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Digital Transformation and Strength of Auditing and Reporting Standards in African Countries: The Moderating Effect of Efficacy of Corporate Boards

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ABSTRACT

Purpose: this paper examines the relationship between the digital transformation and the strength of auditing and reporting standards (SARS) in African countries and tests whether the efficacy of corporate boards moderates this association. Design/methodology/approach: The sample includes 96 country-year observations over a period of 2015–2017. Data are gathered from the Global Competitiveness reports and the Word Bank for the same years. Findings: Findings show that the digital transformation is positively associated with the SARS. Similarly, when testing for the moderating effects of efficacy of corporate boards, the association between the digital transformation and the SARS remains positive and significant for settings characterized by high efficacy of corporate boards, while it becomes insignificant for countries characterized by low efficacy of corporate boards. Policy implications: The findings highlight the importance of digital transformation on the SARS in African countries and emphasize the critical role played by efficacy of corporate boards in strengthening this relationship.

Keywords: Digital transformation, SARS, Efficacy of corporate boards, Ethical behavior of firms, African countries.

INTRODUCTION

Today, the term « digitalization » or « digital transformation » is omnipresent in the discourse of all stakeholders in society and its economy around the world (Brenner and Hartl, 2021).

Digitalization « describes how the use of information and communications technology alters an organization's business model, including creating new or improved ways of delivering services, communicating, and improving the quality of offerings » (Brenner and Hartl, 2021, p. 2).

Given its significance, the economic effects of digitization have been the subject of several recent studies. Khlif and Chaieb (2025), have analyzed the relationship between Hofstede's cultural dimensions and the adoption of digitalization, Brenner and Hartl (2021), have examined the relationship between digitalization and social sustainability, while Uyar et al. (2021), Alm (2021), and Yamen et al. (2022) examine the impact of digitalization on tax evasion. Gulin et al., (2019), Knudsen (2020), Almeleeh (2021), and Tiberius and Hirth (2019) investigate the impact of digitalization on the accounting and audit profession. However, no empirical investigation has dealt with the effect of digital transformation on SARS. While there are some empirical enquiries that have examined the determinants of predictors of the SARS (e.g., Boolaky et al., 2011; Boolaky, 2012; Boolaky and Cooper, 2015).

Therefore, the objective of this study is to explore the relationship between digital transformation and the SARS and asks whether efficacy of corporate boards have any impact on this relationship. We anticipate that digital

transformation is positively correlated with SARS, and that this correlation is stronger in African contexts where efficacy of corporate boards are held to a high standard.

Based on a sample of 96 country-year observations over the period of 2015–2017, we find that digital transformation is positively associated with the SARS. When testing for the moderating effect of efficacy of corporate boards on the association between digital transformation and the SARS, the results show that the positive and significant association between digital transformation and SARS remains stable for settings characterized by high efficacy of corporate boards, while it becomes insignificant for African countries characterized by low efficacy of corporate boards.

This essay makes two contributions to the auditing literature. On the one hand, our findings emphasize the significance of digitization, which has an impact that the audit profession cannot ignore (Tiberius and Hirth, 2019). So, due to this paradigm shift, auditors should use digitalization as a tool to gather and manage information in a way that ensures an audit's quality meets expectations (Byrnes et al., 2018).On the other hand, our findings contribution to the literature is considering the effect of efficacy of corporate boards on the relationship between digital transformation and SARS.

The remainder of the essay is organized as follows. The theoretical underpinnings of the relationship between the digital transformation and the SARS are developed in Section 2, along with a discussion of how this relationship is affected by the efficacy of corporate boards. While section 3 outlines the research methodology, section 4 gives the study's empirical results. Section 5 concludes the paper.

Hypotheses Development

Digital Transformation and Strength of Auditing and Reporting Standards

Digital technologies have improved governmental authorities' capacity for data collecting and processing. Governments are better able to make decisions based on accurate and current information thanks to the ability to collect massive amounts of data in real-time (Kitsios et al., 2020). Furthermore, the dissemination of information has become more accessible and widespread due to digital technologies.

According to modernization theory, modernized societies benefit from emerging technologies (Nam, 2018). For instance, government financial operations are simplified by automated financial management systems. These systems automate tasks such as budgeting, purchasing, and payment processing, requiring little to no human involvement and lowering the possibility of dishonest behavior like embezzlement or bribery.

By digitizing administrative processes, governments can also enhance transparency and accountability (Agostino et al., 2022).This transparency acts as a deterrent to corrupt behavior as it becomes more challenging for officials to engage in illicit activities and also reduces the scope of black economy (Khelil et al., 2023).

Additionally, automated financial management systems provide an audit trail that facilitates oversight and detection of irregularities. The system records every transaction, making it easier to identify discrepancies or suspicious trends that may indicate corruption (Kitsios et al., 2020).

For example in tax field, Yamen et al. (2022) found through a cross-country analysis that digitization is negatively associated with tax evasion. Kitsios et al. (2020) have documented that digitalization decreases cross-border trade tax fraud by improving the information collection and processing by governments. Alm (2021) studied how digitization affects tax evasion and made the case that as a result of technological advancements, information will flow more freely to governments, enhancing their capacity to combat tax evasion.

Hamilton and Stekelberg (2017) found that information technology has a significant impact on corporate tax outcomes. They came to the conclusion that businesses with superior information technology could reduce tax risk while avoiding more taxes than competitors.

Within financial sector, financial institutions have begun to utilize machine learning technologies to find anomalies in transactions to detect and decrease fraud and money laundering (Alam et al., 2019). According to Meiryani et al. (2022), the risk of money laundering has decreased as a result of electronic know your customer and transaction monitoring in the banking sector. According to empirical evidence from a cross-country analysis, Khelil et al. (2023) have shown that digitalization is negatively related to money laundering. They claim that "countries having strong auditing and accounting infrastructure may reinforce the role of auditors in combating money laundering crimes implying low levels of money laundering" (p. 1247).

Also, digitalization has had an impact on accounting professionals with technical advancements (Kim and Ha, 2021). The effect of digitization on the growth of the accounting profession was examined by Gulin et al., (2019). They mentioned that the improvement in accounting data speed, quality, and correctness was cited as a result of the digitization of accounting and financial reporting.

Knudsen (2020) examined at the impact of digitalization from a variety of angles, including how it affected the boundaries of accounting, how it altered power relations, and how it affected the generation of knowledge for decision making.

Khatab et al. (2022) have documented that digital transformation has positive relationship with internal audit quality and enhancing the quality of financial reporting. Their Study recommended that the importance of publishing new regulations and law to govern using the digital transformation on internal audit to secure and protect users. Also, their study recommended that using digital transformation in all corporate activities for reducing the costs.

Also, Kim and Ha. (2021) have documented that there is a positive relationship between perception of digital transformation and audit quality on four aspects, which are audit users' perception, regulations related to audit, auditors' work, and auditors' professional profile.

In the same vein, Almeleeh (2021) and Tiberius and Hirth (2019) have documented that Blockchain technology, artificial intelligence, robotic process automation, and big data analytics have greatly aided the growth of the audit profession.

Dai, and Vasarhelyi (2017), mentioned the quality of the information presented in financial reports can be improved with the right implementation of blockchain technology in the accounting environment.

Users of financial information can trust a public blockchain system that manages all of a company's transactions since all transactions are decentrally validated in real time, negating the need for a separate central audit (Almeleeh, 2021; Kokina et al., 2017; Tiberius and Hirth, 2019).

Also, artificial intelligence can help uncover discrepancies in accounting data for auditing reasons. The "Big Four" auditing firms have recently started using machine learning, which is thought to be the most significant sub-concept of artificial intelligence (Jordan and Mitchell, 2015), for data collection and validation (Brennan et al., 2017). Additionally, Natural Language Processing is used to extract meaningful information at a rate that is considerably faster than human ability because it can quickly comb through millions of papers (Jordan and Mitchell, 2015). Future applications for artificial intelligence could include a number of different things. Artificial intelligence, for instance, might reduce the likelihood of human error in inventory operations (Appelbaum and Nehmer, 2017).

Robotic process automation could be used for a variety of auditing tasks, including sending emails, requesting follow-ups when deadlines are approaching, tracking key risk indicators, monitoring progress towards the annual audit plan, automating reporting and dashboarding activities, including populating audit committee and management report templates or internal audit's balanced scorecard, and automating data quality evaluation by ensuring that all fields are filled in or looking for duplicate data (Almeleeh, 2021).

Also, big data is a new crucial tool for organizing huge, quick, and chaotic data and transforming it into useful knowledge (Snijders et al., 2012). Regarding auditing, auditors may utilize big data to reduce costs and enhance the quality of their audits because it can be used to make full audits as opposed to sample audits more affordable (Yoon et al., 2015).

Based on these arguments, the adoption of digital tools enables more effective auditing procedures that can quickly spot anomalies, conflicts, or irregularities in financial information, reduce expenses associated with manual labor while boosting transparency. Accordingly, it is expected that digitalization will have the positive impact on SARS at country level.

Thus, the first hypothesis of this study is formulated as follows:

H1: The digital transformation is positively and significantly associated with the SARS in African countries.

The Moderating Effect of Efficacy of Corporate Boards on the Association between Digital Transformation and Strength of Auditing and Reporting Standards

Efficacy of corporate boards of firms may affect both strength of auditing and reporting standards and digital transformation in a given country. On the one hand, effective corporate boards may strengthen the function of the audit committee and external auditors in boosting compliance with reporting and auditing regulations in one country (Boolaky, 2012; Cohen et al., 2004; De Zoort et al., 2003).

On the other hand, the efficacy of corporate boards is crucial in influencing the outcome of programs for digital transformation (Deloitte). To address the issues that develop during implementation, robust governance and leadership frameworks are required given the complexity and scope of disruption involved with digital transformation. The relationship between digital transformation initiatives and organizational success might be positively moderated by a board that is effective and has strong digital skills. High-performing boards, according to research, have a greater awareness of technology advancements, allowing them to make decisions that promote business success (Chen and Hao, 2022). The likelihood of effective adoption and implementation is increased by their capacity to allocate resources, analyze risks, and track progress toward achieving digital objectives. In the end, a strong corporate board guarantees that the digital transformation is sustainable by incorporating it into larger corporate strategies and ensuring that the interests of all stakeholders are protected.

Accordingly, boards with high efficacy are better able to oversee and direct the integration of digital technologies into the organization, ensuring that they enhance the effectiveness of auditing and reporting processes.

As a result, it is anticipated that when businesses run with high corprate board efficacy, digital transformation will be more effective in enhancing the auditing and reporting environment in one country.

H2. The positive association between digital transformation and SARS is more (less) pronounced in settings characterized by high (low) efficacy of corporate boards.

Figure 1: shows the theoretical foundation for the associations investigated in this research.

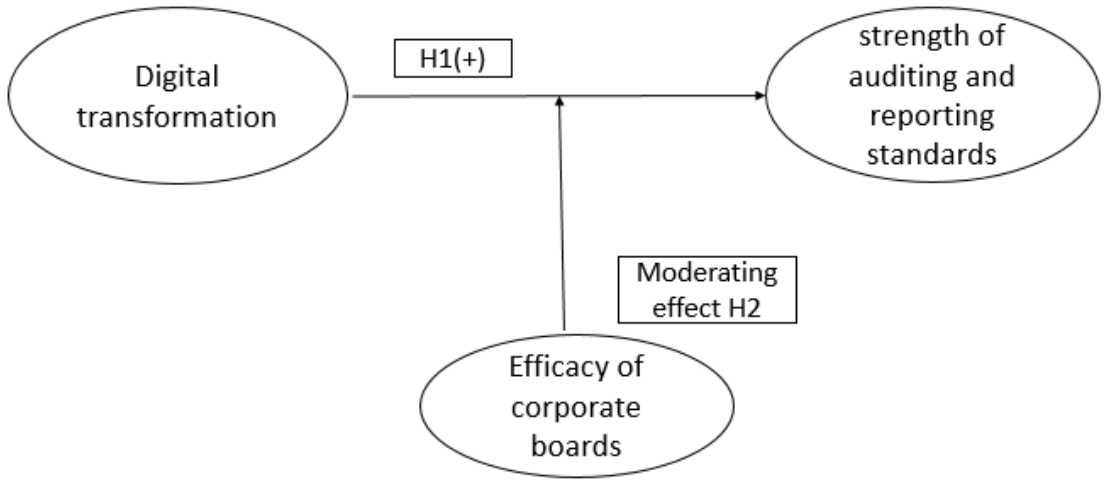

Figure 1: Conceptual framework

Research Design

Data for this study are collected from the global competitiveness reports and from the International Telecommunication Union (ITU) database published by World Bank. The data used to measure the various variables and their sources are described in full in Table 1.

Table 1. Data description and sources

Variable	Description	Source
SARS	In your country, how strong are financial auditing and reporting standards? (1 - extremely weak; 7 - extremely strong)	The Global Competiveness Reports (2015–2016; 2016–2017; 2017–2018) (country profiles)
DIG	Digital transformation measured by: Individuals using the Internet (% of population) database is a reliable and comprehensive resource that provides valuable insights into global internet usage patterns. This database measures the percentage of individuals in each country who access the internet.	International Telecommunication Union (ITU) World Telecommunication/ICT Indicators Database published by World Bank
ECOB	Efficacy of corporate boards is a measurement on how in your country, how would you characterize corporate governance by investors and boards of directors? (1 = management has little accountability to investors and boards; 7 = management is highly accountable to investors and boards)	The Global Competiveness Reports (2015–2016; 2016–2017; 2017–2018) (country profiles)
EBOF	In your country, how do you rate the corporate ethics of companies (ethical behavior in interactions with public officials, politicians and other firms)? (1 = extremely poor - among the worst in the world; 7 = excellent -among the best in the world)	The Global Competiveness Reports (2015–2016; 2016–2017; 2017–2018) (country profiles)
SIP	Strength of investor protection is a combination of the extent of disclosure index (transparency of transactions), the Extent of director liability index (liability for self-dealing), and the ease of shareholder suit index (shareholders' ability to sue officers and directors for misconduct).	The Global Competiveness Reports (2015–2016; 2016–2017; 2017–2018) (country profiles)

PI	Policy instability in an index ranging from 0 to 30	The Global Competiveness Reports (2015–2016; 2016–2017; 2017–2018) (country profiles)
SER	Securities exchange regulations refers to the assessment of regulation of securities exchange of a country.	The Global Competiveness Reports (2015–2016; 2016–2017; 2017–2018) (country profiles)
STATRA	refers to the extent to which companies, in one country, invest in training and development of their staff.	The Global Competiveness Reports (2015–2016; 2016–2017; 2017–2018) (country profiles)

Sample

There are 54 countries on the African continent, however only 32 are included in the Global Competitiveness Reports (2015–2016, 2016–2017, 2017–2018). Our study's final sample, which covers 32 African nations from 2015 to 2017, contains 96 country-year observations. The list of African nations that were included in the sample and additional information regarding the sample selection method are shown in Table 2.

Table 2. Sample description

Sample selection process	
Number of African countries	54
Number of African countries covered in the Global Competitiveness Reports (2015–2016; 2016–2017; 2017–2018)	32
Final sample	Minimum (54; 32) = 32

List of countries included in the analysis

1	Algeria	12	Kenya		
2	Benin	13	Lesotho	23	Nigeria
3	Botswana	14	Liberia	24	Rwanda
4	Burundi	15	Madagascar	25	Senegal
5	Cap Verde	16	Malawi	26	Sierra Leone
6	Cameroon	17	Mali	27	South Africa
7	Chad	18	Mauritania	28	Tanzania
8	Egypt	19	Maurituis	29	Tunisia
9	Ethiopia	20	Morocco	30	Uganda
10	Gambia	21	Mozambique	31	Zambia
11	Ghana	22	Namibia	32	Zimbabwe

Dependent Variable: The SARS

A poll of senior managers and business executives from organizations with locations in 32 African nations is used to calculate the SARS score. On a scale from "1" (the weakest legal enforcement) to "7" (the best standards enforcement), senior managers and business leaders were asked to rate the SARS. The SARS score for a country is then determined using a weighted average of the scale provided by the respondents in that country. South Africa's 6.700 in 2016 and Mauritania's 2.100 in 2017 are the minimum and maximum values, respectively.

Test Variable: Digital Transformation

The individuals using the internet (% of population) database is a reliable and comprehensive resource that provides valuable insights into global internet usage patterns. This database measures the percentage of individuals in each country who access the internet, which can inform research on topics such as digital divide and information literacy. It draws from numerous reputable sources, including government data and international organizations, to ensure accuracy and validity. Researchers, policymakers, and industry analysts can use this data to make informed decisions about internet infrastructure development and digital literacy programs. With its broad coverage of countries worldwide, this database offers a vital resource for anyone interested in understanding how the digital landscape is evolving across the globe. Morocco received the highest score in 2018 (61.760), while Burundi received the lowest (2.000).

The Moderating Variable: The Efficacy of Corporate Boards

The qualities of corporate governance that apply to boards of directors in one nation are referred to as the efficacy of corporate boards. Scores for corporate board effectiveness range from "1" (very poor) to "7" (outstanding), with "7" being the highest level of board effectiveness. South Africa received the highest score in 2016 (6.700), while Mauritania received the lowest (2.200).

Control Variables

Five control variables are considered in the model including ethical behaviour of firms, the level of investor protection, the securities exchange regulations, the policy instability and the staff training. First, high ethical behaviour of firms in one country may lead to solid auditing and reporting standards (Boolaky and Cooper, 2015). Second, the level of investor protection is one of the important determinants of SARS (Boolaky and O'Leary 2011). Third, the securities exchange regulations may incentivize regulators in one country to establish solid auditing and reporting standards (Nobes, 2010). Fourth, the policy instability of a country may impact the SARS. Finally, the staff training represents also an important factor that leads to high SARS in one country (Reynolds and Francis, 2010).

Models Specification

To test the empirical validity of hypothesis 1 (H1), the following regression model is performed:

$$SARS_{it} = \alpha_0 + \alpha_1 DIG_{it} + \alpha_2 ECOB_{it} + \alpha_3 EBOF_{it} + \alpha_4 SIP_{it} + \alpha_5 PI_{it} + \alpha_6 SER_{it} + \alpha_7 STATRA_{it} + \varepsilon_{it} \quad (1)$$

Where:

Dependent variable:

SARS = the strength of auditing and reporting standards for country *i*;

Test variable:

Dig = Digital transformation for country *i*;

Moderating variable:

ECOB = the efficacy of corporate boards for country *i*;

Control variables:

EBOF = Ethical behavior of firms for country *i*;

SIP = Strength of investor protection for country *i*;

PI = Policy instability for country *i*;

SER = Securities exchange regulations for country *i*;

STATRA = Staff training for country *i*;

Moderating Effect of the Efficacy of Corporate Boards on the Relationship between the Digital Transformation and the SARS

To test for the moderating effect of the efficacy of corporate boards on the relationship between the digital transformation and the SARS, we consider two sub-samples: countries characterized by low efficacy of corporate boards (inferior or equal to the median of ECOB) and those with high efficacy of corporate boards (above the median). H2 consists of observing a positive association between the digital transformation and the SARS only for countries characterized by high level of efficacy of corporate boards. Accordingly, the model 2 is performed to test H2.

$$SARS_{it} = \alpha_0 + \alpha_1 DIG_{it} + \alpha_2 EBOF_{it} + \alpha_3 SIP_{it} + \alpha_4 PI_{it} + \alpha_5 SER_{it} + \alpha_6 STATRA_{it} + \varepsilon_{it} \quad (2)$$

EMPIRICAL RESULTS

Descriptive Statistics

Table 3 provides descriptive statistics for each variable in the model. The SARS has an average score of 4.123 and ranges from 2.100 to 6.700. Digital transformation has a mean of 23.127 and varies from 2.000 to 61.760. Efficacy of corporate board has a mean of 4.523 and ranges from 2.200 to 6.300. Ethical behavior of firms has an average score of 3.678 and ranges from 2.400 to 5.300. More details on descriptive statistics for all the remaining control variables taken into account in this study are provided in Table 3.

Table 3. Descriptive statistics

Variables	Observations	Mean	SD	Minimum	Maximum
SARS	96	4.123	0.762	2.100	6.700
DIG	96	23.127	15.779	2.000	61.760
ECOB	96	4.523	0.690	2.200	6.300

EBOF	96	3.687	0.539	2.400	5.300
SIP	96	4.770	0.932	2.800	7.200
PI	96	6.216	5.551	0.000	24.600
SER	96	3.863	0.800	1.900	6.200
STATRA	96	3.644	0.503	2.200	5.000

Notes: *SARS : The strength of auditing and reporting standards in one country; DIG: Digital transformation ; ECOB: Efficacy of Corporate Boards; EBOF: Ethical Behavior of Firms ; SIP : Strength of investor protection ; PI : Policy instability; SER : Securities Exchange Regulations ; STATRA : Staff Training.*

Univariate Analysis

The findings of a univariate analysis are presented in Table 4. The findings show that there is a significant positive relationship between the digital transformation and the SARS with a Pearson correlation coefficient accounting for (0.248), and this outcome offers preliminary support for H1. Also, efficacy of corporate board is positively and significantly correlated with the SARS in African countries with a Pearson correlation coefficient amounting to (0.803). For the other control variables, ethical behavior of firms, strength of investor protection, policy instability, securities exchange regulations, and staff training are also all positively and significantly correlated with the SARS.

Table 4. Correlation matrix

	SARS	**DIG**	**ECOB**	**EBOF**	**SIP**	**PI**	**SER**	**STATRA**
SARS	1.000							
DIG	0.248*	1.000						
ECOB	0.803***	-0.011	1.000					
EBOF	0.648***	0.289**	0.586***	1.000				
SIP	0.611***	0.131**	0.499***	0.254**	1.000			
PI	0.054	-0.186**	-0.032	-0.299**	0.195**	1.000		
SER	0.842***	0.280**	0.734***	0.629***	0.432***	-0.193**	1.000	
STATRA	0.762***	0.066	0.786***	0.677**	0.499***	-0.141**	0.668***	1.000

Notes: *SARS : The strength of auditing and reporting standards in one country; DIG: Digital transformation ; ECOB: Efficacy of Corporate Boards; EBOF: Ethical Behavior of Firms ; SIP : Strength of investor protection ; PI : Policy instability; SER : Securities Exchange Regulations ; STATRA : Staff Training. *significant at 10%; **significant at 5%; ***significant at 1%.*

Multivariate Analyses

Table 5 displays the findings of the multivariate analysis. In model 1, the findings show that the digital transformation is positively and significantly associated with the SARS (coefficient = 0.005; *t*-statistic = 2.620). This result provides support for H1 and implies that the digital transformation has a significant positive impact on the SARS in African settings.

These findings confirm the digital transformation has made auditing more effective, efficient, and transparent than ever before while also promoting accountability and integrity in financial reporting.

Similarly, the efficacy of corporate boards is positively and significantly associated with the SARS. For control variables, ethical behavior of firms, strength of investor protection, policy instability, securities exchange regulations, and staff training are also positively and significantly associated with SARS in Africa.

Model 1 does not appear to have a multicollinearity problem, according to the reported variance inflation factors (VIFs), where the maximum VIF accounts for 3.990. The adjusted-R2 accounts for 87.21%, and the overall explanatory power of the model is significantly high (F = 72.970; p 0.000).

The total sample is divided into nations with high and low efficacy of corporate boards based on the median of this variable in order to explore how this may alter the association between the digital transformation and the SARS (H2).

The findings show that the significant positive association between the digital transformation and the SARS observed in model 1 remains significant only for countries characterized by high efficacy of corporate boards (coefficient = 0.007; *t*-statistic = 2.120), while it becomes insignificant for settings characterized by low efficacy of corporate boards (coefficient = 0.000; *t*-statistic = 0.240). Therefore, H2 is also supported. It should be noted that the coefficient has moved from 0.005 in model 1 (overall sample) to 0.007 in model 2 (African countries with high efficacy of corporate boards) suggesting that the positive association between the digital transformation and the SARS becomes stronger for setting characterized by high efficacy of corporate boards. These findings also imply that the digital transformation does not lead to an improvement in the SARS in African countries if a corporate

boards is not effective. Accordingly, boards with high efficacy are better able to oversee and direct the integration of digital technologies into the organization, ensuring that they enhance the effectiveness of auditing and reporting processes.

Examining the multicollinearity issue, models 2 do not suffer from this problem as all maximum VIFs account for 2.830 in model 2 high ECOB and 3.130 in model 2 low ECOB. Overall, the findings provide evidence that the digital transformation plays an important role in improving the SARS in African countries. More significantly, our results suggest that the establishment of a solid auditing and reporting standards can only be reached if the board of directors are well-regulated in one African country.

Table 5. Multivariate regression analysis

	Dependent variable: SARS					
	Model 1		**Model 2**			
			High ECOB		**Low ECOB**	
	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic
Intercept	-0.805	-3.230***	-1.102	-2.460**	0.094	0.230
DIG	0.005	2.620**	0.007	2.120**	0.000	0.240
ECOB	0.258	3.200***				
EBOF	0.144	1.740*	0.292	2.770***	0.059	0.410
SIP	0.112	2.900**	0.034	0.460	0.088	1.710*
PI	0.271	4.770***	0.049	5.080***	0.025	3.510***
SER	0.439	7.350***	0.428	5.790***	0.695	7.650***
STATRA	0.218	2.080**	0.547	3.450***	0.092	0.630
2016	-0.140	-2.010**	-0.100	-0.950	0.258	2.640**
2017	-0.171	-2.360**	-0.093	-0.830	0.019	0.200
F (p-value)	72.970***	(0.000)	29.13***	(0.000)	22.01***	(0.000)
Adj. R2	87.210		83.340		77.430	
Max VIF(1)	3.990		2.830		3.13	
Number of observations	96		46		50	

Notes: *SARS : The strength of auditing and reporting standards in one country; DIG: Digital transformation ; ECOB: Efficacy of Corporate Boards; EBOF: Ethical Behavior of Firms ; SIP : Strength of investor protection ; PI : Policy instability; SER : Securities Exchange Regulations ; STATRA : Staff Training. *significant at 10%; **significant at 5%; ***significant at 1%.*

Alternative Regressions for Model 2

Model 2 does not include the variable relating to the efficacy of corporate boards, thus we conduct additional tests for this model by including the variable that is removed to see if the link holds true for subsamples with low and high efficacy of corporate boards. The results demonstrate that the significant positive association between the digital transformation and the SARS observed in model 1 remains significant only for nations characterized by high efficacy of corporate boards (coefficient= 0.008; t-statistic = 0.015), while it becomes insignificant for countries characterized by low efficacy of corporate boards (coefficient= 0.003; t-statistic = 0.239). These results further support Hypothesis 2 by demonstrating the significance of efficacy of corporate boards when analyzing the effects of the digital transformation on the environment for auditing and reporting in African settings.

Table 6. Alternative regressions for model 2

	Model 2 High ECOB including ECOB		**Model 2 Low ECOB including ECOB**	
	Coefficient	**t-statistic**	**Coefficient**	**t-statistic**
Intercept	-1.892	-2.800***	0.116	0.310
DIG	0.008	2.540**	0.003	1.190
ECOB	0.313	1.540	0.288	2.430**
EBOF	0.226	2.020**	0.053	0.380
SIP	0.016	0.220	0.057	1.150
PI	0.046	4.830***	0.020	2.890***
SER	0.393	5.180***	0.531	4.870***
STATRA	0.474	2.920***	-0.058	-0.390
2016	-0.139	- 1.300	0.263	2.850***
2017	-0.142	- 1.250	0.042	0.460
F (p-value)	27.12***	(0.000)	22.57***	(0.000)
Adj R2	87.14		79.84	
Max VIF	2.90		3.70	
N. of observations	46		50	

Notes: *SARS : The strength of auditing and reporting standards in one country; DIG: Digital transformation ; ECOB: Efficacy of Corporate Boards; EBOF: Ethical Behavior of Firms ; SIP : Strength of investor protection ; PI : Policy instability; SER : Securities Exchange Regulations ; STATRA : Staff Training. *significant at 10%; **significant at 5%; ***significant at 1%.*

Endogeneity Issues

Due to the potential existence of omitted variables, there may be an endogeneity issue between digital transformation and strength of auditing and reporting standards. Consequently, we employ two-stage least squares (2SLS) regression to address mitigate this issue (Chenhall and Moers, 2007).

In the first stage of 2SLS, we follow Khlif et al. (2019) and Amara et al. (2023) and regress digital transformation on the explanatory variables of strength of auditing and reporting standards and other instrumental variables selected based on studies dealing with the determinants of digitalization (Myovella et al.2021). These instrumental variables include GDP per capita (GDPPC), electricity infrastructure (ELCT) and urbanization (URBPOP). Endogeneity tests, presented in table 7, suggest that the positive association between digital transformation and strength of auditing and reporting standards remains stable (coefficient = 0.004; t-statistic = 2.750).

Table7. Endogeneity test for digital transformation and strength of auditing and reporting standards

	2SLS(H1) DIG First-stage		**SARS Second-stage**	
	Coefficient	**t-statistic**	**Coefficient**	**t-statistic**
Intercept				-3.260***
DIG	- 0.723	-5.083***	- 0.820	2.750**
			0.004	
Instruments				
GDPPC				
ELCT	0.344	3.654***		
URBPOP	0.657	5.765***		
	0.355	3.447***		
Test and control variables				
ECOB				3.300***
EBOF	0.052	3.782***	0.285	1.760*
SIP	0.142	2.332**	0.165	2.800**
PI	0.094	2.570**	0.144	4.650***
SER	0.136	2.630**	0.266	7.450***
STATRA	0.356	6.340***	0.348	2.680**
	0.564	5.350***	0.220	
YearDum	Included		Included	
No. of observations	96		96	
R^2	45.670%		63.840%	
x^2 (p-value)	–		424.230 (0.000)***	

Notes: *SARS : The strength of auditing and reporting standards in one country; DIG: Digital transformation ; ECOB: Efficacy of Corporate Boards; EBOF: Ethical Behavior of Firms ; SIP : Strength of investor protection ; PI : Policy instability; SER : Securities Exchange Regulations ; STATRA : Staff Training. Instrumental variables: GDPPC: GDP per capita is gross domestic product divided by midyear population; ELCT: Electricity infrastructure (= percentage of population with access to electricity) and URBPOP: Urbanization (= urban population as the ratio of total population).*significant at 10%; **significant at 5%; ***significant at 1%.*

CONCLUSION

The aim of this paper is to investigate the relationship between digital transformation and SARS and test whether efficacy of corporate boards moderates this relationship within African countries. Using a sample of 96 country-year observations over the period of 2015–2017, we document that digital transformation is positively associated with SARS and this positive and significant association remains stable and significant only for African countries characterized by high efficacy of corporate boards.

These results imply that African countries characterized by digital revolution have strong auditing and reporting standards. It should be underlined that the efficacy of corporate boards is crucial for maintaining the beneficial impact of digital transformation on SARS.

These empirical findings have policy implications for African contexts as that when businesses run with high efficacy of corporate boards, digital transformation will be more effective in enhancing the auditing and reporting

standards in one country. The importance of digital transformation has a significant impact on all aspects of financial sector governance and transparency reporting. With the introduction of advanced technological tools, it is now possible to access accurate and real-time financial data, which has significantly improved the integrity and transparency of financial reporting and the application of stricter sanctions against corruption.

Furthermore, when determining where to base their investments, foreign investors may use the digital transformation and the effectiveness of corporate boards as two important indicators to gauge the level of the auditing and reporting standards in African nations. Finally, this study adds to the body of knowledge on SARS in Africa, a continent that has received little study.

Some flaws in our study could be present. On the one hand, several of the study's variables were approximated using survey data measurements, which could lead to questions about measurement adequacy (Richardson, 2006). However, information is gathered from reliable sources (such as the Global Competiveness reports, the World Bank). The generalizability of our findings to other African economies that were not included in the study is, however, diminished because our investigation was restricted to 32 African countries due to a lack of data. However, as the majority of African nations share common institutional characteristics (Khelil et al., 2022), our findings can be extrapolated to other African nations that were not included in the sample.

Future empirical study may further this line of inquiry in an African context by examining the impact of the efficacy of corporate boards on foreign direct investments and determining whether the advent of digital transformation may attenuate this link.

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