loans and loan to deposit ration have negative impacts on banks performance. The sizes of banks, composite index of sustainability reporting and the interactive term of sustainable reporting and accounting information have positive impact on banks performance in the Northern African region. This study concludes that the accounting information influences banks performance in countries where there is consistency in the accounting standard applications, and it is dependent on good environmental, social and governance disclosure in countries with inconsistency in their accounting standards. It is recommended that the Northern African commercial banks like many other firms globally should disclose their environmental, social and governance practices, be consistence in accounting standard practices and publish the necessary accountinf information on their websites to boost their performances.

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