

## **Sustainability Reporting in Banking and Financial Services Sector: A Regional Analysis**

### **Abstract**

**Purpose:** This study investigates the relationship between the level of sustainability reporting and banks and financial services' performance (operational, financial and market) across seven different regions (Asia, Europe, Mena, Africa, North and South America).

**Design/Methodology/Approach:** Using data culled from 4458 observations from 60 different countries for ten years (2008-2017), we investigate the effect of the Environment, Social and Governance score (ESG) and the three pillars on banks' performance [Return on Assets (ROA), Return on Equity (ROE) and Tobin's Q (TQ)]. We also control for bank-specific, macroeconomic and governance effects.

**Findings:** The findings pinpoint negative relationship between ESG on one hand and operational performance (ROA), financial performance (ROE) and market performance (TQ) on the other hand. From regional and pillar perspectives, the performance is differently affected following ESG, pillar, and region perspectives.

**Originality/Value:** The novelty of this paper lies in the inclusion of different political and economic contexts. Our findings have significant theoretical implications for policy makers and academics at the international level. Banks and financial services sectors' management lacunae manifest in terms of the weak nexus between ESG, pillars, and banks and financial services' performance.

**Keywords:** Sustainability Reporting, Banks and Financial Services, Performance, Regional Analysis.

## 1. Introduction

As the whole planet thrives towards more equality, and less poverty, corruption, and environmental stress, businesses appear on the fore front to embrace sustainable development goals and uphold on recognized standards that can lift the global economy. The cadence and gravity of the last era crises have mostly imposed a new wave of corporate behavioral practices that call for more awareness and transparency towards the community and the surrounding environment. For instance, the 2008 global financial crisis (GFC) has opened the door for new debates and concerns that question the long-lasting survival of top-notch companies and the collapse of some others. Recently, the outbreak of the COVID-19 pandemic has disrupted business commonalities and invigorated new norms and standards for firms' survival and resiliency. As a result, banks and financial institutions endeavored to reinvent their business, realign capital flows toward sustainable investments, and integrate sustainability in risk management to restore trust, transparency, and longevity. This leverages the growing attention of stakeholders to the new socially responsible practices (Miralles-Quirós, Miralles-Quirós, & Redondo Hernández, 2019) and the application of proper governance (Cucari, Esposito DeFalco, & Orlando, 2018; Widyawati, 2020). The attention on ESG issues in the bank decision-making processes (particularly for lending decisions) is driven by heightened pressure from shareholders and different stakeholders (Houston and Shan, 2019). This led to the emergence of a new strand of research that aims to weigh the impact of such practices on banks performance as lately, some banks were able to survive and even to expand, while others collapsed (Buallay et al., 2020a). In fact, banks that survived and grew were banks that operated sustainably and focused on the social, environmental and governance practices (Earhart et al., 2009) as well as on financial value (Andania and Yadnya, 2020; Capella, 2002). Hence, ESG factors became the hallmark of sustainable finance, and their integration in the DNA of banks and financial institution encompasses strategy to investment and credit decisions to risk management all the way to external reporting <sup>1</sup>. Sustainability becomes an economic and existential question where banks ought to approach its risks in a holistic fashion. As the whole financial system embarked on this journey, a myriad of studies explored the effect

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<sup>1</sup> <https://www.pwc.nl/en/insights-and-publications/services-and-industries/financial-sector/six-key-challenges-for-financial-institutions-to-deal-with-ESG-risks.html>

of ESG on financial performance, yet scarce are the ones that have addressed the impact from regional perspectives. The spillover effect of GFC and the global financial turmoil presumably implore the investigation of the effect of ESG on banks and financial institutions from global perspectives.

Between 2015 and 2020, only about 40% of studies focused on the banking sector, and most of them show conflicting results. In other sectors, we can find a generalized positive relationship (Aboud & Diab, 2018; Albuquerque et al., 2019; Bodhanwala & Bodhanwala, 2019; Do & Kim, 2020; Peng & Isa, 2020; Velte, 2019; Yoon et al., 2018); in the banking sector, only a few studies (Buallay et al., 2020; Cornett et al., 2016; Nizam et al., 2019) show the same tendency, while others found negative (Forgione et al., 2020) or mixed relationships (Buallay, 2019; Buallay et al., 2019; Miralles-Quirós et al., 2018; Miralles-Quirós, Miralles-Quirós, & Redondo Hernández, 2019; Shakil et al., 2019). Factually, the geographical context may influence results. From geographical perspectives, the relationship between ESG and financial performance was studied in many regions and many countries. Duque-Grisales & Aguilera-Caracue (2019) studied the effect in the context of Latin America (Brazil, Chile, Colombia, Mexico and Peru); Deng & Cheng (2019) in China; Garcia et al. (2019) in South Africa ; Balasubramanian (2019) in India; Landi & Sciarelli (2019) in Italy ; Nekhili et al. (2019) in France; El Khoury et al. (2021) in MENAT region; and Aouadi & Marsat (2018) on international level. Though, this later study covers a unique dataset of more than 4000 firms from 58 countries during 2002–2011, it tackles ESG controversies in the context of firms. In the present study, despite all the attention and research on sustainability, there still is a limitation of studies that focused on sustainability reporting in the banking and financial services sector (e.g. Chih et al., 2010).

To fill the gap, we aim to address the topic from international perspective but for banks and financial institutions. Nowadays, banks play a major role towards the financial stability of the whole planet (Scholtens & van't Klooster, 2019) and are compelled to disclose their activities and to implement better governance as they are aware of the ensuing economic benefits (Al Kurdi, 2021). Thus, we conduct our study based on data collected from banks operating in seven important regions which are: Asia, Europe, Mena, Africa, North and

South America. We had 4458 observations extracted from 60 different countries for ten years (2008-2017). Supposedly, if ESG is positively impacting the banking sector, how is the ESG magnitude spread in different region? And What are the main internal and external bank attributes that demarcate sustainability shifts?

Specifically, there are four research objectives of this study. First, this study empirically examines the influence of ESG on financial performance of listed Banks and financial institutions in seven different regions. Second, this study dissects ESG into pillars to weigh country and region divergence with regards to environment, social and governance practices. Third, it controls for countries' heterogenous nature by including additional bank factors and macro specific variables. Fourth, and given that Van Essen, Engelen, & Carney (2013) find that firms located in countries with more developed legal frameworks perform better during a financial crisis, this study extends the analysis by exploring the moderating effects of the country governance (voice and accountability, political stability and absence of violence/terrorism, government effectiveness, regulatory quality, rule of law, and control of corruption).

Our paper contributes to the growing literature about the effects of ESG on bank financial performance in seven important regions. First, most empirical studies were conducted in one country or one region while our study attempts to fill this gap. We uncover how cross-country and cross-region heterogeneities, such as GDP and governance influence the relationship between ESG and firm performance. Second, we rely on banks accounting and market indicators to test the effect of ESG and its pillars. Third, we foster the analysis by studying the effect from each region to shed light on resemblance and disparities attributes.

Findings conclude to a significant negative relationship between ESG and operational performance (ROA), financial performance (ROE) and market performance (TQ) for the whole sample. From regional perspective, results are divergent. ESG is negatively correlated to ROA in Australia, Europe, North America, and Africa, while it is positive in MENA region and insignificant in South America. ESG-ROE relationship has a negative sign in Europe and North America, positive in MENA region and insignificant in South America, Asia, Australia, and Africa. For ESG-TQ, the relationship is negative in Europe,

North America, and Africa, positive in Asia, MENA and South America and insignificant in Australia. When we test the three pillars by region, we find different results.

The novelty of this paper lies in the inclusion of different political and economic contexts. Our findings have significant theoretical implications for policy makers and academics at an international level. The study presents an empirical contribution and provides a basis for comparison of the effect of sustainability reporting in different institutional contexts and within different countries.

This study is structured as follows. The literature review appears in the second part while the third section explains the methodology. Section four describes findings and results, and the final section presents the conclusion, implications, recommendations and scope for further research.

## **2. Literature review and**

### **Theoretical Framework**

This section provides the theoretical framework which supports the relationship between sustainability disclosure (environmental, social and governance) and performance. We highlight and discuss many conceptual theories, and then categorize them into two divergent groups: theories supporting the positive impact and others supporting the negative impact of sustainability reporting on firm performance (Table I).

#### **Theories Supporting Sustainability Reporting**

First, *agency theory* describes the relationship between a principal (shareholders) and the agent (management) (Holmstrom, 1979; Holmstrom & Milgrom, 1987; Jensen and Meckling, 1976). This theory states that managers are agents whose main objective is to maximize shareholder wealth (Quinn and Jones, 1995, p. 22). It suggests that principal-agent problems result from misalignment of interests between the two parties (Jensen and Meckling, 1976). Managers focus on the need to maximize profit and/or receive compensation in reward for strong financial performance (Buallay& AlDhaen, 2018). The shareholders/principals, however, are focused on reducing risk and costs while increasing financial returns. In normal times, shareholders are optimistic about the firm's future cash

flows because the interests of the contracted parties are aligned (Saeed & Sameer, 2017). However, when the interests of the contracting parties are misaligned, two types of agency conflicts arise, namely, (i) principal-agent conflicts and (ii) principal-principal agency conflicts (Li & Qian, 2013). Watts and Zimmerman (1990) assume that agency costs including transactions and information costs exist. It is outlined that sustainability reporting reduces agency costs and decreases the problem of information asymmetries, as many of these risks are disclosed in sustainability reports. Therefore, reducing agency costs may increase financial performance.

Second, *stakeholder theory* expounds on why firms worldwide disclose their sustainability activity (Hörisch et al., 2014). Freeman (2010) defined a stakeholder as “any group or individual who can affect or is affected by the achievement of an organization’s objectives” (Freeman 1984: 46). Both internal and external parties affect and are affected by the firm (Sarkis et al., 2010). According to Keynes (1936), stakeholders are categorized into three major groups: external stakeholders (governments, suppliers, competitors and customers); internal stakeholders (boards of directors, employees, subsidiaries and the parent company); and shareholders. Stakeholder theory basically assumes that firms need to manage their relationship with their stakeholders in order to survive (Freeman, 1994). Deegan and Blomquist (2006) clarify that according to stakeholder theory, reporting on specific types of information can be used to attract or maintain particular groups of stakeholders. In conjunction, firms face different challenges in meeting the expectations of various stakeholders. More attention is paid to investors (Verbeeten et al., 2016), as they are the main contributors to the firm’s survival. In the context of sustainability, the issue is to consider the needs of all stakeholders (shareholders, investors, employees, community and so on) which is supported by the normative section of stakeholder theory. This latter theory states that firms not only increase stockholders’ financial returns but also must give equal consideration to the needs of other stakeholders to gain the optimal balance (Hasnas, 1998, p. 32). In fact, any firm has explicit costs and implicit costs. The firm that attempts to decrease its implicit costs by being socially irresponsible will certainly incur additional explicit costs. Therefore, managers should satisfy the needs of all stakeholders, not just investors or shareholders (Melé, 2008) whereas sustainability reporting satisfy stakeholders’ needs.

### Theories against Sustainability Reporting

According to the *trade-off hypothesis* or *traditionalist view* (Friedman, 2007), there is a negative relationship between sustainability and financial performance. Spending resources to accomplish social and environmental goals (such as investment in pollution reduction, higher employee wages and benefits, donations, and sponsorships for the community) increase costs, harm profitability and impair competitive advantage (Galant & Cadez, 2017).

Thus, firms should not be engaged in sustainability activities unless they have excess returns. Manchiraju and Rajgopal (2017) showed that forcing firms to invest in sustainability activities leads to a drop in their returns. The *trade-off theory* suggests that sustainability practices create additional expenses that reduce profitability (Aupperle et al., 1985). Firms that spend on sustainability activities will have lower profits (Balabanis et al., 1998; Friedman, 2007).

**Table I: Summary of Theories in relation to Sustainability Reporting**

Theories Supporting Sustainability Reporting	Theories against Sustainability Reporting
Stakeholder Theory	Traditional theory
Agency theory	Trade-off theory

Recently, a new trend in accounting studies uses integrated theories to address the sustainability reporting topic (Buallay, 2019b; Lokuwaduge & Heenetigala, 2017). Researchers recognized a clear link between Stakeholder and Agency theories (Amran et al., 2015; Soobaroyen & Mahadeo, 2016) as both theories look at the firm from a social viewpoint. However, values and standards may have different aspects depending on the embedded cultural and environmental settings. Even societal perceptions and stakeholder pressure may be determined by those issues and changed over time, affecting the choice of a specific sustainability reporting model (Belal & Owen, 2015). At a macro level, legitimacy is defined in this way: “the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions” (Suchman, 1995, p. 574).

On the same wave, O'Donovan (2002) suggests that firms must evaluate and align their social values with those of the country in which they operate. Firms need to legitimize their

role within society based on different expectations, values, and requirements (Buallay, 2019c; Buallay & Al-Ajmi, 2019) while fulfilling stakeholder needs. Hence, in our study, we control for the institutional contexts within different countries and region by proxying the political context with the public governance and the economic context with the country GDP.

### **Hypothesis Development**

There are numerous studies investigating the relationship between sustainability reporting and firm performance. The first studies were published by Bragdon and Marlin (1972) and Moskowitz (1972). Since then, many empirical studies have investigated the said relationship, yet results remain inconclusive. Some studies conclude to positive relationship between sustainability reporting and financial performance (e.g., Umar et al., 2021; Buallay, 2020; Deng & Cheng, 2019; Aouadi & Marsat, 2018; Zhao et al., 2018; Pava and Krausz, 1996; Preston and O'Bannon, 1997; Waddock and Grave, 1997; Simpson and Kohers, 2002; Ngwakwe, 2008; Callan and Thomas, 2009; Rettab et al., 2009; Castaldo et al., 2009; Samy et al., 2010; Uwuigbe and Egbide, 2012). While others found a negative relationship (e.g., Jyoti and Khanna, 2021; Alsahlawi et al., 2021; Duque-Grisales & Aguilera-Caracue, 2019) McGuire et al., 1988; Patten, 1991; Riahi-Belkaoui, 1992; Sarkis and Cordeiro, 2001). In some instances, no relationship or a non-significant relationship was detected (e.g., Goel and Misra, 2020; Landi & Sciarelli, 2019; Levy, 1995; Buys et al., 2011). Garcia et al. (2019) found that the market capitalization is the main predictor of ESG. When dissecting ESG into pillars, there is another story to tell, as results are mixed based on each pillar. Smith et al. (2007) found an inverse relationship between environmental disclosure and firm performance. Balabanis et al. (1998) found a negative relationship between social disclosure and firm performance, and Rose (2016) found that governance disclosure has a negative impact on return on assets and return on equity. Hassan Che Haat et al. (2008), however, found that governance disclosure does not significantly affect market performance. On the contrary, Carter et al. (2000) and Jo and Harjoto (2011) stated that disclosing information about environmental practices improved financial performance. Margolis and Walsh (2003) found that disclosing social information about the firm enhanced its financial performance while Gompers et al. (2003; 2010) found that governance disclosure improved financial performance.



As discussed above, mixed results can be found in the literature. Thus, this paper will explore ESG effect on firm performance by accounting for operational; financial; and market performances. The next sections support our choice for the different performance measures.

### **The Relationship between Sustainability Reporting and Different Performance Measures**

When measuring firm performance, scholars usually face three options: accounting-based measures, market-based measures, or a combination of both. Many scholars have preferred to examine accounting-based measures of performance, which are a firm's return on assets (ROA) and return on equity (ROE). Other scholars, however, have selected market-based measures (i.e., Tobin's Q) (Wagner, 2010).

Accounting-based measures are less complex, since they reflect what happens in a firm (López et al., 2007), and are better at forecasting sustainability performance (McGuire et al., 1988). Market-based measures suffer from information asymmetry between managers and shareholders (Cordeiro and Sarkis, 1997) and assume that shareholders are the main stakeholder group (Orlitzky et al., 2003). Given the widespread criticism of accounting-based measures, some studies have used a combination of accounting- and market-based measures (e.g., Callan and Thomas, 2009). In our paper, we have considered both accounting- and market-based measures.

### **The Relationship between Sustainability Reporting and Operational Performance**

Many empirical studies explored the relationship between ESG disclosure and operational performance using ROA (Buallay et al., 2020b; Nishitani and Kokubu, 2012; Jayachandran et al., 2013). Some of them found that ESG was positively correlated with ROA (Fatemi et al., 2015; Malik et al., 2015). However, other studies found a negative relationship between ESG and operational performance (i.e., Lyon et al., 2013). A number of studies found a non-significant association between ESG and ROA (Renneboog et al., 2008). On an international level, Brine et al. (2007) investigated the relationship in Australia between CSR and financial and operational performance (ROE and ROA). Their results were not statistically significant. Achim & Borlea (2015) conducted a study in Romania to investigate the relationships between ESG and operational, financial and

market performance (ROA, ROE and Tobin's Q). They identified positive significant relationships with operational and market performance only. Karagiorgos (2010) examined the relationship in Greece and found a positive and significant relationship. Thus, we extract the first hypothesis:

***H<sub>1</sub>: Sustainability report disclosure affects the banks and financial services sectors' operational performance.***

### **The Relationship between Sustainability Reporting and Financial Performance**

The question of the nature of the relationship between sustainability reporting and firm financial performance has been the subject of contentious debate (Buallay et al., 2020c; Fatemi et al., 2017). According to neoclassical theory, the early studies that investigated the relationship between ESG and financial performance found an inverse relationship (e.g., Vance, 1975; Wright & Ferris, 1997). Kim and Lyon (2014) observed that the negative relationship between ESG and financial performance continued to exist (Fisher-Vanden & Thorburn, 2011; Jacobs et al., 2010; Lyon et al., 2013). Such evidence suggests that shareholders perceive the disclosure of ESG as a costly investment. On the other hand, recent studies have found that ESG is positively associated with financial performance (Fatemi et al., 2015; Malik, 2015). This positive relationship is supported by stakeholder theory (Freeman, 1999), which argues that disclosing sustainability information better satisfies the needs of other stakeholders (e.g., debtors, employees, customers and regulators). Several studies have found a non-significant association between ESG and financial performance (e.g. Horváthová, 2010).

From a regional perspective, most studies based in Asia examined in this paper show a positive association between financial performance and sustainability reporting. Fauzi and Idris (2009) studied this relationship in Indonesia and found a positive relationship between CSR and financial performance. Lin et al. (2009) investigated the influence of CSR on operational performance (measured by ROA) in Taiwan. They also found a strong positive effect on profits. Zhang et al. (2013) investigated the relationship in Shanghai and determined that social responsibility has a positive impact on financial performance. Ahamed et al. (2014) studied the relationship in Malaysia using operational and financial measures (ROA and ROE) and found that social responsibility has a positive impact on

financial performance. Chelawat and Trivedi (2016) examined the relationship in India and identified a positive relationship with financial performance. Moreover, Wahab et al. (2017) investigated the link between the level of CSR disclosures and operational and market performance (as measured by ROA and Tobin's Q) in Malaysia; they found a positive relationship. Zhao et al. (2018) evaluated the relation between ESG application and financial performance in China and determined there was a positive relationship.

On the other hand, some studies based in Europe have shown different results; Ferrero-Ferrero et al. (2016) explored the effect of ESG on financial performance for firms listed in Europe and also found a nonlinear relationship between ESG and financial performance. Ortas & Moneva (2010) investigated the relationship between CSR and financial performance in Europe, identifying a positive correlation between the two. Mahoney and Roberts (2007) investigated the relationship between CSR and financial performance in Canada; they also found no significant correlation. Nau and Breuer (2014) investigated the relationship in the US and determined that financial performance is not equally affected by environmental (E), social (S) and governance(G) factors separately. The G score had a significant positive effect on financial performance while E and S scores showed negative relationships with financial performance. Miralles-Quirós et al. (2018) investigated the relationship in Central America; they stated that Brazilian investors favoured CSR activities as a value-enhancing tool rather than seeing it as a cost for shareholders. This will lead to the second hypothesis:

***H<sub>2</sub>: Sustainability report disclosure affects the banks and financial services sectors' financial performance.***

### **The Relationship between Sustainability Reporting and Market Performance**

The stock price or market value of a firm is seen as the most objective way of rating a firm (Buallay ,2019d; Buallay, 2021). When we move to firm valuation, we find studies that have linked ESG with differences in valuation (as measured by Tobin's Q). For example, Buallay (2019,2020) found that ESG disclosure has a positive impact on market performance, although Marsat and Williams (2011) documented a negative impact of ESG on market performance. The finding of a negative relationship between sustainability

disclosure and market value was also later supported in a study by Baboukardos and Rimmel (2016). Hence, we derive our third hypothesis:

***H<sub>3</sub>: Sustainability report disclosure affects banks and financial services sectors' market performance.***

As detailed above, studies of the relationship between sustainability reporting and firm performance (operational, financial and market) have shown mixed results. Similarly, the most recent studies across various countries have shown positive, negative and neutral results as highlighted in Table II.

**Table II : Recent Studies of the Relationship between Sustainability Reporting and Performance**

<b>Author(s)</b>	<b>Country(s)</b>	<b>Year(s)</b>	<b>Performance</b>	<b>Main Result</b>
Duque-Grisales & Aguilera-Caracue (2019)	Brazil, Chile, Colombia, Mexico and Peru	2011–2015	Operational (ROA)	The results suggest that the relationship between the ESG score and ROA is statistically significantly negative.
Deng & Cheng (2019)	China	2011–2019		There is a positive correlation between an enterprise's ESG indices and its performance.
Aouadi & Marsat (2018)	worldwide	2002–2011		The interaction term between ESG and ROA is positive and highly significant.
Zhao et al. (2018)	China	2008–2012		The results show that good ESG can indeed improve operational performance.
Lins et al. (2017)	US	2007–2013	Financial (ROE)	Some excess operating performance for high-ESG firms is observed.
Aouadi & Marsat (2018)	worldwide	2002–2011		The interaction term between ESG and ROE is positive and highly significant.
Zhao et al. (2018)	China	2008–2012		The results show that good ESG can indeed improve financial performance.
Atan et al. (2018)	Malaysia	2010–2013		ESG is statistically insignificant in influencing the ROE.
Garcia et al. (2019)	Brazil, Russia, India, China and South Africa	2010–2012	Market(Tobin's Q)	Market capitalization is the main predictor of ESG performance.
Aybars et al. (2019)		2006–2016		Tobin's Q (TQ) seemed to affect ESG score rather than the ESG score influencing Tobin's Q.
Nekhili et al. (2019)	France	2007–2017		Investors react positively to ESG performance.
Balasubramanian (2019)	India	2014–2018		The study found that ESG score did have an effect on the firm's performance.
Landi & Sciarelli (2019)	Italy	2007–2015		The authors found a negative and statistically significant impact in terms of market performance.
Fatemi et al. (2017)	US	2006–2011		The results indicate that ESG strengths significantly increase firm value (Tobin's Q).
Velte (2017)	Germany	2010–2014		ESG has no impact on Tobin's Q.

### **3. Methodology**

#### **3.1 Sample and data**

The study investigates the effect of sustainability reporting on bank's performance (operational, financial and market) in 7 regions that include 60 different countries over the period 2008-2017. ESG data were retrieved from the Bloomberg database as a proxy for disclosure. Bloomberg's data are from different sources, such as CSR reports, annual reports, and corporate websites, and thus reflect the abundance of information publicly available to investors. The data collected include all firms that have: 1) disclosed ESG information; and 2) published data for the period 2008-2017. We choose to collect data starting with the year 2008, the Bloomberg database lacks sustainability indicators before 2008. As listed in Table III, the sample contains 4458 observations derived from 60 countries. The United States topped the list with 555 banks, followed by China (511), United Kingdom (382) and Australia (266).

**Table III: Data Sample Selection**

<b>Region</b>	<b>Country</b>	<b>Observations</b>	<b>Region</b>	<b>Country</b>	<b>Observations</b>
<b>Asia</b>	Bangladesh	7	<b>Europe</b>	Austria	40
	China	511		Belgium	46
	Hong Kong	149		Bermuda	18
	India	132		Czech Republic	8
	Indonesia	24		Denmark	35
	Japan	202		Finland	38
	Malaysia	45		France	159
	Pakistan	8		Georgia	4
	Philippines	40		Germany	94
	Singapore	89		Greece	16
	South Korea	169		Guernsey	3
	Sri Lanka	12		Ireland	10
	Taiwan	206		Italy	82
	Thailand	55		Netherlands	42
Vietnam	7	Norway	31		
<b>Mena</b>	Bahrain	20	Portugal	10	
	Israel	20	Russia	16	
	Jordan	7	Spain	62	
	Kuwait	6	Sweden	117	
	Lebanon	8	Switzerland	115	
	Morocco	6	United Kingdom	382	
	Oman	8	<b>North America</b>	Canada	93
	Qatar	18		Mexico	35
	Turkey	42		United States	555
	United Arab Emirates	18	<b>South America</b>	Argentina	25
<b>Africa</b>	Mauritius	8		Brazil	119
	Namibia	6		Chile	29
	Nigeria	28		Colombia	38
	South Africa	100	Peru	9	
	Togo	10	<b>Australia</b>	Australia	266
<b>Total</b>					<b>4458</b>

### 3.2. Variables

#### 3.2.1. Dependent variable

According to the previous literature, the dependent variable is the bank performance measured through three dimensions: operational (ROA), financial (ROE), and market performance (TQ).

In line with previous literature and due to the inconclusiveness of financial performance (FP) metrics (Maqbool & Zameer, 2018; Alswalmeh & Qaqish, 2021), we rely on the below four measures:

**Accounting FP measures:**

- Return on Assets (ROA): It measures banks' operational performance (Buallay, Fadel, Alajmi, et al., 2020; Esteban-Sanchez et al., 2017).
- Return on Equity (ROE): It measures banks' financial performance (Buallay, Fadel, Alajmi, et al., 2020; Esteban-Sanchez et al., 2017).

**Market FP measures:**

- Tobin's Q (TQ): It measures market performance calculated as the sum of total market value of equity and total book value of liabilities to total assets. Market value of equity is calculated as the total number of outstanding shares multiplied by year-end closing price.

### **3.2.2. Independent variable**

We collect ESG scores from Bloomberg database. We lag ESG variables for one year as their propensities affect future periods (McWilliams & Siegel, 2001; Waddock & Graves, 1997).

- **ESG combined score (ESG):** It ranges from 0 to 100. Used in previous banking studies, it provides a comprehensive scoring of a bank's ESG disclosure (Buallay, Fadel, Alajmi, et al., 2020; Esteban-Sanchez et al., 2017; Peni & Vähämaa, 2012; Shakil Mohammad Hassan et al., 2019). Prior literature states that ESG will not immediately lead to better financial performance (Choi & Wang, 2009). Porter and Kramer (2006) stated that sustainability reporting is a strategic concept, thus effects do not occur immediately (i.e., in the same year) but rather in the following period. Thus, we lag ESG scores one year ( $t - 1$ ) and test its effect with the current performance
- **The environmental pillar score (E):** It is based on Bloomberg index which measures the disclosure of the bank's energy use, waste, pollution, natural resource conservation and animal treatment.



- **The social pillar score (S):** It is based on Bloomberg index which measures the disclosure of the bank's business relationships, bank donations, volunteer work, employees' health and safety.
- **The governance pillar score (G):** It is based on Bloomberg index which measures the disclosure of corporate governance code.

### 3.2.3. Control Variables

We include bank and country control variables as detailed below.

#### Bank specific control variables

They include two categories as follows:

- **Financial leverage:** which represents the ratio of non-equity funds to total assets.
- **Total Assets:** measured as logarithm of total assets (Nizam et al., 2019; Platonova et al., 2018; Velte, 2017).

#### Macroeconomic control variables

The impact of macroeconomic factors on banks' performance was highlighted in the literature. Thus, two variables are included:

- **GDP per capita growth rate (GDP):** measured as the logarithm of annual GDP of the country (Bikker & Hu, 2002; Demirgüç-Kunt & Huizinga, 1999; Flamini et al., 2009).
- **Country-Level Control:** measured through six dimensions: Voice and Accountability; Political Stability and Absence of Violence/Terrorism; Government Effectiveness; Regulatory Quality; Rule of Law; Control of Corruption.
- **Voice and Accountability (VA):** The index measures perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media. It ranges from approximately -2.5 (weak) to 2.5 (strong) (WGI).
- **Political Stability and Absence of Violence/Terrorism (POL):** The index measures perceptions of the likelihood of political instability and/or politically motivated

violence, including terrorism. It ranges from approximately -2.5 (weak) to 2.5 (strong) (WGI).

- Government Effectiveness (GOV): This index captures the perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. It ranges from approximately -2.5 (weak) to 2.5 (strong) (WGI).
- Regulatory Capital (REG): It reflects perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. It ranges from approximately -2.5 (weak) to 2.5 (strong) (WGI).
- Rule of Law (LAW): It reflects perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. It ranges from approximately -2.5 (weak) to 2.5 (strong) (WGI).
- Control of Corruption (CORR): It reflects perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests. It ranges from approximately -2.5 (weak) to 2.5 (strong) (WGI).

To determine the relationship between sustainability reporting and firm performance, we model the three below equations following (Al Hawaj & Buallay,2021; Buallay et al.,2019a):

$$ROA_{itg} = \beta_0 + \beta_1 ESG_{itg-1} + \beta_2 TA_{itg} + \beta_3 FL_{itg} + \beta_4 GDP_{itg} + \beta_5 GOV_{itg} + \varepsilon_{itg}$$

$$ROE_{itg} = \beta_0 + \beta_1 ESG_{itg-1} + \beta_2 TA_{itg} + \beta_3 FL_{itg} + \beta_4 GDP_{itg} + \beta_5 GOV_{itg} + \varepsilon_{itg}$$

$$TQ_{itg} = \beta_0 + \beta_1 ESG_{itg-1} + \beta_2 TA_{itg} + \beta_3 FL_{itg} + \beta_4 GDP_{itg} + \beta_5 GOV_{itg} + \varepsilon_{itg}$$

**Where:** The dependent variable is the performance measured by three variables (i.e. ROA, ROE and Tobin's Q).  $\beta_0$  is the constant and  $\beta_{1-5}$  the slope of the controls and independent variables. The independent variable is sustainability disclosure (ESG) and the three pillars E, S and G. The bank's control variables are TA and FL, and the country's control variables are GDP and GOV. ( $\epsilon$ ) is a random error, (i) stands for banks, (t) for the period, (g) represents the country, and (-1) represents the 1-year lagged variables of ESG.

Since our study aims to discover ESG traits and effect by region, we advance our study furthermore and apply the same regressions by region as indicated in Table XI.

As for the variables used in our models, definitions, measurements, and abbreviations are provided in Table 4.

**Table IV: Model Variables and Measurements**

<b>VARIABLES</b>	<b>LABELS</b>	<b>MEASUREMENTS</b>
<b>DEPENDENT VARIABLES</b>		
Operational Performance	<b>ROA</b>	Net income divided by total assets
Financial Performance	<b>ROE</b>	Net income divided by shareholder equity
Market Performance	<b>TQ</b>	(Market value of equity + total liabilities + preferred equity + minority interest) ÷ book value of assets
<b>INDEPENDENT VARIABLES</b>		
ESG Disclosure	<b>ESG</b>	Bloomberg index which combines E, S and G
Environmental Disclosure	<b>E</b>	Bloomberg index which measures the disclosure of the bank's energy use, waste, pollution, natural resource conservation and animal treatment
Corporate Social Responsibility Disclosure	<b>S</b>	Bloomberg index which measures the disclosure of the bank's business relationships, bank donations, volunteer work, employees' health and safety
Corporate Governance Disclosure	<b>G</b>	Bloomberg index which measures the disclosure of corporate governance code
<b>CONTROL VARIABLES:</b>		
<b>BANK-SPECIFIC CONTROL VARIABLES</b>		
Financial Leverage	<b>FL</b>	Ratio of non-equity funds to total assets
Total Assets	<b>TA</b>	Logarithm of annual total assets of the firm
<b>COUNTRY-SPECIFIC CONTROL VARIABLES</b>		
Gross Domestic Product	<b>GDP</b>	Logarithm of annual GDP of the country
Governance	<b>GOV</b>	Worldwide Governance Indicators (WGI) of the country which measures six indicators (control of corruption, governmental effectiveness, political stability and absence of violation, rule of law, regulatory quality, and voice and accountability)

### 3.3 Descriptive Analysis

Table V presents the descriptive statistics of the main variables studied in the paper. The maximum scores of ESG, E, S, and G score are respectively 66.94, 69.77, 75 and 73.68. While the minimums are only 1.37, 1.38, 1.59 and 1.85. The mean of social pillar is the highest (48.20) followed by that of the governance pillar (27.19), and lastly the environmental pillar (15.43).

**Table V: Descriptive Results**

VARIABLES	INDEPENDENT VARIABLES				DEPENDENT VARIABLES		
	ESG	E	S	G	ROA	ROE	TQ
<b>Mean</b>	24.24	15.43	48.20	27.19	5.08	12.46	1.73
<b>Median</b>	25.62	13.95	48.21	28.07	3.89	11.21	1.27
<b>Maximum</b>	66.94	69.77	75.00	73.68	181.17	1398.81	57.14
<b>Minimum</b>	1.37	1.38	1.59	1.85	-134.70	-279.57	0.23

To gain more insights, Table VI presents the descriptive statistics by region. ESG is contrasted with performance indicators of banks according to Matt Rosenberg's Official Eight Regional Groupings of the World. Africa had the highest ESG mean (38.95) and this is mainly supported by the fact that in South Africa, the Johannesburg Stock Exchange (JSE) mandated the disclosure of ESG with the start of the fiscal year 2010 though ESG disclosure was widespread even before the said regulation (Loannou & Serafeim, 2017). Asia had the lowest ESG score (26.46), since only 11 countries out of 48 have mandatory sustainability reporting laws, which corroborates with the low level of ESG score relatively to other regions.

On the pillar level, the governance score depicts the highest among the three pillars for all regions. On the contrary, all regions show low scores for the environmental pillar. South America has the highest environmental and social scores (33.62 and 49.24 respectively), and Africa has the highest governance score (54.43).

**Table VI: Descriptive Results by Region**

Region	ESG	E	S	G	ROA	ROE	TQ	FL	TA
Asia	26.463	19.618	28.306	47.888	4.818	10.266	1.726	91.719	27970
Australia	27.142	20.470	30.365	51.298	3.240	8.390	1.742	90.162	31562
Europe	37.376	31.295	40.812	53.508	4.342	11.492	1.583	136.851	69002
Mena	30.725	26.390	37.345	43.835	3.613	11.562	1.229	143.931	35730
North America	31.009	24.139	35.305	40.808	3.665	12.543	1.129	132.873	35270
South America	31.147	33.621	49.244	44.846	4.942	12.317	8.975	146.187	27780
Africa	38.954	25.638	42.892	54.433	6.676	18.067	1.712	62.940	8001

### 3.4 Reliability and Validity

We adopt three kinds of diagnostic tests to assess the validity and reliability: Data diagnostics: normality (skewness, kurtosis and Jarque–Bera tests); Variables’ diagnostics: stationarity (augmented Dickey–Fuller test) and collinearity (variance inflation factor test); and Models diagnostics: autocorrelation (Durbin–Watson) and heteroscedasticity (Breusch–Pagan and Koenker tests).

#### Data Diagnostics

As presented in Table VII, to test the normality of the data, the skewness and kurtosis tests were used. The values for skewness and kurtosis are not all between -2 and +2, which depicts abnormal univariate distribution (George, 2011). We then proceed and apply the Jarque–Bera test and find that variables are not normally distributed, as the p-value appears to be less than 0.050.

All test results indicate that data are not normally distributed; Yet, the abnormality may not influence the credibility of the study since the sample is large. However, to overcome this problem, the natural logarithms of these variables were considered.

**Table VII: Data Validity and Reliability Normality Tests**

VARIABLES	LABELS	NORMALITY TESTS			
		Skewness	Kurtosis	Jarque–Bera	Probability
<i>DEPENDENT VARIABLES</i>	ROA	-0.388	17.858	150,116	0.000
	ROE	18.313	865.593	506,000,000	0.000
	TQ	90.538	8,267.742	46,300,000,000	0.000
<i>INDEPENDENT VARIABLES</i>	E	0.657	2.411	1,405	0.000
	S	0.535	2.878	786	0.000
	G	0.057	3.640	287	0.000

<i><b>BANK-SPECIFIC CONTROL VARIABLES</b></i>	<b>FL</b>	27.676	1,300.553	1,140,000,000	0.000
	<b>TA</b>	2.998	14.875	166,593.4	0.000
<i><b>COUNTRY-SPECIFIC CONTROL VARIABLES</b></i>	<b>GDP</b>	0.419	3.247	719.469	0.000
	<b>GOV</b>	-0.433	1.456	2,125	0.000

### **Variables Diagnostics**

The strength of the linear model depends on the hypothesis that independent variables are not correlated. Extreme multicollinearity tends to inflate the standard errors of the estimated coefficients. To test the collinearity of the independent variables, we calculated the variance inflation factor (VIF). Gujarati and Porter (2003) stated that a VIF higher than 10 indicates serious multicollinearity problem for the independent variable of concern. Table VIII shows that VIF values for all independent variables are less than 10, meaning that the variables are not suffering from a serious collinearity problem.

Autocorrelation can occur in the model because the time series on which this study is based are non-stationary (Gujarati and Porter, 2003). To check the stationarity of time series, we apply the unit root tests based on the parametric augmented Dicky–Fuller (ADF) test. The results, presented in Table VIII, show that the ADF test is statistically significant at the 1% level, meaning that the data series is stationary. This stationarity allows us to proceed with the regression. However, since the effect of ESG on financial performance does not occur immediately (in the same period), we account for this effect by lag in ESG in our regressions.

**Table VIII: Data Validity and Reliability Variables Diagnostics**

<b>VARIABLES</b>	<b>LABELS</b>	<b>STATIONARITY TEST</b>		<b>COLLINEARITY TEST</b>	
		<b>ADF</b>	<b>Probability</b>	<b>Tolerance</b>	<b>VIF</b>
<i><b>DEPENDENT VARIABLES</b></i>	<b>ROA</b>	-57.202	0.000		
	<b>ROE</b>	-56.607	0.000		
	<b>TQ</b>	-38.778	0.000		
<i><b>INDEPENDENT VARIABLES</b></i>	<b>E</b>	-8.239	0.000	0.190	5.271
	<b>S</b>	-9.017	0.000	0.467	2.143
	<b>G</b>	-14.852	0.000	0.572	1.749
	<b>FL</b>	-42.542	0.000	0.988	1.012
	<b>TA</b>	-31.530	0.000	0.914	1.094

<i>FIRM-SPECIFIC CONTROL VARIABLES</i>	<b>AQ</b>	-22.564	0.000	0.641	1.561
<i>COUNTRY-SPECIFIC CONTROL VARIABLES</i>	<b>SEC</b>	-30.193	0.000	0.952	1.051
	<b>GDP</b>	-30.691	0.000	0.801	1.248
	<b>GOV</b>	-29.008	0.000	0.190	5.271

### Models Diagnostics

A significant assumption of the regression is the presence of heteroscedasticity. We tested heteroscedasticity using the Breusch–Pagan and Koenker tests. In Table IX, the p-values of the Breusch–Pagan tests for the three performance measures were lower than the conventional level of significance of 5% (0.000), so we reject the null hypothesis that the models have heteroscedasticity problem. However, the Koenker test for the ROE model was greater than the 5% level of significance (0.491), so we accept the null hypothesis that the models suffer from heteroscedasticity problem. To overcome this issue, we apply the robustness test through the White test.

Finally, we use the Durbin–Watson (DW) test to check for autocorrelation problem. Table IX shows that the DW values of all models are within the 1.5–2.5 range (Gujarati, 2015) which indicates that there is no autocorrelation problem that may affect our results.

**Table IX: Data Validity and Reliability Models Diagnostics**

MODELS	AUTOCORRELATION TEST	HETEROSCEDASTICITY TEST			
	Durbin–Watson	Breusch–Pagan	Probability	Koenker	Probability
ROA	2.161	392.371	0.000	22.010	0.000
ROE	1.897	1,368.589	0.000	3.415	0.491
TQ	1.958	53,239.742	0.000	10.232	0.037

## 4 Findings and discussion

In this section, we test the hypotheses developed in section 2. The results in Table X indicate that ROA, ROE and TQ regression models have high statistical significance and high explanatory power, as the p-values of the F-tests are less than 5% (0.000).

ESG is negatively correlated with ROA, ROE and TQ at p-values less than 5% (0.000, 0.002 and 0.000). In fact, the prior literature found that the banking and financial services sector are slowly responding to sustainability challenges (Jeucken, 2004). In fact, most banks opt not to disclose sustainability information because they need to recruit and train new accountants to understand and prepare sustainability reports. Such additional costs may exceed the benefits in the short term. Moreover, sustainability reporting may have a negative impact on intangible assets (Ittner and Larcker, 1998; McGuire et al., 1998; Lee et al., 2013). Thus, the results are in line with the trade-off theory and confirm that disclosing information about ESG can lead to inefficient utilization of firm's assets (Lee & Faff, 2009). Moreover, the effect of ESG on ROE is also negative which is consistent with empirical findings of Nollet et al. (2016), Buallay (2019), and Duque-Grisales and Aguilera-Caracuel (2019). Some studies presumably conclude that investors are reluctant to invest in sustainable projects as they deem it unnecessary strategy that puts the firm at a competitive disadvantage (Barnett, 2007; Lee & Faff, 2009). For this reason, sustainability reporting may have a negative impact on intangible assets such as shareholder satisfaction, which is reflected in terms of their investment in the firm's equity (Lee & Faff, 2009).

Furthermore, the effect of ESG on TQ is also negative. This supports a study by Landi and Sciarelli (2019) who found a negative impact in terms of market performance using Tobin's Q. Various studies investigated this negative relationship. Marsat and Williams (2014) argued that investing in ESG increases costs and has economic consequences, resulting in lower market values. As market value is of great significance to stakeholders, such consequences need to be carefully considered in order to maintain the satisfaction of stakeholders in accordance with the stakeholder theory. The negative impact of ESG on market return indicates that, to some extent, ESG spending is not rewarding.



**Table X: Multiple Regressions**

Variables	ROA Model			ROE Model			TQ Model		
	$\beta$	t-Statistic	Sig.	$\beta$	t-Statistic	Sig.	$\beta$	t-Statistic	Sig.
<i>INDEPENDENT VARIABLE</i>									
ESG	-7.429	-15.291	<b>0.000</b>	-1.609	-3.152	<b>0.002</b>	-5.708	-11.374	<b>0.000</b>
<b>F</b>	58.715			17.686			33.041		
<b>Sig.</b>	0.000			0.000			0.000		
<b>R Square</b>	0.130			0.043			0.078		
<b>Adjusted R Square</b>	0.127			0.041			0.075		

To advance our analysis, we apply the regressions for the seven regions. Results provide valuable findings at an international level which account for country political and economic contexts. This would constitute a basis for comparison of the effect of sustainability reporting in different institutional contexts and countries.

First, as shown in Table XI and XII, the relationship between sustainability reporting and bank's operational performance is negatively significant in Australia, Europe, North America and Africa. However, in line with the stakeholder theory it appears to be positively significant in the MENA region. It is found to be insignificant in South America.

Second, the relationship between sustainability reporting and bank's financial performance is negatively significant in Europe and North America. This is in line with the shareholder expense theory as sustainability related activities tend to be beneficial to society at the expense of shareholders. However, it is positively significant in the MENA region and insignificant in South America, Asia, Australia, and Africa.

Finally, the relationship between sustainability reporting and bank's market performance is negatively significant in Europe, North America, and Africa. Whilst it is positively significant in Asia, MENA, and South America and insignificant in Australia.

**Table XI: Multiple Regressions (Across the Regions)**

Variables	ROA Model			ROE Model			TQ Model		
	$\beta$	t-Statistic	Sig.	$\beta$	t-Statistic	Sig.	$\beta$	t-Statistic	Sig.
ESG (Asia)	0.497	1.083	0.279	0.056	0.125	0.901	0.771	1.735	0.083
ESG (Australia)	-1.645	-2.058	<b>0.040</b>	-0.463	-0.577	0.564	0.746	0.915	0.360
ESG (Europe)	-3.458	-4.092	<b>0.000</b>	-2.055	-2.409	<b>0.016</b>	-3.065	-3.691	<b>0.000</b>
ESG (Mena)	4.648	14.887	<b>0.000</b>	0.885	2.697	<b>0.007</b>	3.579	11.113	<b>0.000</b>
ESG (North America)	-1.683	-6.065	<b>0.000</b>	-0.767	-2.819	<b>0.005</b>	-1.157	-4.214	<b>0.000</b>
ESG (South America)	0.227	0.862	0.389	0.089	0.336	0.737	0.760	2.894	<b>0.004</b>
ESG (Africa)	-1.552	-2.520	<b>0.012</b>	-0.808	-1.309	0.191	-3.474	-5.714	<b>0.000</b>

**Table XII: Summary of Regional Analysis**

<b>Variables</b>	<b>ESG (Asia)</b>	<b>ESG (Australia)</b>	<b>ESG (Europe)</b>	<b>ESG (Mena)</b>	<b>ESG (North America)</b>	<b>ESG (South America)</b>	<b>ESG (Africa)</b>
<b>ROA</b>	N.Sig	-	-	+	-	N.Sig	-
<b>ROE</b>	N.Sig	N.Sig	-	+	-	N.Sig	N.Sig
<b>TQ</b>	N.Sig	N.Sig	-	+	-	+	-

**N.Sig: Not significant; -: Negative relationship; +: Positive relationship**

## 5 Conclusion

This study investigates the relationship between the level of sustainability reporting and banks and financial services sectors' operational, financial and market performance. Using data culled from 4458 observations in 60 different countries for ten years (2008-2017), we investigate the effect of the Environment, Social and Governance score (ESG) and the three pillars on banks' performance [Return on Assets (ROA), Return on Equity (ROE) and Tobin's Q (TQ)]. We also control for bank-specific, macroeconomic and governance effects.

Our paper contributes to the growing literature about the effects of ESG on bank financial performance in seven important regions and uncovers cross-country and cross-region heterogeneities. It fosters the analysis by studying the effect from each region to shed light on resemblance and disparities attributes.

Findings conclude to a significant negative relationship between ESG and operational performance (ROA), financial performance (ROE) and market performance (TQ) for the whole sample. From regional perspective, results are divergent. ESG is negatively correlated to ROA in Australia, Europe, North America, and Africa, while it is positive in MENA region and insignificant in South America. ESG-ROE relationship has a negative sign in Europe and North America, positive in MENA region and insignificant in South America, Asia, Australia, and Africa. For ESG-TQ, the relationship is negative in Europe, North America, and Africa, positive in Asia, MENA and South America and insignificant in Australia. When we test the three pillars by region, we find different results.

### Implications

Our findings have significant theoretical implications for policy makers and academics at an international level. The study presents an empirical contribution and provides a basis for comparison of the effect of sustainability reporting in different institutional contexts and within different countries. The results illustrate the benefit of embracing sustainability by region and highlight the importance of ESG reporting in boosting bank's operational, financial and market performance.

Moreover, the political- economy theory is integrated within the stakeholder theory and agency theory. The results have significant implications for policy makers and academics, as they can compare the effect of sustainability reporting in terms of different institutional contexts/ within the perspectives of 60 different countries across various regions.

### **Limitations**

This paper has two limitations; The first limitation is that content analysis captures only quantity rather than the quality of ESG disclosure. Therefore, the results of this study may not necessarily give the “true” motivation for banks to disclose sustainability activities. Thus, the quality of ESG disclosure could be gathered from primary sources, such as interviews with firms’ managers, to understand motivations that lead to their sustainability practices. Second, the sample is restricted to only listed banks whose information are available on Bloomberg. More significant results could be extracted if the sample size is enlarged to include other non-listed banks.

### **Scope for Future Research**

It is recommended to utilize mixed research methods (quantitative and qualitative approaches) to include more data. It is also recommended that findings are supported by triangulation of secondary and primary data, such as data from interviews with firms’ managers, as it might allow for a better understanding of the motivations behind their sustainability practices. Other future research could also perform similar testing by including small and medium business in the financial services sector to get a more complete picture on the relationship between ESG and financial services’ performance.

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