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Cash holding, risk-taking behavior and financial performance of non-financial firms listed in sub-Saharan Africa Securities Exchanges

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ABSTRACT

The study examined the linkage between cash holding, risk-taking and financial performance of listed non-financial corporations using the two-step system GMM method. GMM's outcome was then compared across the agricultural, manufacturing and construction industries. Cash holding and risk-taking had a statistically significant positive association with ROA, ROE and Tobin's Q in agricultural and manufacturing listed firms. However, cash holding and risk-taking had a statistically significant negative association with ROA, ROE and Tobin's Q in construction-listed corporations. To the authors' knowledge, this is the first study to investigate the linkage between cash holding, risk-taking and performance of listed non-financial corporations across different industries in SSA. This study contributes to and extends the literature with current empirical evidence with analysis based on the various sub-sectors of the listed non-financial corporations. The study is useful to policymakers when establishing guidelines that suggest optimal cash-holding and risk-taking levels for listed non-financial corporations. Additionally, the study is useful to the managers of listed non-financial corporations when making strategic decisions, helping the managers balance liquidity management and risk exposure.

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1. Introduction

The performance of listed non-financial firms in sub-Saharan Africa (SSA) is deemed an essential factor in the region's development. Compared to other regions, stock exchanges in SSA have failed to attract a sizeable number of investors. This has a negative effect not only on the region's economic development but also on the individual sub-Saharan nations. This has been associated with the listed firm's poor financial performance. In the last decade, listed non-financial firms' performance has been ranked low as compared to listed financial corporations. This is because listed financial firms adhere to strict guidelines from regulating authorities in their respective nations as well as international finance policies and guidelines. However, listed non-financial firms are not subject to such regulations and hence are vulnerable. Javed and Malik (2021) has associated this decline in performance by listed non-financial firms with inefficient management of cash and

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risk-taking activities. As proposed by Khan et al. (2021), ineffective cash management by listed non-financial corporations leads to a lack of financial flexibility, which is crucial for navigating uncertainties. Moreover, inefficient deployment of resources makes listed non-financial corporations unable to invest in technological advancements that promote innovation and ensure competitiveness in the market (Lee, 2023). According to Mahto and Khanin (2015), the inability to undertake capital expenditure for expansion initiatives directly results from inefficient cash management practices. Furthermore, as Mohamad Ariff et al. (2023) proposed, inadequate management of risks contributes to operational inefficiencies, which makes listed non-financial corporations unable to weather disruptions effectively, leading to decreased performance.

Analysis of the past empirical literature reviewed gaps that this study seeks to address. First, the reviewed literature failed to reach a consensus on the linkage between cash holding and the financial performance of listed non-financial corporations. Even though some authors like Ahmad and Azhari (2021), Al-Shammari (2021) and (2023) argue that organizational cash holding is crucial for improved corporate performance and suggest that cash holding is a financial buffer that provides organizations with liquidity to meet short-term obligations and capitalize on lucrative opportunities, other authors such as Boamah et al. (2021) and Agoraki et al. (2023) argue that cash holding is seen as ineffective use of capital that negatively affect the performance of listed non-financial corporations due to lost opportunities. Moreover, Lee (2023) further argues that corporate cash holding is irrelevant as it does not directly contribute to an organization's core operations and ultimately corporate performance. This study therefore attempts to contribute to the literature through the provision of current empirical evidence on the linkage between cash holding and the performance of sub-Saharan listed non-financial corporations.

Secondly, the study seeks to contribute to the literature by assessing the linkage between risk-taking and corporate performance of listed non-financial firms in SSA to make contributions to both policy and practice. Mohamad Ariff et al. (2023) noted that the existence of inadequate risk management contributes to operational inefficiencies in listed non-financial corporations hence making them unable to endure disruptions effectively, leading to decreased performance. In addition, the literature also presents a contradiction in the findings relating to the linkage between risk-taking and financial performance. For instance, some authors reported a positive link in the association (Ahmad & Azhari, 2021; Ali et al., 2024; Bsoul et al., 2022; Jalali et al., 2020) while others reported a negative linkage (Al-Shammari, 2021; Almustafa et al., 2023; Alnori, 2020; Anton, 2018; Javed & Malik, 2021).

Thirdly, the reviewed literature provided empirical evidence from studies that analyzed data for all the listed non-financial corporations. This study seeks to contribute to and extend the literature with current empirical evidence with analysis based on the various sub-sectors of the listed non-financial firms. The study sought to analyze data for agricultural, construction and manufacturing separately. This provides an avenue for policy formulation for each specific sub-sector and industry players and to do comparative analysis which was not provided in the previous empirical literature. This work aims to increase the comparability of the findings across several industries to provide an informed, all-rounded picture of the dynamics within different sectors of non-financial firms through a comparative research design. According to Chin et al. (2022),

firms involved in strategic risk-taking venture into opportunities that help the business to grow its market, giving it a lead over their competitors. With augmented risk-taking, innovation would be catalyzed as it is principal in ingenious corporate performance. However, as Jalali et al. (2020) postulate, excessive risk-taking exposes a firm to financial vulnerabilities if not well considered. Corporations must therefore consider their risk-taking behaviors to ensure they only take calculated risks necessary to mitigate losses.

Fourthly, to the authors' knowledge, this is the first study to probe the linkage between cash holding, risk-taking and performance of listed non-financial corporations across different industries in SSA. All the research in SSA has been tilted toward individual sectors and has not engaged in inter-industry comparison in probing the association between cash holding, risk-taking and performance of the sub-Saharan listed non-financial corporations. In addition, many studies have explored similar dynamics in the European and North American setup (Kogler, 2023; Simamora, 2021; Suttipun, 2023; Zhou et al., 2023), hence the empirical void within SSA is therefore glaring. Again, most studies conducted for the SSA region focused mainly on listed financial firms, leaving a gaping hole in the intricacies of listed non-financial corporations. The current research will bridge this gap by deepening the nuanced linkages between cash holding, risk-taking and performance regarding SSA's non-financial sector and then comparing across various industries of non-financial corporations in the SSA region.

Other sections of this paper are as set forth herein. Section two sets the theoretical underpinning for the study; section three reviews the related literature. Section four discusses the methodologies that were used to undertake the study. The fifth section discusses the results while the sixth section concludes the research and makes recommendations regarding the liaison between corporate cash-holding, risk-taking and organizational performance.

2. Theoretical Underpinnings

2.1. Free Cash Flow Theory

The theory of FCF, developed by Michael Jensen in 1986, has become one of the most foundational and leading frameworks towards understanding how financial policy is interwoven with managerial discretion over excess cash retained within a corporation (Almustafa et al., 2023). The theory holds that when corporations generate more cash than necessary for their required operational and investment needs, there exists surplus money "free money" which causes conflicting interests between shareholders and managers. Chin et al. (2022), Jalali et al. (2020) and Xu and Jin (2022) find that such excess cash, under managers' discretionary control, induces them to pursue acquisitions or projects that maximize personal benefits at the cost of shareholder benefits, diminishing overall corporate performance. However, critics have contended that the theory oversimplifies the motives of managers and ignores the strategic rationale for maintaining excess cash to take advantage of future opportunities brought about by uncertainty in business environments (Khan et al., 2021). Notwithstanding, the theory remains relevant and serves as a guiding framework for understanding the implications of excess cash on shareholders' value and managerial decisions (Javed & Malik, 2021). The theory also offers a theoretical basis for understanding how discretionary usage of

excess cash affects risk-taking behaviors and general financial performance within listed non-financial corporations in SSA.

2.2. Modern Portfolio Theory

This theory was proposed by Harry Markowitz in 1952. According to Vengesai (2023) and Zhou et al. (2023), the theory is one of the cornerstones in investment since it could change the core approach of managers towards risk and return while making investment decisions. Zaiane et al. (2022) suggest that modern portfolio theory revolves around diversification strategies. It is postulated that managers stand a better chance in constructing portfolios with different risk and return profiles and therefore stand in a better position to command an optimal risk-return trade-off, leading to upsurged corporate performance (Yun et al., 2020). The theory illustrates that with higher risk, a higher return should be expected in an efficient frontier. According to Vo et al. (2023) and Soobaroyen et al. (2019), every manager is in pursuit of that ideal combination of risk on the frontier that would help achieve suitability with their return expectations and risk tolerance. However, the critics of the theory say that assumptions like the stability of risk and returns may not always hold in reality (Tukamuhabwa et al., 2023).

Additionally, the single-period focus of the theory based on historical data, is bound to fail in extreme events and dynamic market conditions (Dalwai & Salehi, 2021). In any case, the theory is of immense benefit to the study in that the principles of the theory are useful and helpful in guiding the exploration of optimizing risk-return profiles using diversification strategies (Tsai & Fang, 2023). Additionally, the theory's principles are valuable to managers who aim to quantify the exact amount of cash holding that reduces the overall portfolio risk within the peculiar setting of sub-Saharan listed non-financial corporations.

3. Literature Review and Hypothesis Development

3.1. Cash Holding and Performance

The performance of a listed non-financial corporation is contingent to its cash holding practices. For instance, according to Atif et al. (2019) and Tran and Le (2020), a non-financial listed corporation that holds cash increases its ability to navigate through financial uncertainties, meet short-term financial commitments and invest in lucrative opportunities. As suggested by Vo et al. (2023) an optimum level of cash is generally linked with superior performance for listed non-financial corporations. Listed non-financial corporations can therefore significantly enhance their likelihood of covering operational expenses (Yun et al., 2020), servicing debt obligations (Zhou et al., 2023) and exploiting strategic opportunities (Ahmad & Azhari, 2021) if they maintain adequate cash balances. Moreover, Almustafa et al. (2023) and Dalwai and Salehi (2021) propose that a non-financial corporation with high liquidity may face any uncertainty making it able to avoid the possibility of liquidity constraints and eventual insolvency.

Al-Shammari (2021) contends that the linkage between cash holding and corporate performance is not strictly linear. According to Al-Shammari (2021), excessive cash holding beyond what is required to meet operational demands and strategic investment

results in diminishing returns. Cash hoarding leads to missed investment opportunities, reduced return on assets and simultaneously increases opportunity cost leading to decreased corporate performance (Bates et al., 2006). Another view of cash holding proposed by Boamah et al. (2021) and Bsoul et al. (2022) is that cash holding is irrelevant and less critical regarding performance. Boamah et al. (2021) and Bsoul et al. (2022) contend that holding cash is neutral regarding financial performance because it does not directly contribute to the core operations of listed non-financial corporations.

Many studies have tested the association between cash holding and listed non-financial corporations' performance. For instance, (Chin et al., 2022; Dimitropoulos & Koronios, 2021; Jalali et al., 2020; Javed & Malik, 2021; Khan et al., 2021; Kogler, 2023) document a positive linkage between cash holding and organizational performance for listed non-financial organizations. Likewise, Lee (2023) and Habib et al. (2022) posited that listed non-financial corporations holding more cash could finance investment projects and as such exhibited enhanced performances. On the other hand, some studies hypothesize a negative linkage between organizational cash holding and performance. For instance, Mohamad Ariff et al. (2023) contend that an increase in cash holding suggests that corporate assets are not effectively used to improve corporate performance. Similarly, Suttipun (2023) contends that excessive holding of cash reduces the return on assets which affects the overall performance since the corporation is not appropriately using its capital structure. Other studies (Guizani, 2017; Gul et al., 2020; La Rocca & Cambrea, 2018; Mahto & Khanin, 2015; Mujiyanto & Prijadi, 2022; Yun et al., 2020) have postulated a non-linear linkage between cash holding and corporate performance of listed non-financial corporations. According to Yun et al. (2020) and Mujiyanto and Prijadi (2022), optimal holding amounts of cash induce a mixed effect on performance hence the simple accumulation of cash is not guaranteed to ensure linearity of improvement. From the reviewed literature, a hypothesis is inferred as stated herein.

H_1. Cash holding has a positive relationship with the financial performance of listed non-financial corporations.

3.2. Risk-Taking and Performance

Risk-taking is an essential process in listed non-financial corporations (Thi Pham & Thi Dao, 2022). According to Tran Minh et al. (2022) and Elmagrhi and Ntim (2022), non-financial corporations are engaged in competitive and dynamic settings where the risks they undertake and how they handle them significantly affect their overall performance. Risk-taking is therefore a significant driver of innovation, competitiveness and growth if it is well calculated and aligned with a corporation's objectives. Tsai and Fang (2023) and Escandon and Salas-Paramo (2024) postulate that non-financial corporations that take calculated risks can offer their products into new markets leading to increased chances of long-term financial success.

Tukamuhabwa et al. (2023) explain that inadequately managing risks exposes listed non-financial corporations to increased volatility and poor performance. Poor execution of risk-taking strategies results in upsurged financial losses, damaged corporate reputation and decreases the performance of listed non-financial corporations, according to Vo et al. (2023). Yun et al. (2020) therefore recommends effective risk management to

balance the pursuit of opportunity with safeguarding against possible downsides (Yun et al., 2020). Zaiane et al. (2022) take this point further and explain that corporate managers are hugely responsible for administrating risk management to ensure that risk-taking strategies align with corporate interests. Zhou et al. (2023) contend further that investors and analysts consider the risk profile of a corporation regarding how well it is positioned to manage changing market conditions, technological shifts and new impingements in the regulatory landscape. Hence, the strategic success of non-financial corporations in managing risk depends on the critical and intentional infusion of risk considerations into their general business strategies. A balance between innovation and financial stability through effective risk management is therefore crucial for achieving sustainable and robust performance under competitive pressures in listed non-financial corporations (Ahmad & Azhari, 2021).

Empirically, several studies relating to risk-taking and the performance of listed non-financial corporations have been carried out. For instance, Alnori (2020), Al-Shammari (2021), Kogler (2023) and Lee (2023) suggest a positive liaison between risk-taking and the corporate performance of listed non-financial corporations. They point out that embracing calculated risks promotes an innovative culture within a corporation leading to an upsurge in performance. Additionally, according to Mumtaz et al. (2021) and Mohamad Ariff et al. (2023), taking risks allows listed non-financial corporations to recognize and seize market opportunities that others may shun. Such a proactive approach to risk leads to expansion, diversification and new revenue streams in the market leading to an upsurge in performance. On the contrary, there are contradicting studies that propose a negative link between risk-taking and organizational performance. For instance, Mustapha Abu et al. (2022) argue that not all risks result in positive outcomes hence taking risks may result in heavy financial losses eventually decreasing the levels of corporate performance. Similarly, Tran Minh et al. (2022) and Sajid et al. (2023) explain that continuous exposure to failed risks results in low morale and job dissatisfaction among workers resulting in retention problems and poor performance. Guided by the literature above, a hypothesis is put forward as follows.

H_2. Risk-taking has a positive relationship with the financial performance of listed nonfinancial corporations.

4. Materials and Methods

4.1. Data Collection

Data was sourced from the annual reports of 83 sub-Saharan listed non-financial corporations for six years, ranging from 2016 to 2021. The decision to start our sample from 2016 was motivated by the desire to integrate a recent timeframe crucial for capturing contemporary developments in cash holding practices and risk-taking behaviors of SSA listed non-financial firms. Listed non-financial firms are publicly traded firms that have operations outside the financial sector and belong to industries like agriculture, manufacturing, construction, technology and retail. The study's initial sample size was 334 firms, however the sample was decreased to 83 firms as a result of incomplete data from some of the SSA listed non-financial firms during the study's duration. These corporations were from the agricultural, manufacturing and construction industries. According to

Almustafa et al. (2023) the agricultural, manufacturing and construction industries are the significant industries that drive SSA's economy. A detailed sample selection process is provided in Table 1.

In addition, this sample was chosen due to the varied approaches to cash holdings and risk-taking behavior which influences the performance of agricultural, manufacturing and construction firms in contrasting ways. This sample helps the study to easily implement its methodology of comparing the outcome of each sector to determine variations in their respective performances. Appendix A provides a list of the individual countries from which the non-financial firms were sourced.

4.2. Measurement of Dependent Variable

The dependent variable in the study was corporate financial performance. Three measures of performance used in the study were return on corporate assets (ROA), return on corporate equity (ROE) and Tobin's Q. ROA was used to determine how well sub-Saharan listed non-financial corporations managed their assets to generate earnings (Chin et al., 2022). ROA was obtained as net income divided by total corporate assets. On the other hand, ROE was utilized to assess the effectiveness of sub-Saharan listed non-financial corporations in using equity capital to generate income for shareholders (Al-Shammari, 2021). ROE was obtained as net income divided by total shareholder's equity. Moreover, Tobin's Q was used to evaluate the market value of sub-Saharan listed corporations relative to the replacement cost of their assets. Tobin's Q was obtained as the market capitalization of sub-Saharan listed non-financial corporations divided by their respective book value of assets.

4.3. Measurement of Explanatory Variables

Explanatory variables for the study were cash holding and risk-taking. The study measured cash holding as total cash and cash equivalents divided by total corporate assets. The study used a ratio of total cash to total assets to measure cash holding since as suggested by Boamah et al. (2021), it considers the proportions of cash relative to corporate assets giving insight into the liquidity of the firm's resources. On the other hand, risk-taking was measured using the Z-Score. The Z-Score assesses a company's financial health providing a comprehensive view of its risk profile (Kogler, 2023). In addition, Zhou et al. (2023) suggest that the Z-Score is crucial for offering a more holistic risk assessment than single-factor methods. The Z-Score was obtained through dividing the sum of ROA and equity to asset ratio by the standard deviation of ROA for listed non-financial corporations. ROA was implemented in the calculation of the Z-Score as

Table 1. Sample selection process.

Step	Number of firms	Number of observations
All SSA listed non-financial firms as at 2021	334	-
Agricultural firms with incomplete data	(89)	-
Manufacturing firms with incomplete data	(85)	-
Construction firms with incomplete data	(77)	-
Final Sample	83	505

Source: Authors' own creation.

opposed to ROE and Tobin's Q because ROA considers a corporation's overall capability to generate income from its total assets hence offering a more inclusive measure of operational efficiency (Tsai & Fang, 2023). ROE focuses particularly on equity and does not capture a corporation's effectiveness in utilizing both debt and equity for increased corporate performance (Tran Minh et al., 2022). Moreover, according to Bsoul et al. (2022), Tobin's Q gauges the market value of a corporation's assets relative to their replacement cost emphasizing more on market perception.

4.4. Measurement of Control Variables

The study's control variables were board independence, GDP, age, size and industry dummies. Board independence was obtained as the total number of independent directors sitting on the board of directors of listed non-financial corporations during the study's duration. GDP was measured as the GDP growth rate during the study's duration. On the other hand, age was obtained as the total number of years since incorporation for each listed non-financial corporation. Size was measured as the natural logarithm of total assets of listed non-financial corporations during the study's period. Industry dummies were generated to capture cross-industry variations that could impact the linkage between cash holding, risk-taking and performance of sub-Saharan listed corporations. Table 2 presents the measurement and operationalization of study variables.

4.5. Model Specifications

The study employed the two-step GMM framework in modeling the linkage between cash holding, risk-taking and performance of sub-Saharan listed corporations. The GMM framework was crucial for mitigating endogeneity problems inherent when relating cash holding to risk-taking and performance of sub-Saharan listed non-financial corporations. Endogeneity, induced by either bidirectional causality or omitted variable bias often distorts causal inferences (Javed & Malik, 2021). The model adopted for this study was of the

Table 2. Measurement and operationalization of study variables.

Variable(s)	Type of the Variable(s)	Indicators	Measurement
Performance	Dependent Variable	ROA	Net profits divided by total assets
		ROE	Net profits divided by total shareholder's capital
		Tobin's Q	Ratio of market capitalization to book value of assets
Cash Holdings	Explanatory Variable	Cash divided by total corporation's assets (CashTA)	Ratio of cash to corporation's total assets
Risk Taking	Explanatory Variable	Z-Score	ROA plus equity to asset ratio divided by standard deviation of ROA
Board Independence (BI)	Control Variable	Total number of independent directors	Total number of independent directors
GDP	Control Variable	GDP growth rate	GDP growth rate
Age	Control Variable	Years since incorporation	Years since incorporation
Size	Control Variable	Logarithm of total assets	Logarithm of total assets
Industry dummy (INDMY)	Control Variable	Dummy	1, if the corporation is from the industry under consideration, 0 otherwise

form:

$$y_{it} = \beta_0 + \beta_1 y_{it-1} + \beta_2 CashTA_{it} + \beta_3 ZScore_{it} + \beta_4 BI_{it} + \beta_5 GDP_{it} + \beta_6 Age_{it} + \beta_7 Size_{it} + \beta_8 INDMY_{it} + \alpha_i + \mu_{it}$$

where, y_{it} represents corporate performance, β_0 is the intercept, $\beta_1 y_{it-1}$ shows the dynamic effect, $CashTA_{it}$ represent cash holding, $ZScore_{it}$ Represent the risk-taking, BI_{it}, GDP_{it}, Age_{it}, $Size_{it}$, and $INDMY_{it}$, represent board independence, gross domestic product, age, size and industry dummy, respectively. α_i represents the time-invariant random heterogeneity and μ_{it} is the error term.

5. Results and Discussion

5.1. Summary Statistics

Summary statistics serve as a foundation for further statistical analyses and contribute to the overall understanding of research findings (Ahmad & Azhari, 2021). The summary statistics are provided in Table 3. Table 3 shows the mean and standard deviation in brackets for non-financial corporations from the agricultural, manufacturing and construction industries listed in sub-Saharan Securities Exchanges.

Table 3 provides the mean and standard deviation of sub-Saharan Listed non-financial corporations.

The summary statistics indicate that the mean ROA of agricultural, manufacturing and construction firms was .187, .192 and .196 respectively. This implies that on average during the study's duration, agricultural, manufacturing and construction firms generated an income of 18.7%, 19.2% and 19.6% from asset deployment respectively. The high returns demonstrated by agricultural, manufacturing and construction firms denote that they were efficient in using their assets to generate earnings during the study's duration. Additionally, Table 3 demonstrated a mean ROE of .262, .279 and .258 for agricultural, manufacturing and construction firms respectively. This suggests that on average, agricultural, manufacturing and construction firms generated an income of 26.2%, 27.9% and 25.8% for every shilling deployed by the shareholders respectively. These returns further imply that agricultural, manufacturing and construction firms were profitable ventures for the shareholders during the study's duration. Furthermore, Tobin's Q demonstrated by agricultural, manufacturing and construction firms was .550, .569 and .551, implying that on average during the study's duration, the assets of agricultural, manufacturing and construction firms were valued below their replacement cost by the market.

Moreover, agricultural, manufacturing and construction corporations exhibited a mean CashTA of .086, .098 and .015 respectively, implying that on average during the study's duration, agricultural, manufacturing and construction corporations held 8.6%, 9.8% and 1.5% of their total assets in cash respectively. The Z-Score exhibited a mean of 2.214, 2.209 and .017 for agricultural, manufacturing and construction corporations respectively. This denotes that agricultural and manufacturing companies are financially healthy and have a lower risk of bankruptcy since they had a Z-Score above 2 during the duration of the study. However, with a mean Z-Score of .017, the construction companies are below the threshold of 2 implying they are at a higher risk of financial bankruptcy.

Table 3. Summary statistics.

Industry	ROA	ROE	Tobin's Q	CashTA	ZScore	BI	GDP	Age	Size	Industry Dummy
Agriculture	.187	.262	.550	.086	2.214	3.966	.059	61.651	4.874	.427
	(.488)	(.451)	(.365)	(.018)	(2.654)	(1.896)	(.143)	(30.815)	(.375)	(.235)
Manufacturing	.192	.279	.569	.098	2.209	4.068	.090	68.547	4.470	.538
	(.317)	(.425)	(.122)	(.025)	(.453)	(1.012)	(.152)	(15.397)	(.396)	(.113)
Construction	.196	.258	.551	.015	.017	1.028	.033	48.412	4.402	.241
	(.558)	(.431)	(.251)	(.057)	(1.325)	(1.401)	(.144)	(26.019)	(.731)	(.762)

5.2. Regression Analysis

The outcomes of the two-step GMM analysis are presented herein. The outcome shows the coefficients, standard errors and the t-values for each explanatory and control variable with regards to ROA, ROE and Tobin's Q in each industry. The outcomes are provided in Tables 4, 5 and 6 respectively.

5.2.1. Cash Holding and Performance of Listed Non-Financial Firms

Table 4 demonstrates the linkage between cash holding and ROA of SSA listed non-financial corporations in the agricultural, manufacturing and construction industries. The results indicate significant positive coefficients for the lag of ROA of agricultural, manufacturing and construction corporations. This implies that the current performance of agricultural, manufacturing and construction corporations is positively influenced by

Table 4. Association between cash holding, risk-taking and ROA.

	Agriculture			Manufacturing			Construction		
	Coeff	Std. Err	t-value	Coeff	Std. Err	t-value	Coeff	Std. Err	t-value
Lag1	.16*	.09	1.78	.13***	.04	3.25	.26**	.13	2.00
CashTA	.07**	.03	2.33	.10**	.05	2.00	−.07**	.03	−2.33
ZScore	.13**	.02	6.5	.10***	.03	3.33	−.69**	.31	−2.23
BI	.01	.01	1.00	.07***	.02	3.5	.17	1.41	.12
GDP	.04	.04	1.00	.02**	.01	2.00	.16	.16	1.00
Age	−.21	.17	−1.24	−.05**	.02	−2.5	−.01	.02	−.5
Size	.01	.06	.17	−.15	.15	−1.00	.15**	.06	2.5
INDMY	−.10*	.06	−1.67	.90**	.44	2.05	.05	.11	.45

***$p<.01$, **$p<.05$, *$p<.1$.

Table 5. Association between cash holding, risk-taking and ROE.

	Agriculture			Manufacturing			Construction		
	Coeff	Std. Err	t-value	Coeff	Std. Err	t-value	Coeff	Std. Err	t-value
Lag1	.32***	.11	2.82	.30***	.10	3.00	.26**	.11	2.36
CashTA	.07***	.02	3.5	.07**	.03	2.33	−.08**	.04	−2.00
ZScore	.03***	.01	3.00	.02**	.01	2.00	−.10**	.05	−2.00
BI	.05*	.03	1.67	.04	.03	1.33	.33	1.33	.25
GDP	.02	.04	.5	.02**	.01	2.00	.04	.26	.15
Age	−.03	.02	−1.5	−.30	.20	−1.5	−.01	.01	1.00
Size	.01	.08	.13	−.07	.19	−.37	.07	.06	1.17
INDMY	−.09*	.05	−1.8	.65*	.37	1.77	.16	.16	1.00

***$p<.01$, **$p<.05$, *$p<.1$.

Table 6. Association between cash holding, risk-taking and Tobin's Q.

	Agriculture			Manufacturing			Construction		
	Coeff	Std. Err	t-value	Coeff	Std. Err	t-value	Coeff	Std. Err	t-value
Lag1	.38***	.09	4.2	.82***	.29	2.83	.51*	.27	1.89
CashTA	.05***	.01	5.00	.10**	.05	2.00	−.07*	.04	−1.75
ZScore	.05	.03	1.67*	.02**	.01	2.00	−.38**	.16	−2.38
BI	.05	.05	1.00	.03	.02	1.5	.22**	.09	2.44
GDP	.01	.01	1.00	.02	.06	.33	.01	.75	.01
Age	−.10	.10	−1.00	−.43	.29	−1.48	−.14	.09	−1.56
Size	.08	.05	1.6	−.11	.13	−.85	.09***	.03	3.00
INDMY	−.01**	.05	−.2	.68*	.39	1.74	.13	.08	1.63

***$p<.01$, **$p<.05$, *$p<.1$.

their previous performance in their respective industries (Ahmad & Azhari, 2021). The positive lag for ROA of agricultural, manufacturing and construction firms further implies that the good performance these firms had in the previous year is likely to continue into the near future.

Concerning the explanatory variables, Table 4 indicated a positive linkage between CashTA and ROA of agricultural sub-Saharan listed corporations which was significant at 5%. The positive association implies that an upsurge in the cash holding of agricultural firms leads to an upsurge in the performance of agricultural corporations. According to Javed and Malik (2021) and Yilmaz and Samour (2024), agricultural corporations typically experience fluctuating cash flows due to seasonal variations in crop cycles and market demand. Holding more cash allows them to manage these fluctuations effectively ensuring smooth operations and timely investments explaining the positive association between cash holding and the performance of agricultural corporations. Similarly, while drawing from the resource-based theory, Nkuruziza et al. (2016) noted a positive linkage between cash holding and corporate performance of SSA agricultural corporations explaining that keeping high cash reserves provides an available resource that allow agricultural firms to undertake growth opportunities like acquiring more land and farming equipment. Contrastingly, drawing from the agency theory, Manogna (2020) noted a negative linkage between cash holding and corporate performance of agricultural firms contending that holding excess cash implies missed investment opportunities since the idle cash are not being deployed to maximize shareholders' wealth causing a misalignment between manager-shareholder interests which in turn hurts the overall performance of agricultural firms.

Table 4 also demonstrated a significant positive linkage between CashTA and ROA of manufacturing sub-Saharan listed corporations, implying that an upsurge in the cash holding of manufacturing corporations leads to an upsurge in their performance. The positive association between cash holding and the corporate performance of manufacturing corporations was significant at 5%. Kogler (2023) suggest that manufacturing corporations' operations require substantial working capital to finance inventory, receivables and production cycles. Maintaining higher cash reserves allows manufacturing corporations to manage working capital efficiently ensuring timely fulfilment of orders leading to increasing performance of sub-Saharan listed manufacturing corporations. Similarly, Barasa et al. (2019) explain that keeping high cash reserves enables manufacturing corporations to take advantage of lucrative investment opportunities when they present themselves, which in turn, leads to an upsurge in their performance. In contrast, drawing from the signaling theory, Grabowski (2016) argues that having excess cash reserves signals a lack of growth prospect to investors who in turn interpret this signal as poor strategic planning by the management of manufacturing corporations. Table 4, however, indicated a negative association between CashTA and ROA of construction firms which was significant at 5%. This denotes that an increase in cash holding hurts the performance of construction sub-Saharan listed corporations. This is the case because, construction projects typically have irregular cash flows due to factors like project delays hence holding excessive cash often leads to inefficiencies in meeting project demands, lowering the performance of construction firms (Khan et al., 2021). Hussain and Hadi (2019) also noted a negative association between cash holding and the performance of construction corporations explaining that construction firms deal

with large scale projects that require huge capital investments. Investments in these projects drive the revenue of construction firms hence holding excessive cash reserves leads to under investment in revenue generating projects which in turn hurts their performance.

Table 5 provides the outcome of the association between cash holding and ROE of sub-Saharan listed agricultural, manufacturing and construction companies. Table 5 indicates a significant positive lag of ROE for agricultural, manufacturing and construction firms, denoting that the previous year's performance positively influences the current performance of agricultural, manufacturing and construction firms in their respective industries. This also implies that the performance of agricultural, manufacturing and construction firms is to continue into the near future.

Additionally, Table 5 exhibited a positive association between CashTA and ROE of agricultural corporations which was significant at 1%. This implies that an increase in cash holding of agricultural listed corporations increases their performance. Zaiane et al. (2022) propose that agricultural prices are subject to market volatility influenced by weather conditions, global demand and supply shocks. Cash reserves provide a financial cushion against price fluctuations enabling agricultural firms to navigate turbulent market conditions and maintain stable performance explaining the positive association (Zhou et al., 2023). Similarly, Abubakar et al. (2019) noted a positive linkage cash holding and the performance of listed agricultural firms. As suggested by Abubakar et al. (2019), excessive cash reserves enable agricultural firms to invest in innovative farming technologies like precision agriculture that allows them to practice sustainable farming which in turn results in upsurged performance. Contrastingly, Adobor (2020) contends that the agricultural sector is capital intensive and not deploying cash results in lower economies of scale which in turn hurts the performance of agricultural firms. In addition, drawing from the cash irrelevance principle, Adobor (2020) argue that cash holding is irrelevant and does not influence the performance of agricultural companies explaining that factors like weather conditions and commodity prices are the major contributors to the performance of agricultural firms. Table 5 also indicated a positive association between CashTA and ROE of sub-Saharan listed manufacturing corporations, which was significant at 5%. The positive association implies that an upsurge in cash holding upsurges the performance of manufacturing firms. Tukamuhabwa et al. (2023) posits that manufacturing firms are part of complex supply chains with multiple stakeholders hence maintaining sufficient cash reserves allows them to mitigate supply chain disruptions leading to stable operations which in turn improves the performance of sub-Saharan listed manufacturing corporations. In line with this finding, Adams et al. (2025) explain that manufacturing firms face cyclical patterns of demand with cashflow fluctuating during low demand periods. Having cash reserves enables manufacturing corporations to continue operations during periods of low demanding resulting in improved operational efficiency which in turn improves their performance. Contrastingly, Artini and Sandhi (2020) noted a negative association between cash holding and ROE of manufacturing firms explaining that holding excessive cash lowers investors' confidence in manufacturing corporations making them to under-invest in manufacturing corporations which in turn hurts the performance of manufacturing corporations. However, concerning sub-Saharan listed construction corporations, Table 5 indicated a negative linkage between CashTA and ROE of construction-listed corporations at a 5% significance level.

The negative association implies that an upsurge in cash holding reduces the performance of construction-listed corporations. According to Yun et al. (2020), construction firms invest heavily in equipment, machinery and overhead costs which tie up significant cash. However, these fixed costs do not directly contribute to revenue generation unless actively utilized in projects that signal underutilization of resources, leading to reduced performance. Similarly, Lau and Chen (2021) explain that construction firms work on long-term projects with delayed cash inflows as a result of payment schedules that are linked to project milestones. Holding cash impairs the ability of construction firms to meet short-term project needs and liquidity requirements which in turn hurts the performance of construction firms.

Table 6 demonstrates the linkage between cash holding and Tobin's Q of agricultural, manufacturing and construction corporations. Table 6 implies significant positive coefficients for the lags of Tobin's Q for agricultural, manufacturing and construction companies. This means that the previous year's performance positively influences the current performance of agricultural, manufacturing and construction companies.

In addition, Table 6 demonstrates positive associations between CashTA and Tobin's Q in agricultural and manufacturing firms. The associations were however significant at 1% and 5% for agricultural and manufacturing corporations respectively. The positive association suggests that an increase in cash holding of agricultural and manufacturing corporations leads to an upsurge in performance in both agricultural and manufacturing firms. Ahmad and Azhari (2021) proposes that agricultural and manufacturing industries require significant investments in productive assets such as land and machinery; hence, holding cash reserves enables them to finance these assets internally leading to greater capacity for capital expenditure and increased corporate performance. Similarly, Nkuruziza et al. (2016) while studying the predictors of performance of agricultural firms in SSA, noted a positive linkage between cash holding and the performance of agricultural corporations attributing the improved performance to the role played by cash holding in ensuring reduced operational frictions. Barasa et al. (2019) also while studying manufacturing listed firms in SSA noted that cash holding acted as a ready asset that the managers could use to maximize profits on time as a result of timely investments into profitable ventures which in turn leads to an upsurge in their performance. Furthermore, Table 6 indicated a 10% significant negative association between CashTA and Tobin's Q which implies that an upsurge in cash holding of construction companies is detrimental to their performance. Construction firms generate revenue through project-based contracts with revenue recognized upon project completion. Hence, holding excess cash often indicates project completion delays leading to performance deterioration (Alnori, 2020). Contrastingly, Lau and Chen (2021) argue that the construction industry is full of unforeseen circumstances hence having cash reserves is justifiable as it provides a safety buffer against unexpected occurrences.

5.2.2. Risk-Taking and Performance of Listed Non-Financial Firms

Table 4 indicates a positive linkage between Z-Score and ROA of agricultural firms which was significant at 1%. This denotes that an upsurge in risk-taking leads to an upsurge in the performance of sub-Saharan listed agricultural firms. Agriculture is inherently risky due to factors like pests and weather-related disasters (Muqorobin et al., 2023) hence, as suggested by Jalali et al. (2020), agricultural firms take calculated risks such as investing

in new technologies using borrowed funds which help them to achieve higher performance. Similarly, Thai et al. (2023) explained that agricultural firms invested in different crops, livestock and geographic areas in an attempt to diversify their portfolios due to the high vulnerability to fluctuations in climatic conditions. Diversification allowed agricultural firms to take on risks in a calculated way and this in turn led to upsurging performances. Contrastingly, Adobor (2020) while investigating entrepreneurial failure in the agricultural sector, proposed an optimal approach to risk taking, argueing that taking on too much risk ended up hurting the performance of agricultural firms due to the huge losses incurred from the risky ventures agricultural firms undertook. Additionally, Table 4 exhibited a positive linkage between Z-Score and ROA of manufacturing listed corporations at a 1% significance level. The 1% significance level denotes that risk taking strongly impacts the performance of listed manufacturing corporations. The positive association on the other hand, implies that an upsurge in risk-taking upsurges the performance of manufacturing corporations. Lee (2023) and Sajid et al. (2023) propose that manufacturing is a sector driven by innovation and technological advancements hence manufacturing companies are willing to take risks by developing new products and services using debt financing. These innovations often lead to cost efficiencies and enhanced market differentiation ultimately boosting their performance. In line with this finding, Muqorobin et al. (2023) noted that manufacturing companies that aggressively took on risks achieved higher profits that allowed them to access favorable financing terms from financial institutions which was further used to enhance their performance. Table 4 however indicated a negative linkage between Z-Score and ROA of sub-Saharan construction listed corporations which was significant at 5% significance level. The negative linkage denotes that an upsurge in risk-taking is detrimental to the performance of listed construction corporations. According to Suttipun (2023), the construction industry requires substantial upfront investment in equipment, materials and labor hence relying heavily on risk-taking through debt financing to fund these investments increases construction companies' financial leverage and interest expense burden. Hence, in economic downturns, construction firms struggle to generate funds to cover debt service obligations hampering their performance. Contrastingly, Gong and Wang (2021) explain that risk-taking especially through research and development improves the performance of construction companies. According to Gong and Wang (2021) risk-taking through research and development drives innovation leading to technological advancements which in turn leads to an upsurge in performance.

Table 5 indicated a positive association between Z-Score and ROE of agricultural corporations which was significant at 1%. The positive linkage implies that an upsurge in the risk-taking of agricultural corporations upsurges their performance. Agricultural corporations often employ risk management strategies to mitigate weather-related and market fluctuation risks (Vo et al., 2023). As more risk management strategies are put in place through crop diversification, agricultural firms attain increased financial stability leading to enhanced performance (Tran & Le, 2020). Contrastingly, Thai et al. (2023) drawing from Miller and Modigliani irrelevance principle, argue that risk-taking is irrelevant and does not influence the performance of agricultural firms as in the case of factors like changes in climatic conditions. Besides, Table 5 indicated that Z-Score had a 5% significant positive relationship with the ROE of manufacturing listed corporations. The positive association suggests that when the risk-taking of manufacturing-listed

corporations goes up, the performance for manufacturing-listed corporations also goes up. This is because, as Mahto and Khanin (2015) proposed, manufacturing corporations often operate in diverse markets and product lines allowing them to spread risks and capture opportunities across different sectors. This diversification reduces manufacturing companies' overall risk profile leading to increased performance. Similarly, Muqorobin et al. (2023) argue that manufacturing companies tend to favor research and development which leads to innovations such as the development of new product brands which in turn drive up their performance. Moreover, Table 5 however indicated a negative association between Z-Score and ROE of construction firms with a 5% significance level, denoting that an increase in risk-taking reduces the performance of construction companies. Almustafa et al. (2023) propose that construction projects entail various risks including cost overruns and safety concerns which lead to project cancellations and financial losses which negatively impact the performance of construction firms. Hussain and Hadi (2019) also noted an inverse association between risk-taking and the performance of construction companies explaining that risk-taking has an insignificant impact on performance when compared to other factors like corporate governance.

Table 6 exhibited positive associations between Z-Score and Tobin's Q of agricultural and manufacturing companies which were significant at 10% and 5%, respectively. The positive associations imply that increased risk-taking in agricultural and manufacturing corporations increases their performance. According to Javed and Malik (2021), risk-taking behavior facilitates market expansion for agricultural and manufacturing companies often involving entering new geographical markets and boosting their performance. Similarly, while investigating the key predictors of performance of agricultural projects in SSA, Nkuruziza et al. (2016) explained that risk-taking through knowledge management and stakeholder engagement were valuable assets that improved agricultural projects' performance as they were used to source for ideas and financing. However, concerning construction firms, Table 6 demonstrated a negative linkage between Z-Score and Tobin's Q of sub-Saharan construction listed firms with a 5% significance level. The negative linkage implies that an upsurge in corporate risk-taking hurts the performance of construction corporations. Owing to the cyclical nature of the construction industry, Suttipun (2023) propose that construction companies often take uncalculated risks that lead to huge losses that hurt their performance. Consistently, Du et al. (2025) explain that construction firms especially those that are managed by young CEOs are prone to corporate misconduct which leads to uncalculated risk-taking behaviors which results in huge losses that end up hurting the performance of construction firms.

5.3. Robustness Check

The study used the ratio of cash to total equity and financial gearing as alternative measures for cash holding and risk-taking to assess the robustness of the results. These measures were selected because of their common occurrence in the literature reviewed by the study. In addition, cash to total equity explains the effectiveness of listed non-financial companies in generating income for every shilling invested by the shareholders while financial gearing measures the extent to which listed non-financial companies in SSA utilize debt financing to enhance their performance (Tables 7, 8 and 9).

Table 7. Association between cash holding, risk-taking and ROA.

	Agriculture			Manufacturing			Construction		
	Coeff	Std. Err	t-value	Coeff	Std. Err	t-value	Coeff	Std. Err	t-value
Lag1	.05*	.03	1.67	.08**	.04	2.00	−.08**	.04	−2.00
CashTE	.09*	.05	1.8	.06	.04	1.5	−.04**	.02	−2.00
FGearing	.08***	.03	2.66	.05***	.01	5.00	−.07**	.03	−2.33
BI	.03	.03	1.00	.03***	.01	3.00	.14	.41	.34
GDP	.07	.07	1.00	.02**	.01	2.00	.13	.13	1.00
Age	−.07	.05	−1.4	−.08**	.04	−2.00	−.03	.02	−1.5
Size	.03	.06	.05	−.06	.06	−1.00	.14***	.04	3.5
INDMY	−.09*	.05	−1.8	.80**	.39	2.05	.03	.21	.14

***p<.01, **p<.05, *p<.1.

Table 8. Association between cash holding, risk-taking and ROE.

	Agriculture			Manufacturing			Construction		
	Coeff	Std. Err	t-value	Coeff	Std. Err	t-value	Coeff	Std. Err	t-value
Lag1	.04**	.02	2.00	.04**	.02	2.00	−.04**	.02	−2.00
CashTE	.09**	.04	2.25	.07*	.04	1.75	−.07	.04	−1.75
FGearing	.05**	.02	2.5	.08**	.04	2.00	−.02**	.01	−2.00
BI	.09**	.04	2.25	.08	0.7	1.14	.24	1.53	.16
GDP	.03	.04	.75	.03***	.01	3.00	.07	.24	.29
Age	−.04	,03	−1.33	−.04	.04	−1.00	−.04	.04	1.00
Size	.03	.07	.43	−.07	.05	−1.4	.08	.07	1.14
INDMY	−.08**	.05	−1.6	.85*	.47	1.81	.25	.25	1.00

***p<.01, **p<.05, *p<.1.

Table 9. Association between cash holding, risk-taking and Tobin's Q.

	Agriculture			Manufacturing			Construction		
	Coeff	Std. Err	t-value	Coeff	Std. Err	t-value	Coeff	Std. Err	t-value
Lag1	.03***	.01	3.00	.06**	.03	2.00	−.09**	.04	−2.25
CashTE	.04	.04	1.00	.09*	.05	1.8	−.08	.05	−1.6
FGearing	.05	.07	.71	.09**	.04	2.25	−.06**	.03	−2.00
BI	.09	.09	1.00	.09	.07	1.29	.24**	.12	2.00
GDP	.04	.04	1.00	.02	.05	.40	.08	.65	.12
Age	−.03	.03	−1.00	−.55	.39	−1.41	−.11	.07	−1.57
Size	.09*	.05	1.8	−.13	.16	−.81	.07**	.03	2.33
INDMY	−.04**	.02	−2.00	.88*	.49	1.79	.12	.09	1.33

***p<.01, **p<.05, *p<.1.

The outcome obtained when CashTE (a ratio of cash to total equity) and financial gearing are used as alternative measures for cash holding and risk-taking are similar to those obtained from CashTA (a ratio of cash to total assets) and Z-Score used to generate GMM results. Specifically, both results have consistent coefficient signs thus depicting that the study's results can be arrived at even when alternative measures are employed.

6. Conclusion and Recommendation

The study probed the intricate linkage between cash holding, risk-taking and organizational performance in sub-Saharan countries utilizing listed non-financial corporations in the agricultural, manufacturing and construction sectors. Holding cash provides a financial buffer against unexpected challenges which in turn enables corporations to

weather economic downturns and capitalize on investment opportunities without using external financing. In addition, having cash reserves enhances corporations' liquidity levels thereby enabling them to meet their short-term financial obligations with ease. Having a strong cash balance also improves investor confidence in listed corporations as it signals improved financial stability leading to a positive impact on listed companies' stock prices. Meanwhile, accepting calculated risk-taking allows corporations to diversify their revenue streams and maintain a competitive edge through growth opportunities and adaptiveness to changing market dynamics. Consistently, accepting risks through research and development leads to increased innovations and technological advances crucial for improving corporate performance. The results of the study reveal a positive association between cash holding, risk-taking and performance among listed sub-Saharan non-financial corporations in the agricultural and manufacturing industries. This implies that an increase in cash holding and risk-taking in both agricultural and manufacturing corporations increases their performance in their respective industries. However, the findings demonstrated a negative linkage between cash holding, risk-taking and organizational performance of sub-Saharan listed non-financial corporations in the construction industry. This finding means that an increase in both cash hold and risk-taking hurt the performance of construction companies.

The findings underscore a nuanced understanding of these dynamics within distinct industry contexts. In the agricultural sector, where operational stability and market unpredictability often coexist, both cash holding and risk-taking positively correlate with performance. This alignment reflects the need for liquidity buffers to navigate volatile market conditions, coupled with a strategic appetite for seizing lucrative investments. Similarly, within the manufacturing sector featured by innovation and competition, cash reserves and increased risk appetite emerge as drivers of improved performance since manufacturers frequently require liquidity for research and development initiatives, as well as for capitalizing on emerging market trends through calculated risk-taking. Conversely, the construction industry characterized by cyclical demand patterns and capital-intensive projects, exhibited a negative linkage between cash holding, risk-taking and corporate performance because of the nature of construction projects, where excessive cash reserves imply missed investment opportunities while aggressive risk-taking leads to huge losses from failed construction projects. Based on these findings both of the study's hypotheses were rejected because they did not hold uniformly across all industries as they were true for agricultural and manufacturing firms but not true for construction corporations.

This study therefore recommends that agricultural and manufacturing companies implement strategies that increase their cash holding and risk-taking activities such as efficient working capital management and diversification, since cash holding and risk-taking are crucial for improving their corporate performance. Furthermore, the study recommends that construction firms should develop robust cashflow forecasting models to anticipate cash inflows and outflows accurately which will help to optimize cash reserves without holding excess cash unnecessarily. Additionally, the study recommends that construction firms should strengthen their risk mitigation processes as this will help reduce losses resulting from uncalculated risks.

The major limitation of this study is that it did not include all listed non-financial corporations due to incomplete data from some of them. Hence, the study recommends that

future studies seek to include an increased sample of listed non-financial corporations through increasing the number of industries to include other sectors like technology and retail. In addition, future studies can focus on the impact of macroeconomic factors like exchange rates and inflation while assessing the linkage between cash holding, risk-taking and corporate performance in different sectors of SSA listed non-financial corporations. Also, future studies can incorporate behavioral finance theories to explain why SSA listed non-financial firms hold cash and take risks the way they do.

Disclosure Statement

No potential conflict of interest was reported by the authors.

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APPENDIX A

Table A1. SSA countries represented in the study.

So. No.	Country	No. of Agricultural Firms	No. of Manufacturing Firms	No. of Construction Firms	Total
1	Angola	2	2	2	6
2	Benin	3	0	1	4
3	Botswana	3	2	4	9
4	Burkina Faso	1	1	1	3
5	Burundi	-	-	-	-
6	Cabo Verde	0	1	0	1
7	Cameroon	1	3	0	4
8	Central African Republic	-	-	-	-
9	Chad	-	-	-	-
10	Comoros	-	-	-	-
11	Cote D'Ivoire	1	2	2	5
12	Democratic Republic of the Congo	-	-	-	-
13	Djibouti	-	-	-	-
14	Eritrea	-	-	-	-
15	Eswatini	0	7	0	7
16	Ethiopia	-	-	-	-
17	Equatorial Guinea	0	0	0	0
18	Gabon	1	2	0	3
19	Gambia	0	1	1	2
20	Ghana	5	8	3	16
21	Guinea	0	1	0	1
22	Guinea-Bissau	2	1	1	4
23	Kenya	6	8	5	19
24	Lesotho	0	0	0	0
25	Liberia	-	-	-	-
26	Madagascar	-	-	-	-
27	Malawi	1	1	0	2
28	Mali	0	1	0	1
29	Mauritania	-	-	-	-
30	Mauritius	2	4	2	8
31	Mozambique	0	5	0	5
32	Namibia	4	5	2	11
33	Niger	2	3	2	7
34	Nigeria	5	12	6	23
35	Rwanda	0	4	0	4
36	Republic of the Congo	-	-	-	-
37	Sao Tome and Principe	-	-	-	-
38	Senegal	4	5	2	11
39	Seychelles	3	6	4	13
40	Sierra Leone	0	0	0	0
41	South Africa	33	45	20	98
42	Sudan	3	3	2	8
43	South Sudan	-	-	-	-
44	Somalia	0	3	1	4
45	Tanzania	3	7	3	13
46	Togo	5	9	5	19
47	Zambia	3	10	0	13
48	Zimbabwe	1	8	1	10
	Grand Total				**334**

(-) as denoted in the table implies that, that specific country had no stock exchange during the study's duration.