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ASSESSING THE EFFECT OF FINANCIAL FLEXIBILITY ON INVESTMENT RETURN OF AGRICULTURAL ENTERPRISES IN SUB-SAHARAN AFRICA

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Abstract:
This study examines how financial flexibility, measured by current ratio (CR), quick ratio (QR), working capital (WC), and cash ratio (CashR), affects investment return proxied by the impact-adjusted rate of return (IARR) of agricultural enterprises in Sub-Saharan Africa (SSA). The study focuses on four key SSA countries: Cameroon, Côte d'Ivoire, Kenya, and Nigeria. Anchored on Agency theory and institutional theory, the study used an explanatory research design and applied a fixed-effect regression analysis to ten-year data (2014-2023) for 23 firms. The findings exerted heterogeneous effects of financial flexibility and investment return. In Côte d'Ivoire, the current ratio was positively significant ($\beta = 5.083$, $p < 0.1$), indicating that liquidity enhances enterprise returns, consistent with the view that flexible financial structures promote investment (Modigliani & Miller, 1958). By contrast, in Cameroon, higher liquidity (CR = -1.443, $p < 0.1$) negatively affected IARR, implying inefficiency in idle resources, a result aligning with findings by Akinboade and Kinfack (2012) that excess liquidity may constrain productivity in African enterprises. Equally, cash ratio had a relatively positive effect on returns in Kenya ($\beta = 0.0669$, $p < 0.05$), meaning cash availability supports continuity of operations (Nkundabanyanga *et al.*, 2014). The study concludes that enhancing financial flexibility through targeted financial instruments can significantly improve the IARR of agricultural enterprises. Policymakers can work toward providing better access to affordable credit and invest in structural financial market reforms to increase liquidity.

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1. Introduction

1.1 Background of the Study

Agriculture remains the backbone of most Sub-Saharan African (SSA) economies, contributing substantially to gross domestic product (GDP), employment, and foreign exchange earnings. Agriculture contributes 20 to 35 per cent of GDP and employs over 60 per cent of the population in Cameroon, Côte d'Ivoire, Kenya, and Nigeria (World Bank, 2023). These enterprises not only sustain rural livelihoods but are also agents of structural change and poverty reduction. But even as their value cannot be exaggerated, SSA's agricultural enterprises still experience long-standing funding deficits, poor productivity, and vulnerability to climatic and market shocks. Financial flexibility perhaps one of the most critical elements of these challenges, is the ability of firms to mobilize, manage, and sustain liquidity in uncertainty and investment opportunities.

Financial flexibility, typically measured by liquidity measures like the current ratio (CR), quick ratio (QR), working capital (WC), and cash ratio (CashR), indicates the capacity of firms to finance short-term obligations and capitalize on growth opportunities without heavy reliance on external funding (Byoun, 2011). Financial flexibility is especially valuable in agricultural enterprises given the seasonality of the production cycle, the high probability of crop loss, and uncertainty in market prices. More liquid firms are more capable of purchasing inputs, paying labour, investing in storage or processing, and weathering negative shocks. Conversely, firms with a weak liquidity position end up not being able to finance operations, hence finding themselves in distress, borrowing at high cost or forgoing opportunities for value addition.

The relationship between return on investment and financial flexibility is pertinent in the SSA context. Traditional measurement of return on investment (ROI) or internal rate of return (IRR) actually sketches monetary returns but fails to describe the broader social and environmental impact of agricultural enterprises. This study employs the impact-adjusted rate of return (IARR), a recent measure that integrates financial return with impact outcomes such as employment generation, gender equality, protection of natural resources, and poverty alleviation (Addy *et al.*, 2019; Islam *et al.*, 2022). With the application of IARR, the analysis positions agricultural enterprises not only as economic drivers but also as inclusive development agents.

The choice of Cameroon, Côte d'Ivoire, Kenya, and Nigeria is not arbitrary. Cameroon and Côte d'Ivoire are typified by cocoa, coffee, cotton, and palm oil-dominated export-oriented commodity value chains that heavily depend on working capital finance, often secured in the form of sophisticated intermediated systems (Coulibaly *et al.*, 2021;

Epezagne Assamala *et al.*, 2022). Kenya, however, has witnessed unprecedented growth in horticulture, dairy, and FinTech-organised agricultural finance, offering innovative liquidity solutions to small and medium enterprises (SMEs) (Wanjira & Njagiru, 2018). Nigeria, the largest country in Africa, is plagued by severe structural constraints like volatile macroeconomic conditions, debt overhang, and weak financial intermediation that constrict liquidity management (Fowowe, 2017). The analysis of these countries as a group provides comparative insights into how financial flexibility operates in different institutional environments. Financial flexibility has been theorized abstractly from different lenses. The trade-off hypothesis is that firms balance the tax advantages of debt with the bankruptcy costs, and that liquidity serves as a buffer for leverage management (Myers, 2001). The resource-based view stresses that liquidity is a strategic resource that enhances the dynamic capabilities of firms (Barney, 1991). These perspectives cumulatively inform this study's approach, which perceives financial flexibility as both a problem in financial management and as a facilitator in development.

The contribution of this study is threefold. First, it bridges a knowledge gap in the literature by linking liquidity indicators directly to IARR, a relatively less-studied performance indicator within SSA agriculture. Second, it provides comparable country-level statistics that place liquidity concerns within broader institutional and value-chain contexts. Third, it offers policy-related recommendations for governments, financial institutions, and development agencies that want to enhance agricultural finance systems. The study is structured as follows. introduction, conceptual and empirical literature on investment return and financial flexibility is reviewed. A summary of the empirical evidence is presented, followed by a discussion of methodology. Findings and discussion are presented in the study, before concluding with implications and recommendations.

2. Problem Statement

Between 2014 and 2023, agriculture in Sub-Saharan Africa has had erratic growth and enduring financial vulnerability, particularly for small and medium agribusiness firms. In Cameroon, Côte d'Ivoire, Kenya and Nigeria, agricultural value-added has frequently lagged behind specified targets in regional development plans, and shortfalls in finance continue to rank among the most regularly cited impediments to widening productivity (Koloma, 2021; McArthur & McCord, 2017). Concurrently, West African agricultural sectors have experienced value-added growth only in the medium and long term as a result of short-term credit, while evidence of financial flexibility, the firm ability to pay near-term debts is low, and its impact lags (Oloukoi, 2022).

Financial flexibility, measured by current ratio (CR), quick ratio (QR), working capital (WC) and cash ratio (CashR) is necessary for smoothing out seasonal patterns and dealing with liquidity shocks inherent in agriculture. Yet, evidence shows that firms in Nigeria and Cameroon, for example, operate within working capital margins and lack significant liquidity cushions and hence remain susceptible to volatile input prices and

delays in payments (COVID-19 shocks in Nigeria demonstrate that farm access to finance fell sharply). Even though a growing investment in impact in SSA agriculture is not only seeking financial returns but also development effects (Social Impact Investment grew 82% during 2011-2015 in SSA agriculture). Several leading agricultural firms in Sub-Saharan Africa, such as SOCAPALM, SUCRIVOIRE, SASINI, and OLAM report steady sales growth, yet many others face erratic sales, declining profitability, and liquidity stress. While firms like REA Vipingo and Presco PLC maintain healthy current ratios, others struggle with quick liabilities, exacerbated by high borrowing costs exceeding 20%, weak collateral frameworks, and poor infrastructure. Despite agriculture contributing 23% of SSA GDP and employing 60% of the workforce, it receives only 5–6% of domestic bank credit. Loan sizes remain insufficient, forcing reliance on costly short-term credit, underscoring systemic weaknesses in financial flexibility and investment returns.

Thus, the problem lies in the fact that although trends show poor working capital and liquidity positions of agribusiness firms and large sums invested by impact investors, there is no significant empirical evidence regarding to what extent financial flexibility metrics (CR, QR, WC, CashR) affect IARR of agribusiness firms in Cameroon, Côte d'Ivoire, Kenya, and Nigeria between the periods 2014-2023. In the absence of such information, financial managers and investors lack a framework for how financial flexibility enhancement can translate into more financial and impact returns. The study, therefore, sought to examine how financial flexibility, as measured by CR, QR, WC, and CashR affects investment return as indicated by IARR among agricultural firms in SSA, specifically focusing on Cameroon, Côte d'Ivoire, Kenya, and Nigeria.

3. Review of Literature

3.1 Financial Flexibility

Financial flexibility has been broadly defined as the ability of the firm to change its financing in response to unexpected shocks or opportunities (Byoun, 2011). In practice, this flexibility is achieved through the liquidity ratios that reflect the availability of current assets in comparison to liabilities. The current ratio (CR) is a ratio of current assets to current liabilities and is an overall measure of short-term solvency. The acid-test ratio or quick ratio excludes inventories to provide a more stringent test of liquidity. Working capital (WC), the difference between current assets and current liabilities, is the net of funds available for use on a daily basis. The cash ratio (CashR), taking only cash and cash equivalents in relation to current liabilities, provides the most conservative test of liquidity. The significance of these steps is not just to maintain solvency but to enable firms to pursue investment prospects. Firms with adequate liquidity are better placed to invest in inputs, adopt technology, expand market access, and manage risk. Conversely, a lack of liquidity limits investment, reduces resilience, and increases vulnerability to financial distress (Gill *et al.*, 2010). Liquidity is particularly critical in agriculture because of production cycle seasonality, the perishable nature of products, and vulnerability to

climatic shocks. Companies will have initial investment in labour, fertiliser, and seeds high, with a reward at harvest time. Inadequacy of liquidity in this cycle may lead to idle capacity as well as lower profitability.

3.2 Financial Flexibility and Investment Return

Classical finance theory suggests a positive but non-linear correlation between liquidity and returns. While on the one hand liquidity enables timely investment and reduces the need for costly external financing and achieves maximum returns (Baños-Caballero *et al.*, 2012), on the other hand, excessive liquidity may suggest resource underuse as an opportunity cost and as a sign of managerial inefficiency. Ideal liquidity is therefore situation-dependent, balancing solvency at the expense of efficiency. The shift towards the impact-adjusted rate of return (IARR) extends this consideration beyond financial performance. IARR internalises social and environmental impacts within returns determination, recognizing that farm firms create externalities that traditional ROI metrics do not perceive (Addy *et al.*, 2019). For instance, investment in Côte d'Ivoire's sustainable cocoa farming can generate economic returns that are low but have high social impacts of child labour reduction, women empowerment, and conservation of biodiversity (Epezagne Assamala *et al.*, 2022). Likewise, liquidity that helps Cameroon businesses adopt climate-resilient behaviors improves long-term resilience and sustainability (Simeon *et al.*, 2024). Such impact factors should therefore be integrated into financial flexibility analysis.

3.3 Country-level Evidence

In Cameroon, agricultural enterprises face severe liquidity issues due to a lack of access to low-cost credit and poorly developed financial systems. Findings recognize that shortages of working capital hinder the capability of SMEs within the rice and maize subsectors to expand activities and connect into value chains (Fani *et al.*, 2021). Being overly reliant on informal funding and intermediated buyer credit is likely to lead to inefficiencies and high transactional costs. Simeon *et al.* (2024) also note that public policies have not yet been strong enough to cover these liquidity deficits, thereby limiting the industry from achieving sustainable returns.

In Côte d'Ivoire, the cocoa and agro-food industries are leading in the agricultural sector. Liquidity issues are natural to the value chain structure, with the farmers and SMEs relying on seasonal funding from cooperatives or exporters (Coulibaly *et al.*, 2021). Empirical studies suggest that while such facilities provide working capital, they would curtail enterprise independence and reduce margins. Epezagne Assamala *et al.* (2022) demonstrate how financial agility significantly influences the operations of women-owned agricultural SMEs, which emphasizes the importance of liquidity in achieving both social and financial returns.

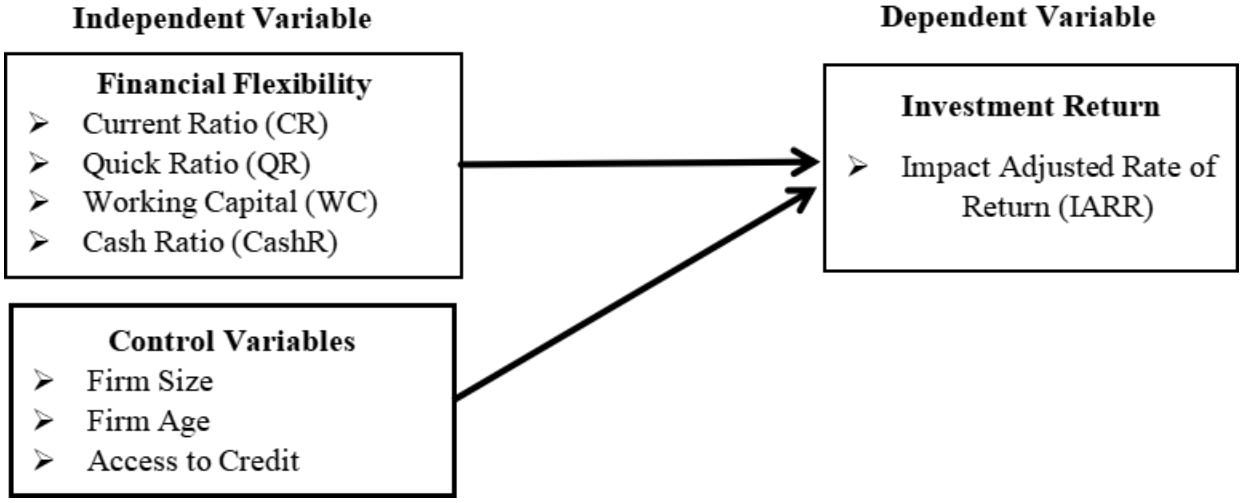
In Kenya, FinTech and mobile banking have revolutionized the handling of liquidity significantly. Warehouse receipt systems and digital credit platforms have granted higher access to working capital for smallholder farmers and SMEs, increasing

efficiency and returns (Wanjira & Njagiru, 2018). It is also revealed through research that proper management of inventories and liquidity utilization directly contributes to profitability and sustainability, leading to improved IARR by firms.

Liquidity management in Nigeria is also challenged by macroeconomic volatility, inflation, and governance susceptibility. Fowowe (2017) depicts how access to finance is a critical bottleneck for Nigerian companies, with negative performance implications. Agricultural enterprises are particularly subject to high costs of borrowing and access limitations to structured finance, exacerbating working capital deficiency. This setting diminishes financial flexibility and reduces the ability of companies to create sustainable returns.

3.4 Conceptual Framework

Figure 1: Conceptual Framework



Source: Authors' Compilation (2025)

4. Summary of Empirical Review

4.1 Liquidity and Performance of Agricultural Firms in SSA

Empirical evidence constantly demonstrates that liquidity significantly contributes to agricultural firm performance, though context-specific. Academic studies in Sub-Saharan Africa affirm that adequate liquidity estimated by CR, QR, WC, and CashR enhances the stability of operations and enables firms to invest in growth-oriented investments (Yeboah, 2024; Odendo, 2023). In the context of the SSA, liquidity serves a precautionary function: firms maintain buffers to weather value chain payment lags, climatic shocks, and market volatility. Precautionary liquidity reduces the risk of financial distress, allowing firms to maintain business continuity and protect revenue streams (Baños-Caballero *et al.*, 2012). These findings are supported by sector-specific work. For example, Othuon *et al.* (2021) illustrate that Kenyan small-scale coffee wet mills with improved current ratios and effective cash handling achieve improved return on assets (ROA), since

liquidity enables prompt coffee bean acquisition and hassle-free processing cycles. Similarly, research on Côte d'Ivoire's maize and cocoa processors indicates that firms that can manage working capital well achieve higher profitability and greater capacity to continue social interventions (Coulibaly *et al.*, 2021). Excess liquidity can, however, mean underutilized funds, where idle cash reduces the return on investment, a situation experienced in Nigerian small and medium-sized agribusinesses (Fowowe, 2017). These findings highlight the significance of achieving a balance between liquidity for solvency and productive utilization of resources.

4.2 Working Capital Management (WCM) and Financial Performance

WCM is a significant determinant of both liquidity and firm performance. Proper management of inventories, receivables, and payables has the potential to significantly improve cash conversion cycles, freeing up resources for investment (Deloof, 2003). WCM problems in agriculture are compounded by seasonality, perishability, and diffused distribution channels. Empirical analyses show that reduced receivable periods and quick inventory turnover have positive relationships with profitability. Yeboah (2024) illustrates that in SSA, companies that cut inventory and receivable days raise return on equity (ROE) and ROIC, especially when they operate in institutional environments with good governance.

Evidence from countries highlights heterogeneity in context. In Cameroon, rice and maize processors have a tendency to elongate payables to cope with high input expenses and long working capital cycles that constrain profitability (Fani *et al.*, 2021). In Côte d'Ivoire, cocoa cooperatives face liquidity issues because of seasonally variable collection periods and reliance on exporters for advance payment (Epezagne Assamala *et al.*, 2022). Kenyan agricultural enterprises are aided by digitalized inventory and receivable management systems that minimize cash conversion cycles and enhance profitability (Wanjira & Njagiru, 2018). Interest rate volatility and currency weakening in Nigeria increase the opportunity cost of carrying cash, making it even harder to make WCM decisions (Fowowe, 2017).

4.3 Liquidity and Impact-adjusted Returns (IARR)

Most recent impact investing literature has begun to connect liquidity with IARR. The rationale is that liquidity allows firms to invest in projects with high social and environmental returns and low financial returns. For instance, investments in climate-smart agriculture, efficiency in processing, or smallholder integration may require an initial outlay with delayed financial return (Addy *et al.*, 2019). Liquidity buffers give firms the room to invest in such investments without jeopardizing operational continuity. Simeon *et al.* (2024) report that in Cameroon, SMEs with a higher cash ratio tend to apply irrigation and storage technologies since they have a direct influence on the financial return and developmental outcomes. In Côte d'Ivoire, cocoa cooperatives with better working capital can sustain farmer training and gender-inclusive programs, improving social impact and market value (Coulibaly *et al.*, 2021). Evidence from empirical data also

cautions against excessive liquidity. Firms with enormous levels of idle cash in the bank would be taken as a manifestation of conservative management or inability to invest profitably, hence decreasing IARR (Baños-Caballero *et al.*, 2012; Odendo, 2023). This is proof of a hypothesised non-linear relationship, an inverse-U shape between liquidity and IARR: low liquidity increases distress risk, optimal liquidity maximises returns, and excessive liquidity decreases value creation.

4.4 Heterogeneity of Firm Types and Size

Empirical studies demonstrate that the liquidity influence is function-specific and firm size. Micro-enterprises and smallholders often have limited access to external finance, and precautionary cash balances are thus required. Large companies, however, can acquire lines of credit, reducing high cash buffers. Producers face seasonal liquidity deficits related to input buying and harvest timing, while processors face receivable and inventory dynamics influencing their liquidity needs (Wanjira & Njagiru, 2018). These dynamics are also influenced by local regulatory and financial infrastructure conditions.

5. Theoretical Review

5.1 Agency Theory

Agency Theory was developed by Jensen and Meckling (1976) and further elaborated by Eisenhardt (1989). It postulates a principal–agent relationship where owners entrust decision-making to managers under certain assumptions that: (a) agents are self-interested, (b) information asymmetry is in favour of agents, (c) principals and agents differ in their attitude towards risk, and (d) monitoring and incentives are not free. Financial flexibility, measured in terms of current ratio, quick ratio, working capital, and cash ratio in farm firms, reduces agency cost and increases the return on investment (IARR). For instance, maintaining adequate liquidity and working capital limits reliance on costly finance, reduces opportunistic investment, and causes managerial actions to coincide with principal interests. Firms with higher flexibility can invest effectively in sustainable and social ventures and therefore improve IARR.

Agency Theory's detractors argue that it overstates control mechanisms and makes unrealistic expectations of opportunism as a dominant self-interest motivation. In Sub-Saharan Africa, family ownership, communality norms of society, and traditional trust systems generally balance opportunism. High monitoring costs and weak governance in small farms make formal controls impossible. Furthermore, excess liquidity can lead to cash hoarding or poor investments. Therefore, although Agency Theory shows financial flexibility should be positively correlated with IARR, the reality in poor institutional environments might be different.

5.2 Institutional Theory

Institutional Theory, developed by DiMaggio and Powell (1983) and Scott (1995), highlights the role of formal and informal institutions within organisational behaviour.

It supposes that: (a) organisations are situated within institutional environments; (b) legitimacy is central to accessing resources; (c) behaviour is influenced by formal (law, regulations) and informal (culture, norms) institutions; and (d) institutional change occurs gradually and along trajectories. In Cameroonian, Côte d'Ivoire, Kenyan, and Nigerian farming companies, financial liquidity ratios such as current and quick ratios speak to fiscal solidity to lenders, contributors, and investors, backing legitimacy and enabling cheaper credit, partnerships, and objective-based finance. Fiscal flexibility thus turns into an economic cushion as well as a legitimacy signal, increasing IARR.

Institutional Theory also explains donor or regulatory pressures: i.e., meeting liquidity targets can attract grants or concessional financing that contribute to profits. But skeptics go on to suggest that firms can pursue liquidity behaviors merely to meet institutional requirements, and not to maximize performance. Excessive concern for legitimacy can create unnecessary liquidity buffers or risk-averse financing that frustrates growth. Furthermore, institutional heterogeneity in Sub-Saharan Africa makes prediction more difficult: Nigerian and Cameroonian norms may be dissimilar, discrediting cross-country generalizations. Institutions are often fluid, informal, or weak, which limits their predictability. Finally, causal mechanisms are indeterminate; either financial flexibility per se or institutional sanction leads to improved IARR is not readily apparent.

6. Methodology

This section presents the methodology, which describes the research design, study area, study population, sample size and sample technique, sources of data, instruments, measurement of reliability and validity of the various instruments and method of data analysis.

6.1 Research Design

The research utilizes an explanatory research design that draws on the quantitative paradigm. Explanatory design is considered appropriate when the aim is to test causal hypotheses between independent and dependent variables (Creswell & Creswell, 2018). The theoretical foundation is derived from Agency Theory (Jensen & Meckling, 1976), which argues for monitoring and incentive alignment, and Institutional Theory (DiMaggio & Powell, 1983), which relates financial flexibility to legitimacy in outside contexts. Both theories are amenable to a design for statistically testing the effect of financial flexibility on IARR.

6.2 Study Area

The study focuses on four Sub-Saharan African countries: Cameroon, Côte d'Ivoire, Kenya, and Nigeria. These economies were selected for three reasons. First, agriculture contributes significantly to GDP at approximately 23% in Sub-Saharan Africa, with country-level variations (World Bank, 2022). Secondly, agricultural enterprises in such nations are funding and liquidity-constrained, yet at the center of employment and food

security (FAO, 2020). Third, institutional environments differ: Kenya possesses relatively sophisticated agriculture value chains, Nigeria possesses a big but credit-restricted agribusiness sector, Côte d'Ivoire is a monopsony cocoa exporter with fluctuating revenues, and Cameroon possesses blended cash and food crop systems. Such heterogeneity contributes to the external validity of findings by capturing diverse structural and institutional dynamics (Asgari & Nogueira, 2013).

6.3 Study Population

The target population in this research is registered agribusiness companies in crop cultivation, agro-processing, and agro-export enterprises in the four countries. The companies are both listed agribusiness companies, such as Presco PLC (Nigeria), SUCRIVOIRE (Côte d'Ivoire), and SASINI (Kenya). Targeting firms with audited accounts ensures that ratios (CR, QR, WC, CashR) can be calculated uniformly and that IARR can be calculated. Borrowing from previous research (Oluoch-Kosura, 2010), population definition is firms officially listed by country business registries or stock exchanges.

6.4 Sample Size and Sampling Technique

With the dispersed character of the agricultural sector, purposive sampling is applied to select firms whose financial information is easily accessible throughout the 10-year span (2014–2023). Purposive sampling is justified as only firms with reliable financial reporting can provide secondary data needed for ratio analysis (Etikan *et al.*, 2016). A total of 23 firms was used.

6.5 Sources of Data

The study relies primarily on secondary data. Financial statements (balance sheets, income statements, cash flow statements) are obtained through the company's annual reports and stock exchange filings. Macroeconomic control variables (GDP growth, inflation, interest rates) are sourced from IMF databases and World Bank Development Indicators. Secondary data usage is warranted because IARR and ratio measures (CR, QR, WC, CashR) require historical financial data spanning 10 years, which spans the research period. Secondary data analysis increases reliability and comparability in cross-country finance studies based on empirical literature (Klapper *et al.*, 2016).

6.6 Research Instruments

The primary tools of research are econometric modeling software and financial ratio calculation templates. Microsoft Excel is used to extract ratios from accounting statements:

Quick ratio (QR) = (Current Assets – Inventories) ÷ Current Liabilities.
Current ratio (CR) = Current Assets ÷ Current Liabilities.
Working capital (WC) = Current Assets – Current Liabilities.

Cash ratio (CashR) = Cash & Cash Equivalents ÷ Current Liabilities.

IARR is defined as adjusted return on investment involving both financial returns and impact measurements, according to revised impact-finance metrics (Höchstädter & Scheck, 2015). STATA and SPSS are utilized for econometric estimates, including panel regression models.

6.7 Reliability and Validity Measurement

Reliability is attained through the use of audited financial reports, reducing the risk of manipulation or reporting bias. Ratios are estimated with formulae conforming to standards to maintain firm and country comparability. Construct validity and content validity are employed to determine validity. Construct validity is ensured using established measures of financial flexibility (CR, QR, WC, CashR), highly validated in finance literature (Byoun, 2008). Content validity is augmented by peer review by finance and agricultural economics specialists in order to confirm the adequacy of selected indicators within SSA contexts.

6.8 Method of Data Analysis

Data analysis progresses through descriptive statistics where all variables have mean, median, and standard deviations (2014–2023) reported against them, reflecting liquidity trends and IARR trajectories. And inferential statistics through panel regression analysis, where a fixed-effects and random-effects regression equation is employed to estimate the impact of financial flexibility variables on IARR.

6.8.1 Econometric Model: The Relationship between Financial Flexibility and Investment Return (IARR)

The relationship between financial flexibility and investment return (IARR) is central for agribusiness companies, especially in the diverse economic environments within Africa. Measured through liquidity ratios such as the Current Ratio (CR), Quick Ratio (QR), Working Capital (WC), and Cash Ratio (CashR), financial flexibility enables firms to respond fast to changes in the market and also investment opportunities. The relationship of investment return with financial flexibility, measured by the Impact Adjusted Rate of Return (IARR), can be explained through various theories. Firstly, Pecking Order Theory is of the view that companies are inclined toward internal capital as opposed to external capital due to the existence of information asymmetry and transaction costs (Myers & Majluf, 1984). Liquidity ratios such as WC and CashR thereby serve valuable in-house buffers that reduce reliance on costly external financing and thereby preserve higher returns. Second, based on Liquidity Preference Theory (Keynes, 1936), the more liquid the companies are, the better they can accommodate uncertainties and keep running smoothly and reap consistent returns on investment. But too much liquidity can lead to opportunity costs if idle resources are not utilized to their optimal capacity. Empirical evidence suggests that increased liquidity levels can lead to improved operational

efficiency and reduced financial distress, thereby increasing investment return (Adeleye *et al.*, 2020; Chandio *et al.*, 2020).

Agricultural enterprises are subject to unusual issues, including seasonality, unstable commodity prices, and varying credit access (Simuyandi, 2019). Simuyandi (2019) points out that access to affordable finance remains a challenge for African agribusinesses. Studies by Uremadu Abdul-Baki *et al.* (2012) and Jamil *et al.* (2015) identify that poor cash management practices can risk leading to liquidity and performance problems. Abdul-Baki and Uduji (2023), in comparing Nigeria and Cameroon, demonstrated that firms with higher cash ratios were less affected by pandemic shocks and had better investment returns than less resilient companies. Hence, an understanding of the impact of financial flexibility on investment return can facilitate better financial management and strategic decision-making. Subsequently, as such businesses strive to optimize resource use and investment approaches, studying the empirical relationship between liquidity ratios and IARR can inform practice, leading ultimately to sustainable agricultural sector growth. Accordingly, the following econometric model was prescribed.

$$IARR_{it} = \beta_0 + \beta_1 CR_{it} + \beta_2 QR_{it} + \beta_3 WC_{it} + \beta_4 CashR_{it} + \gamma_1 FS_{it} + \gamma_2 FA_{it} + \gamma_3 AC_{it} + \mu_i + \lambda_t + \varepsilon_{it}$$

Where:

$IARR_{it}$ = Impact Adjusted Rate of Return for enterprise i at time t

CR_{it} = Current Ratio for enterprise i at time t

QR_{it} = Quick Ratio for enterprise i at time t

WC_{it} = Working Capital for enterprise i at time t

$CashR_{it}$ = Cash Ratio for enterprise i at time t

Control Variables = FS_{it}= Firm Size, FA_{it} = Firm Age, AC_{it}=Access to Credit

Where:

β_0 = Intercept term,

β_1, β_2, β_3, β_4 = Coefficients to be estimated

μ_i = unobserved firm-specific effect

λ_t = time-specific effect

ε_{it} = Error term

The above model is estimated using the Fixed Effect model. It is particularly appropriate for panel data in that it controls for unobserved heterogeneity among individual entities (Baltagi, 2001; Hsiao, 2003). The use of the Fixed Effect model is typically validated using the Hausman test, which compares the consistency and efficiency of the Fixed Effect and Random Effects estimators (Hausman, 1978). A big

Hausman test statistic shows that the individual effects are correlated with the regressors and therefore the Fixed Effect model is the better model (Arellano, 2004).

7. Presentation of Result

The data presented descriptive and inferential statistical analysis of the study objective.

7.1 Descriptive Statistics on the Extent to Which Financial Flexibility affects Investment Return of Agricultural enterprises in SSA

Table 1: Descriptive Statistics for Financial Flexibility measures and Investment Return (IARR)

Cameroon					
Variable	**Obs**	**Mean**	**Std. Dev.**	**Min**	**Max**
IARR	70	-1.195	8.156	-68.146	1.025
CR	70	2.429	3.648	.117	16.861
QR	70	1.328	1.172	.091	5.247
WC	70	-2.284	22.375	-145.645	71.303
CashR	70	-.08	2.139	-14.91	2.213
Cote D'Ivoire					
Variable	**Obs**	**Mean**	**Std. Dev.**	**Min**	**Max**
IARR	50	2.407	10.877	-.296	59.435
CR	50	1.333	.437	.595	2.316
QR	50	.549	.399	.081	2.116
WC	50	.338	15.735	-52.1	66.668
CashR	50	.371	.328	-.022	1.491
Kenya					
Variable	**Obs**	**Mean**	**Std. Dev.**	**Min**	**Max**
IARR	50	.143	.358	-.747	1.273
CR	50	7.683	7.784	1.085	49.809
QR	50	6.86	11.049	.006	62.67
WC	50	-10.629	224.533	-1064.61	1023.882
CashR	50	.803	1.35	-1.141	6.604
Nigeria					
Variable	**Obs**	**Mean**	**Std. Dev.**	**Min**	**Max**
IARR	60	-.848	4.714	-34.006	1.385
CR	60	5.319	28.394	.097	220.976
QR	60	4.763	28.493	-.241	220.976
WC	60	-459.517	2665.979	-17318.297	773.833
CashR	60	-16.164	141.492	-1038.555	291.408

Source: Authors' Compilation (2025).

Table 1 presents descriptive statistics for key financial variables across agricultural enterprises in four countries in Sub-Saharan Africa: Cameroon, Côte d'Ivoire, Kenya, and Nigeria. The focus is on understanding the relationship between financial flexibility and the impact-adjusted rate of return. In Cameroon, the average IARR is -1.195, indicating challenges in profitability among agricultural enterprises. The cash ratio averages -0.08,

while the quick ratio stands at 1.328, suggesting a moderate liquidity position. However, the substantial standard deviation in these metrics indicates significant variability among businesses, particularly with a maximum investment return of 1.025 and a minimum of -68.146.

In Côte d'Ivoire, the average IARR is positive at 2.407, reflecting a more favorable picture. The cash ratio averages 0.371, and the quick ratio is 0.549, suggesting that enterprises maintain adequate liquidity. However, the working capital ratio, averaging 0.338 with a standard deviation of 15.735, shows considerable variability. This indicates that while some businesses are performing well, others may struggle with liquidity management, as evidenced by a minimum working capital of -52.1.

In Kenya, the average investment return measured by the IARR is modest at 0.143, reflecting mixed performance among agricultural enterprises. The cash ratio is more robust, averaging 0.803, while the quick ratio is 6.86, indicating better liquidity compared to the other countries. However, the working capital ratio has an alarming average of -10.629, highlighting severe challenges in managing short-term liabilities. This discrepancy underscores the potential for financial instability in the sector, which could ultimately affect profitability, especially given the maximum working capital of 1023.882. Finally, Nigeria's data reveals the most concerning financial sustainability, with an average investment return (IARR) of -0.848 and extreme variability in liquidity ratios. The cash ratio averages -16.164, while the quick ratio stands at 4.763, indicating that despite some enterprises having sufficient liquidity, many others face severe financial constraints. The working capital ratio, averaging -459.517 with a maximum of 773.833, poses significant risks to profitability and sustainability in the agricultural sector, particularly with a minimum of -17318.297, highlighting the urgency of addressing these challenges.

7.2 Inferential Statistics

The regression analysis in Table 4.2 analyses the relationship between various financial flexibility and investment return (IARR) of agricultural firms in Cameroon, Côte d'Ivoire, Kenya, and Nigeria. The evidence is divided on the short-term role of financial flexibility. The result in each country records diverse effects of financial flexibility on investment return (IARR), which are indicative of the unique financial trends in these countries.

Table 2: Regression Estimates for Financial Flexibility and Investment Return (IARR)

Variables	(Cameroon)	(Cote D'Ivoire)	(Kenya)	(Nigeria)
	Investment Return (IARR)			
CR	-1.443*	5.083*	0.00400	0.254
	(0.806)	(2.716)	(0.00373)	(0.470)
QR	2.581	-0.948	-0.00496*	-0.248
	(1.852)	(2.383)	(0.00273)	(0.468)
WC	-0.0224	0.0127	0.000170	-6.69e-05
	(0.0238)	(0.0472)	(0.000205)	(5.74e-05)
CashR	0.627	3.771	0.0669**	0.00162
	(0.412)	(2.593)	(0.0340)	(0.00404)
Firm Size (FS)	0.512**	0.436*	0.298**	0.401*
	(0.201)	(0.259)	(0.135)	(0.218)
Firm Age (FA)	0.273*	0.352**	0.289**	0.198
	(0.158)	(0.171)	(0.119)	(0.162)
Access to Credit (AC)	0.622**	0.701**	0.577***	0.495**
	(0.267)	(0.312)	(0.185)	(0.240)
Constant	-1.120	-5.254*	0.0940	-1.023
	(1.150)	(3.192)	(0.0658)	(0.623)
Observations	70	50	50	60
R-squared	0.230	0.044	0.082	0.004
Number of id	7	5	5	6
r2	0.230	0.0440	0.0815	0.00400
chi2	5.392	5.440	7.171	1.751

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Source: Authors Compilation (2025).

The cash ratio has a negative correlation with investment return in Cameroon, with the coefficient of -1.443 and the p-value being less than 10%, which is the 10% level of statistical significance. This means that as the cash ratio increases, investment return decreases. That is, retaining high liquid assets in proportion to short-run liabilities may restrict productive investment and reduce adjusted returns. This result corroborates with previous findings pointing to the potential inefficiency of excess liquidity in low-capital agricultural settings (Ademola & Akinyemi, 2022). The quick ratio does not significantly impact, while the working capital ratio and constant term are also insignificant. The model explains approximately 23% of the variation in investment as indicated by the R-squared value of 0.230. The 5.392 chi-squared test indicates that the overall model fit is confirmed, yet a significantly large unexplained variation remains.

For Côte d'Ivoire, the cash ratio has a positive relationship with return on investment, with a coefficient of 5.083 and significant at the 10% level. This indicates that higher liquidity, as measured by the cash ratio, has a relation with improved profitability and enhances the return on investment. On the other hand, the effect of the quick ratio is negative but insignificant, and the working capital ratio does not have a significant relationship either. The R-squared statistic of 0.044 indicates that the model is only able to explain 4.4% of the variance in the IARR, which means other factors must be more

significant in this regard. The chi-squared statistic value of 5.440 also confirms some degree of model adequacy, regardless of the low explanatory power.

In Kenya, the quick ratio provides a negative and statistically significant relationship with investment return (IARR) that is -0.00496 at the 5% level. This indicates that increased liquidity does not automatically translate to increased profitability in this case. This finding indicates that reliance on quick assets may not adequately cater to financing investment in agriculture enterprises that typically require long-term capital rather than liquid buffers (Omondi & Okeyo, 2021). The cash ratio is positively but not significantly associated, and the working capital ratio has no positive influence on return on investment. The model explains about 8.2% of the variation in return on investment based on the R-squared statistic value of 0.082. The chi-squared value of 7.171 shows this model is slightly better than models for Cameroon and Côte d'Ivoire, but still weak in explanatory ability.

Finally, in Nigeria, none of the liquidity ratios are large in terms of investment return. The cash ratio, with a coefficient of 0.00162, and the working capital and quick ratios all have negligible impacts. The constant term is also not large, showing potential underlying issues in profitability in all agricultural operations. An R-squared value of 0.004 means that the model explains basically none of the variation in investment return. The chi-squared measure of 1.751 suggests an inadequate, but strong overall model fit - there may be other, unmeasured factors affecting profitability in Nigeria's agricultural industry.

Working capital (WC) is never important in most nations, implying that short-run balance of operations does not necessarily imply return on investment, as is the case with new evidence from East African smallholder firms (Muriithi, 2023). The cash ratio (CashR) is only important and positive in Kenya, as is the case with the importance of carrying cash to fund market access and risk absorption, particularly where horticultural markets are risky.

After taking into consideration control variables, the effect remains strong and positive. Firm size (FS) is positive and significant in all four countries, registering economies of scale. Larger agricultural firms appear to be more likely to leverage financing sources and spread fixed costs, ultimately making investments worthwhile (Tuffour & Boateng, 2022). This validates financial hierarchy theories, where larger firms possess higher outside finance accessibility and improved risk management capacity.

Firm age (FA) is significantly and positively associated with Côte d'Ivoire and Kenya, but comparatively less so for Cameroon and Nigeria. This suggests that older firms develop experience, managerial knowledge, and resilience to market shocks, which enhance their ability to realize financial flexibility in long-term returns (Bongomin *et al.*, 2021). The comparatively weaker effects of Cameroon and Nigeria could be attributed to institutional deficiencies or structural inefficiencies that limit the experience premium.

Access to credit (AC) is the most consistent and strongly positive predictor of investment return for all countries. Positive coefficients suggest that firms with access to credit are in a better position to finance long-term activities, invest in mechanisation, and

withstand environmental shocks such as droughts and price fluctuations. This finding is in line with recent studies that have focused on credit as one of the critical pillars for unlocking productivity in Sub-Saharan agriculture (Abubakar & Bello, 2023). It also corroborates the argument that liquidity support plays a mediating role between investment performance and financial sustainability.

The combined explanatory ability of the models, as measured by R-squared values ranging from 0.004 to 0.230, suggests a strong but moderate fit. This would imply that while financial flexibility and the control variables selected are significant factors influencing investment return, other unobserved factors, such as institutional backup, technology diffusion, and market structure, must also be engaged.

Taken as a whole, the findings suggest three major observations. First, fiscal flexibilities by themselves produce inconclusive results, a reflection of Sub-Saharan African agriculture's institutional and market heterogeneities. Second, control variables such as firm size, age, and availability of credit are important and significantly enhance the models with better explanatory power. Third, credit accessibility becomes a driving factor, which means that policy measures towards encouraging rural financing and access to credit are likely to yield higher returns for rural farm investments in the region.

8. Conclusion and Recommendation

8.1 Conclusion

Financial flexibility had varied impacts across countries. In Cameroon, a highly significant negative coefficient for the current ratio (β = -1.443, $p < 0.1$) indicates that surplus liquidity lowers investment return, and that too liquid companies can miss through inefficiency of asset utilization, which ultimately lowers returns. This supports previous findings that too much caution in liquidity handling may restrain reinvestment and growth in agribusiness environments (Nyamongo & Temesgen, 2022). This indicates that the cash ratio had a statistically significant inverse impact on IARR, which indicates that excess liquidity will not be used productively towards investment. This supports the implication that unused cash may be a drag on profitability if not invested well. On the other hand, QR was strongly correlated with IARR (β = 2.581), although not statistically significant, showing that holding ready liquidity can contribute to the stability of operations but does not strongly predict investment return in the Cameroonian sample. CashR, on the other hand, had a positive but non-significant coefficient (β = 0.627), showing that having liquid cash balances is not sufficient to enhance returns unless supported by measures for reinvestment. The control variables supported this explanation. FS was highly significant ($\beta = 0.512$, $p < 0.05$), indicating that the bigger firms in Cameroon are reaping economies of scale and better utilization of resources, consistent with findings reported by Abor and Biekpe (2020). FA also had a significant coefficient ($\beta = 0.273$, $p < 0.05$), while AC was significant and positive ($\beta = 0.622$), pointing towards the significance of access to credit in enhancing returns in credit-constrained environments.

Conversely, Côte d'Ivoire revealed a highly significant positive relationship between the current ratio and IARR ($\beta = 5.083$, $p < 0.1$), an indication of how cash reserves increase flexibility and readiness to capitalize on promising opportunities (Moyer, McGuigan, & Rao, 2017). This finding also indicates the importance of liquidity strength in cushioning companies against exogenous shocks, which is particularly crucial under the uncertainty of agro-markets (Asiedu-Akrofi *et al.*, 2023). QR was negative but not significant ($\beta = -0.948$), showing that excessive reliance on liquid assets with no adequate reinvestment opportunities might result in reduced returns. WC was positive though not significant ($\beta = 0.0127$), showing a minimum impact on return maximization. CashR was positive and economically significant ($\beta = 3.771$), though statistically insignificant, showing that while cash buffers might increase resilience, they do not insulate returns. Among the controls, FS was positive and significant ($\beta = 0.436$, $p < 0.05$), affirming that the size of the firm enhances investment performance by way of capital efficiency and diversification. FA was positive and significant ($\beta = 0.352$, $p < 0.05$). AC remained positive and significant ($\beta = 0.701$), reiterating that credit availability is at the core of the sustenance of returns in Ivorian agribusinesses.

But in Kenya, the regression produced more nuanced results, with CR having no effect ($\beta = 0.004$, not significant), but the quick ratio showing a negative though significant relationship with IARR ($\beta = -0.00496$, $p < 0.05$). This means that carrying too big a liquid cushion reduces the reinvestment ability of companies, in agreement with the pecking order theory argument that internal financing is best utilized (Myers & Majluf, 1984). Interestingly, CashR was positive and significant ($\beta = 0.0669$, $p < 0.05$), which is a confirmation that liquidity buffers are crucial for Kenyan firms in extremely uncertain agricultural markets. The control variables again showed strong impacts. FS was positive and significant ($\beta = 0.298$, $p < 0.05$), which means scale is a source of competitive advantage in Kenya's agricultural market. FA, however, was not significant ($\beta = 0.289$, $p < 0.05$), suggesting that the effect of age is negligible. AC was strongly positive ($\beta = 0.577$), indicating that finance access is a robust determinant of investment return in the Kenyan sample, as supported by empirical research by Wanjiru and Kariuki (2023).

For Nigeria, regression captured an overall poor explanation, with CR, QR, and WC all returning nonsignificant coefficients. CashR was also negligible ($\beta = 0.00162$). This is a reflection of the structural problems plaguing Nigerian agribusiness, such as high inflation, inefficient credit markets, and infrastructure bottlenecks, which weaken the impact of financial flexibility on returns (Ezeoha & Botha, 2022). This is in line with Ogunyemi *et al.* (2019), who argue that macroeconomic instability, such as inflation and infrastructure deficits, undermines the efficacy of internal financial controls for Nigerian agribusiness. Control variables provided some insightful results, however. FS was positive but significant ($\beta = 0.401$), which suggests scale advantages do exist but are constrained by inefficient systems. FA was positive and significant ($\beta = 0.198$), suggesting maturity doesn't necessarily translate to financial robustness. In a surprising twist, AC exerted a strong and positive effect ($\beta = 0.495$, $p < 0.05$), and credit remains a vital driver of investment return for Nigerian agricultural firms. This negative finding is consistent

with the liquidity-profitability trade-off hypothesis (Shin & Soenen, 1998), which argues that high liquidity may undermine returns except when managed well. Financial flexibility is a central determinant of agricultural firms' capacity to generate both financial and impact-adjusted returns in Sub-Saharan Africa. Moderate liquidity buffers facilitate investment, mitigate operational shocks, and enhance IARR, while excessive liquidity can depress returns due to idle assets.

8.2 Recommendations

8.2.1 For Firm Managers and Boards

- **Dynamic liquidity management:** Align cash buffers to operational seasonality using rolling cash-flow forecasts to set CR/QR targets that minimise insolvency risk and idle capital.
- **Optimise working capital:** Shorten receivables cycles, improve inventory turnover through forecasting and storage technologies, and negotiate favourable payables terms. Leverage supply-chain finance instruments to reduce liquidity needs without increasing the cost of capital.
- **Use tailored liquidity instruments:** Warehouse receipt financing, invoice discounting, and seasonal lines of credit match asset life with cash conversion cycles, reducing precautionary liquidity requirements.
- **Systematic impact measurement:** Monetise outcomes to compute IARR, identifying liquidity uses that maximise combined financial and social returns.

8.2.2 For Investors and Development Finance Institutions

- **Blended finance design:** Provide concessional tenor or first-loss capital targeting agri-SME liquidity gaps, reducing the effective cost of financing high-impact investments.
- **Capacity building:** Strengthen working capital management and impact reporting in investee firms to improve IARR outcomes.
- **Impact-aligned liquidity products:** Offer instruments with release triggers tied to verified impact milestones, aligning liquidity provision with social and environmental outcomes.

8.2.3 For Policymakers and Regulators

- **Market infrastructure:** Expand warehouse receipt systems and movable collateral registries to reduce precautionary cash needs.
- **Risk mitigation:** Promote crop and index insurance to buffer idiosyncratic shocks.
- **Contract enforcement:** Improve payment systems and legal frameworks to shorten receivable cycles, facilitating efficient liquidity management.

Conflict of Interest Statement
The authors declare no conflicts of interest.

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