



Strathmore
UNIVERSITY

**THE RELATIONSHIP BETWEEN ANTI MONEY
LAUNDERING COMPLIANCE AND FINANCIAL SECTOR
DEVELOPMENT IN UGANDA (2012 – 2023)**

By

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DECLARATION

I declare that this work has not been previously submitted and approved for the award of a degree by this or any other University. To the best of my knowledge and belief, the Research Work contains no material previously published or written by another person except where due reference is made in the Research Project itself.

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ABSTRACT

This research paper examines the relationship between Anti-Money Laundering (AML) compliance and financial sector development in Uganda between 2012 and 2023. While Uganda has committed to adhering to the Financial Action Task Force (FATF) standards to combat money laundering and terrorist financing, the impact of these measures on financial sector development remains unclear. This study investigates whether compliance with FATF standards has contributed to strengthening Uganda's financial sector. The paper uses domestic credit to the private sector (DCPS) as a percentage of GDP as a proxy for financial sector development and the FATF compliance index as a measure of AML compliance. The study also considers the influence of control variables such as inflation, borrowing rates, and unemployment.

Employing a quantitative approach with an explanatory research design, the study analyses data from reputable sources, including the World Bank World Development Indicators and the Basel AML Index. Regression analysis is used to determine the relationship between AML compliance and financial sector development. The results indicate that AML compliance has a negative but statistically insignificant impact on financial sector development in Uganda. Similarly, inflation and borrowing rates exhibit statistically insignificant relationships with financial sector development. Unemployment also shows an insignificant association with financial sector development.

The findings suggest that while AML compliance enhances financial stability and reduces financial crime risks, the associated costs may hinder the ability of financial institutions, especially smaller banks, to grow and innovate. The study concludes that policymakers need to strike a balance between stringent AML enforcement and fostering a conducive environment for financial sector growth. This can be achieved through targeted policy reforms, support for financial institutions, and promoting financial literacy. The paper also highlights areas for further research, including sector specific analysis, the role of technology in AML compliance, and the impact of AML regulations on the informal sector.

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LIST OF ABBREVIATIONS

Abbreviation	Definition
ADF	Augmented Dickey-Fuller
AML	Anti- Money Laundering
AMLA	Anti- Money Laundering Act
AML/ CFT	Anti- Money Laundering and Combating the Financing of Terrorism
CPI	Consumer Price Index
DCPS	Domestic Credit to Private Sector
FATF	Financial Action Task Force
FDI	Foreign Direct Investment
FIA	Financial Intelligence Authority
GDP	Gross Domestic Product
GMM	Generalized Method of Moments
IFF	Illicit Financial Flows
KYC	Know Your Customer
ML	Money Laundering
SAR	Suspicious Activity Report
TF	Terrorism Financing
VIF	Variance Inflation Factor

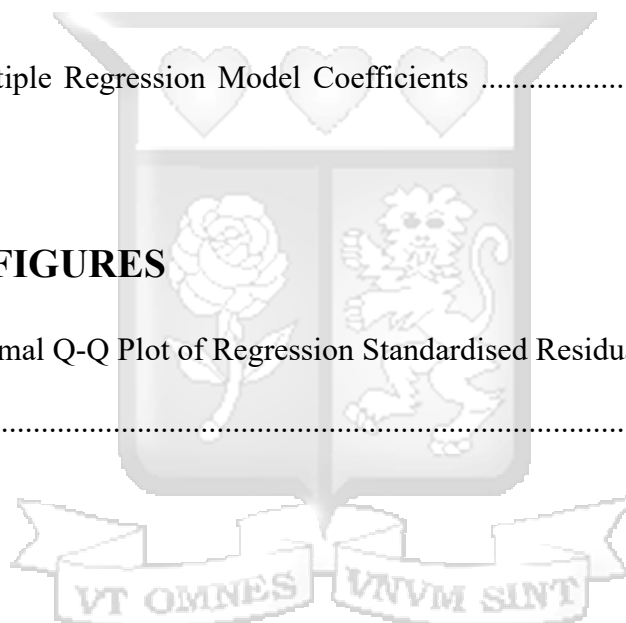
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1. INTRODUCTION

1.1 Background

The financial sector's strength and integrity are essential to economic growth and stability. However, these are increasingly threatened by money laundering (ML) and terrorist financing

(TF), which damage the integrity of financial institutions and deter foreign direct investment (FDI). One study shows that illicit cashflows in Africa, which have totalled to an estimated 1.3 trillion dollars from 1980 to 2023, drain domestic revenues that could develop the continent (*Claver, El Khoury, & Weeks-Brown*, 2023).

According to Fromiti (2018), money laundering is the processing of illegally earned money to disguise its illegal origin. This is done through a series of complex financial transactions designed to obscure the origin of the funds. Common activities under money laundering include the use of shell companies to disguise ownership of assets, structuring transactions to evade reporting requirements (smurfing), and funnelling illicit funds through legitimate businesses to mix illegal money with legitimate earnings. Like many countries, money laundering remains a significant challenge in Uganda, particularly given the country's growing financial sector. The Financial Intelligence Authority (FIA) of Uganda reported in their most recent financial year report that in 2021, approximately 12,790 cases of suspected money laundering activities were flagged (*Financial Intelligence Authority*, 2021). Additionally, the Global Financial integrity estimates that Uganda loses more than two trillion Ugandan Shillings to illicit financial flows (IFF) ("Trade-Based Money Laundering in Uganda," 2023).

According to Svirydzienka (2016), financial sector development is a mixture of depth, access, and efficiency. Anti- money laundering (AML) compliance refers to the measures and regulations that financial institutions implement to prevent, detect, and report money laundering activities. Funds from illicit sources are often concealed by using legitimate means such as complicated business arrangements or transactions between countries to make dirty money legitimate (Isolauri & Ameer, 2022). Other than criminals, reputable institutions and their employees may also manipulate legislation directly or indirectly to facilitate money laundering (Ahen, 2022). If left unchecked, money laundering may contaminate and destabilise financial markets and

transactions which endangers the economy. It may also cause a change in demand for money which would make banking more risky and increase volatility, causing a change in interest rates, hence also affecting aspects of society such as the socioeconomic order (Kinoti, 2012).

Alldrige, (2008) highlights that countries perceived to be plagued by financial crime face significant challenges in attracting and retaining foreign direct investment. The global community has responded to these threats by establishing stringent measures to combat illicit financial activities. Several regulatory structures have been developed globally with an increased quality of investigation due to money laundering being one of the few growing industries that seem to be prospering at present (Cox, 2014). One of these regulatory structures is the Financial Action Task Force (FATF). According to Nance, (2018), the FATF was established in 1989 after the introduction of the “Know-Your- Customer” (KYC) principle in Europe in 1980, which made banks responsible for ensuring that the names on the accounts reflected the beneficial owners of the funds. The FATF was established after the first criminalisation of money laundering in 1896, and the definition of money laundering for the first time in 1988. It was established with eleven members and given a one-year mandate to stop the flow of illicit funds from narcotics (Nance, 2018).

The Financial Action Task Force currently leads global action to block money laundering and terrorist financing. According to their website, the FATF has a mandate to discover how dirty money is made clean and used to fund terrorism, promote global standards, and determine whether members are taking necessary action. It continuously monitors how terrorists use and move funds and publishes reports to raise awareness of the latest money laundering techniques so that member countries can take the necessary steps to mitigate the problem. The organisation also sets standards by publishing recommendations that give a detailed list of measures to guide countries fight money laundering.

The framework includes a comprehensive list of laws, regulations, and operational measures to ensure national authorities take necessary action to detect and disrupt financial flows that fuel illegal activity. The recommendations are divided into seven areas that are: anti- money laundering and countering terrorism financing (AML/CFT) policies and coordination, money laundering and confiscation, terrorist financing and financing of proliferation, preventive measures, transparency and beneficial ownership

of legal persons and arrangements, powers and responsibilities of competent authorities and other institutional measures, and international cooperation. To ensure the implementation of their policies, the FATF monitors member countries to facilitate full and effective implementation. Countries that fail to implement the FATF standards are named a “Jurisdiction under Increased Monitoring”, or a “High-Risk Jurisdiction” and they are often referred to as “the black and grey lists”.

Uganda has subjected herself to the assessment and implementation of anti- money laundering and counter-terrorist financing measures set by the FATF since 2007 when she became a member (Mugarura, 2020). Uganda was placed on the Financial Action Task Force grey list in 2020 due to strategic deficiencies in its anti-money laundering and counter-terrorist financing measures and it remained on the grey list until 2024, when it was removed after making significant progress in addressing these deficiencies (PricewaterhouseCoopers, 2024). While AML compliance is intended to secure the financial system's integrity, its relationship with financial sector development in Uganda remains unclear. The enforcement of AML regulations presents challenges, particularly for smaller banks lacking the resources of larger counterparts. The associated costs can be burdensome, leading to resistance from managers concerned about the short-term impact on profitability. This study aims to provide a foundation for investigating the relationship between AML compliance and Uganda's financial sector development.

1.2 Problem Statement

Despite the global emphasis on AML compliance, there is limited understanding of how these regulations specifically relate to the financial sector in Uganda. While existing research (Antwi et al., 2023; Issah et al., 2022; Alldridge, 2008; Buchanan, 2004) often generalizes findings across developing countries, it overlooks the unique challenges faced by Uganda, particularly the influence of AML compliance on smaller financial institutions that dominate the country's financial landscape. This gap in knowledge makes it difficult to determine the trends in Uganda's AML performance indicators and to assess the true relationship between AML compliance and financial sector development. Moreover, the interaction between AML compliance and key economic control variables, such as inflation and unemployment, remains underexplored in the Ugandan context. These gaps in the literature hinder a

comprehensive understanding of how AML compliance shapes financial sector development in Uganda and underscore the need for focused research to address these critical issues.

Despite Uganda's dedication to adhering to the Financial Action Task Force recommendations and regulations aimed at combating money laundering and terrorist financing, the actual relationship between these measures and the development of Uganda's financial sector remains ambiguous. This study seeks to explore whether compliance with FATF standards has contributed to strengthening Uganda's financial sector.

1.3 Research Objectives and Questions

Research Objectives

This study aims primarily to investigate the relationship between AML compliance and financial sector development in Uganda. Specifically, the study aims to:

1. To determine trends in Uganda's AML performance indicators.
2. To assess the relationship between AML compliance and financial sector development in Uganda.
3. To evaluate the role of various economic control variables in shaping the relationship between anti-money laundering compliance and the development of Uganda's financial sector.

Research Questions

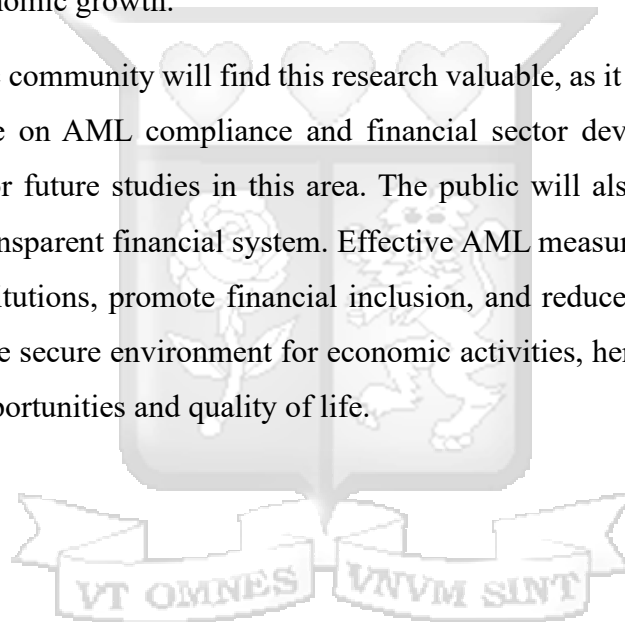
Based on these objectives, the study will address the following research questions:

1. What are the trends in Uganda's anti-money laundering performance indicators over the past decade?
2. How does AML compliance influence financial sector development in Uganda?
3. How do economic control variables (inflation, unemployment, borrowing rates) interact with AML compliance to affect the financial sector's development in Uganda?

1.4 Significance of the Research

The findings from this study hold significant value for several stakeholders, including policymakers, financial institutions, investors, researchers, and the public. Policymakers and regulatory bodies can use the empirical evidence to better understand the impact of AML compliance on financial sector development, hence helping them strike a balance between strict enforcement and fostering growth. Financial institutions will benefit from insights into how AML compliance affects their operations, profitability, and resource allocation, enabling them to optimize compliance strategies. Investors can make more informed decisions by understanding how AML compliance influences credit availability and sector stability, potentially boosting economic growth.

The academic community will find this research valuable, as it contributes to the body of knowledge on AML compliance and financial sector development, providing a foundation for future studies in this area. The public will also benefit from a more stable and transparent financial system. Effective AML measures can enhance trust in financial institutions, promote financial inclusion, and reduce financial crimes. This creates a more secure environment for economic activities, hence fostering improved economic opportunities and quality of life.



2. LITERATURE REVIEW

2.1 Introduction

This literature review investigates the theoretical and empirical perspectives on the relationship between AML compliance and financial sector development. It will also examine the mechanisms through which AML regulations influence financial institutions and broader economic indicators. Using previous research, this section aims to shed light on the existing knowledge on the topic, identify gaps, and establish the foundation for investigating the relationship between AML compliance and Uganda's financial sector development. Additionally, the review will address the role of control variables such as inflation, unemployment, and borrowing rates in influencing financial sector outcomes. By integrating these elements, the literature review aims to present a perspective on the complex relationship between AML compliance and financial sector health, with a particular focus on the Ugandan context.

2.2 Theoretical Framework

The theoretical framework for examining the relationship between anti-money laundering compliance and financial sector development draws from several theories in economics, finance, and regulatory studies. This section outlines key theoretical perspectives that inform our understanding of this relationship, highlights existing gaps, and positions this study within the broader literature.

Financial Intermediation Theory

Financial Intermediation theory aims to understand the roles played by intermediaries in the financial sector. Financial intermediaries such as banks are crucial for channelling funds from savers to borrowers, facilitating investment and economic growth (Allen & Santomero, 1997). Freimanis and Šenfelde (2019) use financial intermediation theory to explain the role of financial institutions such as banks in the economy through three intermediation functions: liquidity, risk, and information intermediation. This paper focuses on the liquidity intermediation role of financial institutions such as banks which involves the banking system mobilising available money by channelling funds from those who have savings and guiding it towards the pursuit of economic activities by availing it to those who have more important uses for

them (Drigă & Dura, 2015) It is important to note that effective financial intermediation requires a stable and transparent financial system. It is therefore paramount for financial intermediaries to be regulated to guarantee their effectiveness (Mayowa, 2020).

Financial intermediaries are regulated through anti-money laundering regulations which enhance the reputations of financial institutions and promote client trust in the financial system hence promoting its stability and transparency (Issah et al., 2022). Under AML regulations, financial intermediaries are required to conduct thorough due diligence and report suspicious activities. However, in developing economies such as Africa, research shows that excessive AML structures and regulations may hinder the development of the financial sector due to the costs associated with AML (Antwi et al., 2023). While these regulations impose additional costs, they also enhance the transparency and integrity of financial transactions. Barth et al., (2004) argue that well-regulated financial systems are more stable and efficient, as they reduce the risks associated with financial crimes and improve investor confidence.

In the context of Uganda, this theory can help explain the mechanisms through which AML compliance might influence financial sector development and is essential for policymakers aiming to foster both regulatory and economic growth. By ensuring that financial transactions are transparent and that financial institutions are accountable, AML regulations can enhance the efficiency of financial intermediation. The financial intermediation theory supports this paper's research objective which examines the influence of various control variables, such as borrowing rates, on financial sector development.

Agency Theory

According to Jensen & Meckling (1976), agency theory investigates the conflicts of interest between principals such as shareholders, and agents such as managers within organisations. The theory is relevant to understanding the dynamics within financial institutions in the context of anti-money laundering compliance. AML compliance requires financial institutions to implement stringent internal controls to detect and prevent money laundering activities. These controls are intended to align the actions of the managers (the agents) with the regulatory requirements imposed by the Financial Action Task Force. However, implementation of these controls may be costly and

complex which could potentially lead to conflicts between the goals of regulatory compliance and the institution's profitability and efficiency (Cumming & Johan, 2007).

Some of the significant operational costs often involved with the enforcement of AML regulations include investments in technology, staff training, and the establishment of dedicated compliance departments. According to Beck & Levine (2004), while these measures are essential for maintaining the integrity of financial systems, they can also reduce profitability, which could create a potential conflict between the need for compliance and the financial performance goals of the institution. In the Ugandan context, the introduction of enforcement of AML regulations has necessitated substantial changes within financial institutions such as introduction of stringent know your customer protocols and mandatory periodic AML audits. The costs associated with these changes are burdensome mainly to smaller banks which do not have the resources that larger institutions do. This may lead to a situation where managers/agents resist the implementation of comprehensive AML measures due to their impact on shortterm profitability, despite the long-term benefits of regulatory compliance (Jensen & Meckling, 1976).

There are broader implications of the impacts of AML compliance on agency dynamics within financial institutions for the financial sector's development in Uganda, that is effective AML compliance can enhance the stability and integrity of the financial institutions, thereby fostering a more robust financial sector. However, if the costs of compliance outweigh the benefits, it can hinder the growth and efficiency of the financial sector. This study aims to analyse these dynamics and provide insights into how AML compliance affects financial sector development in Uganda.

Crying Wolf Theory

The Crying Wolf Theory, originally developed by Becker (1968) states that stringent regulatory requirements can lead banks to engage in excessive reporting of suspicious activities to avoid penalties. While such regulations aim to combat financial crimes like money laundering, they can inadvertently lead to an overload of suspicious activity reports (SARs) which overwhelms regulatory bodies and dilutes the effectiveness of these reports. The theory highlighted that excessive fines and the threat of penalties force banks to report even marginally suspicious transactions.

Yan (2008) further explored this, demonstrating how banks, under the pressure of heavy fines, tend to produce a high volume of low-quality SARs. This phenomenon creates an "information overload," where genuine money laundering activities become harder to identify amid the noise of excessive reporting. The study concluded that this diminishes the effectiveness of AML efforts as regulators struggle to filter out the true positives and false positives. Takáts (2011) expanded on this by showing that such overwhelming volumes of reports can strain the resources of financial regulatory agencies, leading to inefficiencies and reduced effectiveness in combating financial crimes.

These studies suggest that while AML regulations are necessary to combat financial crimes, their implementation needs to be balanced to avoid the pitfalls of the Crying Wolf phenomenon. Uganda's regulatory bodies might face similar challenges if AML compliance leads to excessive reporting to avoid the risk of noncompliance fines. Some of the possible challenges include resource misallocation, operational inefficiency, and reputational risk which hinder financial sector development. Understanding this balance is crucial to ensure that AML efforts do not backfire by overwhelming the system, thereby reducing the effectiveness of financial oversight and hindering the development of the financial sector.

2.3 Empirical Review

This section reviews empirical studies that have examined the relationship between AML compliance and financial sector development. It highlights methodologies, data, and findings from various studies, comparing their relevance to the Ugandan context.

Global Context

Understanding the global implications of anti-money laundering compliance on financial sector development is crucial for framing the challenges and opportunities faced by different regions. Tsingou (2010) found that, although the AML regime was designed to address critical public policy issues such as corruption and terrorism, its practical effectiveness has been limited. He revealed that significant compliance costs were borne by the private sector, especially smaller institutions, and concrete evidence of the regime's impact on preventing financial crimes was lacking. The findings suggest that the AML regime often functions more symbolically than effectively.

Additionally, Elod Takáts (2011) introduces the "crying wolf" phenomenon, which discusses the unintended consequences of stringent AML regulations on financial sector performance.

Khrawish (2014) examines the impact of anti-money laundering on investment funding in Jordanian financial institutions using a sample of 50 institutions and a survey of executive managers. The study applies multiple linear regression to test its hypotheses and revealed that money laundering negatively affects investment funding, while AML measures (systems, regulations, controlling, auditing, training, and money transfers) positively impact investment funding. Hendriyetty and Grewal (2017) reviewed the effects of money laundering on a country's economy and explored measurement approaches. Their study used capital flight and economic measurement approaches to quantify money laundering's impact relative to economic conditions and highlighted that existing methods often focus on developed countries, offering new insights for measuring money laundering in developing nations.

Ofoeda et al. (2022) used the Prais-Winsten approach and the panel threshold estimation approaches to examine the impact of AML regulations on financial sector development in 165 economies, using data from 2012 to 2018. The study found evidence that stringent AML measures generally promote financial sector development. However, it was found that this positive effect is concentrated in developing countries. Ofoeda also investigates the relationship between AML regulations and financial inclusion across 212 economies. The study finds that AML regulations generally promote financial inclusion but highlights a threshold effect where excessive regulation can hinder access, particularly in developed economies. In contrast, African countries benefit from AML regulations at all levels, emphasizing the need for balanced enforcement to support financial inclusion (Ofoeda, 2022). Finally, Ajide and Ojeyinka (2024) examined the effect of anti-money laundering regulations on sustainable development in 72 developing economies and found that AML regulations generally support sustainable development, with moderate regulations being more effective than excessive ones.

African Context

In the African context, Aluko and Bagheri (2012) used conducted a legal and socio-economic analysis based on primary and secondary sources to explore how money

laundering hampers economic and political development in developing countries from both national and international law perspectives, with a focus on Nigeria from 1989 - 2011. The study finds that money laundering exploits weak regulations and financial vulnerabilities, deepening economic decline and political instability, while also linking corruption to these issues.

In another study, Issah et al. (2022) examined the impact of AML regulations on bank stability in Ghana. Using a sample of 25 banks from 2005 to 2018, the study employed a generalized method of moments (GMM) estimator to assess the relationship between AML compliance and bank stability. The results suggested that AML compliance enhanced bank stability by reducing the incidence of financial crimes and improving customer confidence in the banking system. Antwi et al. (2023) conducted a study on the impact of AML regulations on financial development in Sub-Saharan Africa. Using panel data from 30 countries over the period 2000-2020, the study employed a dynamic panel data model to analyse the relationship between AML compliance and financial sector development. The findings indicated that while AML regulations imposed significant costs on financial institutions, they also led to improved financial stability and increased foreign direct investment in the long run.

Finally, Ofoeda et al. (2023) analysed the impact of AML regulations on financial inclusion in 44 Sub-Saharan African countries from 2012 to 2019 using the SGMM technique. They found that AML regulations negatively affect account ownership and bank branches but in contrast also positively influence the number of depositors, borrowers, and ATMs with impacts varying depending on the effectiveness of AML regulations, with different effects observed in low- and high-effectiveness countries.

Ugandan Context

In the Ugandan context, The Anti-Money Laundering Act, 2013 (AMLA) designates financial institutions as 'accountable persons' responsible for customer identification, transaction monitoring, and reporting suspicious activities. This redefines the banker-customer relationship by adding new obligations beyond traditional practices. Ronald (2018) evaluated Uganda's legal and institutional framework for combating money laundering in relation to local and global standards by investigating the adequacy of AML laws, the effectiveness of institutions, and the impact of public ignorance on ML. He found that Uganda's AML/CFT regime, while significantly improved since 2005

with the enactment of the AMLA in 2013 and establishment of the FIA, still faces challenges such as underfunding, staffing shortages, and inadequate criminalization of terrorist financing that hinder its overall effectiveness in combating money laundering and meeting international standards.

Nakate (2018) examined the impact of Uganda's 2013 Anti-Money Laundering Act on commercial banks. Using both doctrinal and empirical methods, the research found that while the AMLA improved customer identification standards and transaction screening, it also increased costs and regulatory burdens for banks, complicating their relationship with customers. Similarly, Mugarura (2020) examined the impact of AML compliance on financial sector development in Uganda. Using data from 2007 to 2018, the study employed a vector autoregression model to analyse the relationship between AML compliance and various financial sector indicators. The findings indicated while AML improved financial stability and reduced the incidence of financial crimes, it also imposed significant costs on financial institutions, which hindered their profitability and lending capacity.

Gaps in the Literature

While existing literature provides a broad analysis of AML compliance and its impact on financial sector development globally and in Africa, there is a significant gap in context specific studies focused on Uganda. Most research generalizes findings across developing countries or emphasizes larger financial institutions, leaving a gap in understanding how AML compliance uniquely affects smaller financial institutions, which are more prevalent in Uganda. Additionally, there is limited exploration of the long-term versus short-term effects of AML compliance, particularly how the immediate regulatory burdens evolve in Uganda's financial sector.

Furthermore, while global studies have examined the impact of AML compliance on variables like financial stability and financial inclusion, there is insufficient analysis of these effects within the Ugandan context. The literature also lacks a detailed investigation into how control variables such as inflation, and unemployment interact with AML compliance in Uganda. Moreover, there is minimal empirical evidence on the "Crying Wolf" phenomenon in Uganda, where banks might over-report suspicious activities, potentially hindering the effectiveness of AML regulations. Addressing

these gaps will contribute significantly to the understanding of AML compliance's nuanced effects on Uganda's financial sector development.

2.4 Conceptualization Framework

The conceptualization framework for this study involves a clear articulation of the variables of interest, a brief discussion of the theories underpinning the study, and an exploration of the choice of variables.

Variables of Interest and Choice of Variables

Dependent Variable: Domestic credit to the private sector (DCPS) as a percentage of GDP.

Independent Variable: FATF compliance index.

Control Variables: Inflation rates (Consumer Price Index), borrowing (Rate of borrowing), and unemployment (Unemployment percentage of the total labour force).

This study draws on agency theory to explore how financial institutions manage regulatory compliance and operational efficiency. Financial intermediation theory is employed to analyse their role in facilitating capital flow within the economy. Additionally, the "crying wolf" theory highlights the unintended impacts of excessive reporting in anti-money laundering measures, emphasizing the importance of balanced regulatory frameworks.

The choice of variables is guided by the theoretical underpinnings and empirical literature on the relationship between AML compliance and financial sector development (Antwi et al., 2023; Asongu & De Moor, 2017; Tchamyou, 2019). The dependent variable, DCPS, is a key indicator of financial sector development, reflecting the extent to which financial institutions provide credit to the private sector. A high ratio of this variable is interpreted as a higher level of domestic investment since it implies that financial systems allocate more credit to the private sector (Antwi et al., 2023). The independent variable, the FATF compliance index, captures the extent of AML compliance in Uganda, with 0 being the highest score and 10 being the lowest score. Control variables such as inflation, borrowing rates, and unemployment are included to account for other factors that may influence financial sector development.

Consumer price index measures the rate of inflation (Issah et al., 2022; Antwi et al., 2023). Inflation leads to a rise in cost of business financing and interest rate which leads to a fall in the value of cash flows hence increasing operational costs of the business (Ofoeda, Agbloyor, & Abor, 2022). Unemployment, measured as a percentage of the total population, may affect financial sector development in that a rise in unemployment leads to a fall in loan repayments (Antwi et al., 2023). Borrowing measures the amount of funds borrowed from banks with high values implying confidence in the banking industry (Ozili, 2018).

Relationship Between Variables

The relationship between the variables is conceptualized as follows:

According to Reuter and Truman (2005) AML compliance, as measured by the FATF compliance index, is expected to exert a dual relationship with financial sector development in Uganda. On one hand, stringent AML regulations may increase operational costs for financial institutions and reduce short-term profitability. This could potentially restrict lending activities and increase transactional burdens. However, effective AML compliance enhances financial stability and fosters investor confidence over the long term. By mitigating the risks associated with financial crimes, AML regulations contribute to a resilient financial system capable of sustaining economic growth and attracting international investments. Ofoeda et al. (2020) also found that AML regulations generally promote financial sector development, however, this is concentrated in developing economies.

Boyd et al. (2001) found that inflation rates and borrowing costs are anticipated to negatively influence financial sector development. Higher inflation rates increase the cost of borrowing, making credit more expensive for businesses and individuals alike (Kagochi, 2019). This can constrain investment and consumption, thereby dampening economic activity and reducing overall credit availability. Similarly, elevated borrowing rates deter borrowing, limiting access to capital for productive investments and economic expansion.

Higher unemployment rates are expected to negatively affect financial sector development by reducing the demand for credit and increasing default risks. Elevated unemployment levels signify decreased consumer spending and business investment,

leading to lower loan demand and higher delinquency rates. This can strain financial institutions' asset quality and profitability, constraining their ability to support economic growth through credit provision.



3. METHODOLOGY

3.1 Research Design and Data Sources

A quantitative technique was used to analyse the relationship between domestic credit to the private sector as a percentage of GDP and compliance with FATF recommendations, among other variables. This research follows an explanatory/ causal research design, which aims to explain the cause-and-effect relationships between the independent and dependent variables. The study uses financial data from Uganda between 2012 and 2023 focusing on the identified dependent and independent variables. Data on the FATF compliance index, which assesses Uganda's adherence to the FATF's recommendations and the effectiveness of its AML/CFT measures, was sourced from the Basel Institute of Governance. The compliance levels in the Basel reports are ranked using a min max method into a 0 to 10 system, with 10 indicating the highest level of risk. Following previous studies, data on financial sector development, inflation, borrowing rates, and unemployment was collected from the World Bank World Development Indicators, the Basel AML index, and global development database, ensuring the credibility and reliability of the data used in this study (Ofoeda et al., 2022; Issah et al., 2022; Antwi et al., 2023; Bukhtiarova et al., 2020).

3.2 Data Specifications and Analysis

Data Specifications

The study utilized secondary, annual data, which is suitable for observing long-term trends. The frequency of annual data aligns with the reporting periods of financial metrics and facilitates a comprehensive analysis of yearly trends. The data sources are credible and widely recognized, ensuring the reliability and validity of the information.

Table 1: Summary of Variables, Descriptions, Data Sources, and Frequencies Used in the Study

Variable	Description	Source	Frequency
Domestic Credit to Private Sector (DCPS) as a percentage % of GDP	The dependent variable measuring a financial sector development.	World Development Indicators	Annual
FATF Compliance Index	Index measuring adherence to FATF recommendations	Basel Governance Ranking	Annual
Consumer Price Index (CPI)	A control variable measuring inflation rate	World Development Indicators	Annual
Rate of Borrowing	A control variable measuring interest rates on borrowing	World Bank	Annual
Unemployment	A control variable measuring the percentage of the total labour force unemployed	Trading Economics	Annual

Data Analysis

Preliminary Tests

Firstly, descriptive statistics were calculated to provide an overview of these variables, including their mean, median, standard deviation, and range. This summary helped in understanding the distribution and central tendencies of the data, which was crucial for further analysis. Before conducting the main analysis, several preliminary tests were performed to ensure the reliability of the data and the results. Time series data often exhibit trends and seasonality, which can affect the validity of regression models. Therefore, the Augmented Dickey-Fuller (ADF) test was used to check for stationarity

in the data. If the data are found to be non-stationary, differencing or transformation techniques are applied to achieve stationarity. Furthermore, Pearson correlation coefficients was calculated to examine the relationships between the independent variables. This identified any multicollinearity issues, where independent variables are highly correlated with each other, potentially distorting the regression results. A correlation matrix was generated to visualize these relationships. Additionally, the Variance Inflation Factor (VIF) was used to detect multicollinearity among the independent variables. A VIF value greater than 10 indicates significant multicollinearity, and steps will be taken to address this, such as removing or combining variables.

The Model

The primary econometric technique used in this study is regression analysis, which aided understanding the relationship between AML compliance and financial sector development in Uganda. The regression model is specified as follows:

$$DCPS_t = \beta_0 + \beta_1 AML_t + \beta_3 CPI_t + \beta_4 Borrowing_Rate_t + \beta_5 Unemployment_t + \varepsilon_t$$

Where;

- **DCPS_t** is the Domestic Credit to the Private Sector as a percentage of GDP at time t
- **AML_t** is the FATF compliance index at time t,
- **CPI_t** is the Consumer Price Index at time t,
- **Borrowing_rate_t** is the rate of borrowing at time t,
- **Unemployment_t** is the unemployment rate at time t, and ε_t is the error term.

The regression analysis quantified the relationship between AML compliance and financial sector development, controlling for other economic variables. The coefficients obtained from the regression indicate the direction and magnitude of the relationship between each independent variable and the dependent variable. By including key economic variables in the regression model, the study isolates and analyses their individual and combined effects on financial sector development, ensuring a comprehensive understanding of the factors at play.

4. FINDINGS

4.1 Introduction

This section discusses findings obtained on the relationship between AML compliance and financial sector development in Uganda (2012-2023). It entails the descriptive statistics, correlation analysis and regression analysis.

4.2 Descriptive Statistics

Descriptive statistics were used to summarize key metrics for the variables under study. Table 2 shows the results obtained.

Table 2: Descriptive Statistics for Key Variables

	Minimum	Maximum	Mean	Std.	Variance
	Statistic	Statistic	Statistic	Deviation	Statistic
DCPS_t	11.861	13.372	12.60258	.489459	.240
AML_t	7	8	7.67	.500	.250
CPI_t	2.205	12.679	5.05958	2.850173	8.123
Borrowing_rate_t	16	27	20.58	3.175	10.083
Unemployment_t	2	4	3.08	.669	.447
Valid N (listwise)	12				

The descriptive statistics indicate a relatively stable financial sector in Uganda, with domestic credit to the private sector averaging 12.6% of GDP (SD = 0.49), reflecting minimal fluctuations in credit provision. Anti-money laundering compliance scores also show consistency (mean = 7.67, SD = 0.50), though falling short of full compliance (score of 8). Inflation levels have shown significant variability (mean = 5.06, SD = 2.85), with rates ranging from 2.2% to 12.7%, potentially impacting financial development negatively. Borrowing rates, averaging 20.58% (SD = 3.18), exhibit notable variation, indicating high credit costs that could hinder private sector financing. The unemployment rate, averaging 3.08% (SD = 0.67), reflects a relatively stable labour market, indirectly supporting financial sector growth. Despite some

stability, high inflation and borrowing costs pose challenges to economic and financial development.

4.3 Diagnostic Tests

Diagnostic tests on the assumptions of regression analysis were done to ensure that the quality of quantitative assessment was valid.

Normality Test

The findings on normality test obtained as per Table 3 revealed that all the variables were acceptable since their Skewness statistics were falling between ± 2 to ± 2 . The kurtosis values were all close to 0, ± 2 or ± 2 indicating that the data were distributed towards respective means and hence normal. This implied that the data were appropriate for analysis using regression and correlation analysis.

Table 3: Normality Test Results

	Skewness		Kurtosis	
	Statistic	Std. Error	Statistic	Std. Error
DCPS_t	-.007	.637	-.742	1.232
AML_t	-.857	.717	-1.714	1.400
CPI_t	1.842	.637	4.423	1.232
Borrowing_rate_t	.520	.637	-.092	1.232
Unemployment_t	-.086	.637	-.190	1.232

The study further used normal Q-Q plots in accessing the fit of the regression model to ensure the dependent variable was normally distributed. The results are shown below.

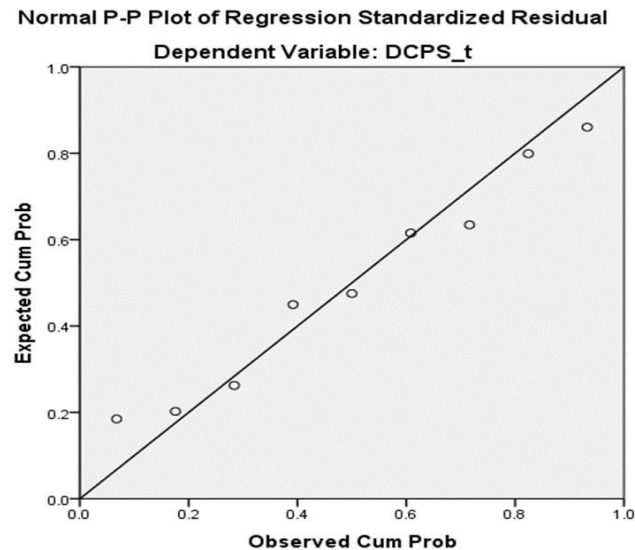


Figure 1: Normal Q-Q Plot of Regression Standardised Residual Dependent Variable: DCPS_t

Augmented Dickey-Fuller (ADF) Test

The Augmented Dickey-Fuller (ADF) test was undertaken to solve any issues pertaining to the unit roots. The criteria for acceptance or rejection are mainly by assessing the test statistic against the critical values by MacKinnon. This is aimed at determining the stationary nature of the variables. The results of the ADF test as shown by Table 4 indicate that the obtained statistics was -7.1313 which lie to the left of the critical values. Hence, the variables are concluded to be stationary.

Table 4: Results of ADF Test on Daily Stock Returns

	t-statistic	Prob*
Augmented Dickey-Fuller Test Statistic	-7.1313	0

Test critical values:

1% level	-2.091
5% level	-1.151
10% level	-1.10

*Mackinnon (1996) one-sided p-values

4.4 Correlation Analysis

The correlation analysis was used to evaluate the relationships between the study variables.

Table 5 presents the findings.

Table 5: Correlation Analysis

		DCPS_t	AML_t	CPI_t	Borrowing_rate_t	Unemployment_t
DCPS_t	Pearson Correlation	1				
	Sig. (2-tailed)					
AML_t	Pearson Correlation	-.797*	1			
	Sig. (2-tailed)	.010				
CPI_t	Pearson Correlation	-.360	.214	1		
	Sig. (2-tailed)	.250	.580			
Borrowing_rate_t	Pearson Correlation	-.820**	.868**	.588*	1	
	Sig. (2-tailed)	.001	.002	.044		
Unemployment_t	Pearson Correlation	.125	0.000	.389	.061	1
	Sig. (2-tailed)	.699	1.000	.211	.851	
	N	12	12	12	12	12

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

The findings reveal significant relationships between Uganda's financial and macroeconomic variables, with AML compliance negatively correlated with domestic credit to the private sector ($r = -0.797$, $p = 0.010$), suggesting that stricter AML measures, while improving oversight, reduce credit availability likely due to

heightened due diligence and cautious lending. Borrowing rates also show a strong negative correlation with domestic credit ($r = 0.820$, $p = 0.001$), indicating that higher borrowing costs discourage loan uptake. Conversely, AML compliance is positively correlated with borrowing rates ($r = 0.868$, $p = 0.002$), implying that compliance costs may increase financial costs for customers. Inflation demonstrates a significant positive correlation with borrowing rates ($r = 0.588$, $p = 0.044$), suggesting that inflationary pressures raise interest rates, thereby affecting credit costs. However, inflation's relationship with domestic credit is weak and insignificant ($r = -0.360$, $p = 0.250$), highlighting its limited direct influence. Unemployment shows no significant correlation with domestic credit ($r = 0.125$, $p = 0.699$), AML compliance ($r = 0.000$, $p = 1.000$), inflation ($r = 0.389$, $p = 0.211$), or borrowing rates ($r = 0.061$, $p = 0.851$), suggesting a minimal role in Uganda's financial dynamics. Overall, the findings indicate that while AML compliance enhances regulatory frameworks, it is linked to reduced credit access and higher borrowing costs, with inflation modestly affecting borrowing rates and unemployment playing a negligible role.

4.5 Regression Analysis Results

The study sought to establish the relationship between AML compliance and financial sector development in Uganda. A multiple regression model was used, and the regression model summary is presented in Table 6.

Model Summary

Table 6: Regression Analysis Results

R	R Square	Adjusted Square	R Std. Error of the Estimate
.873 ^a	.763	.526	.37644

a. Predictors: (Constant), Unemployment_t, AML_t, CPI_t, Borrowing_rate_t

b. Dependent Variable: DCPS_t

From Table 6 the coefficient of determination (Adjusted R²) implied that the regression could explain up to 52.6 percent of the variation in the financial sector

development in Uganda. The remaining percent of the variation could be due to other predictors not in the model. The model test of fitness results is presented below indicating the reliability of the model in predicting financial sector development in Uganda.

Table 7: ANOVA Results

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	1.823	4	.456	3.216	.000 ^b
Residual	.567	4	.142		
Total	2.390	8			

a. Predictors: (Constant), Unemployment_t, AML_t, CPI_t, Borrowing_rate_t

b. Dependent Variable: DCPS_t

The model result of fitness indicates an F-statistic of 3.216 and a p-value of $0.000 < 0.05$. This indicates that the model is fit for prediction at 95 percent confidence level. The study of multiple regression model coefficients obtained are presented in table 8.

Model Coefficients

Table 8: Multiple Regression Model Coefficients

Model	Unstandardized Coefficients	Standardized Coefficients	T	Sig.
	B	Std. Error	Beta	
1 (Constant)	16.035	3.350		.009
AML_t	-.186	.672	-.170	.795
CPI_t	-.007	.080	-.036	.939
Borrowing_rate_t	-.110	.111	-.713	.379
Unemployment_t	.105	.242	.135	.688

a. Dependent Variable: DCPS_t

The analysis indicates that AML compliance ($B = -0.186$, $t = -0.277$, $p = 0.795$) has a negative but statistically insignificant impact on domestic credit to the private sector (DCPS), suggesting that stricter AML measures did not meaningfully affect financial sector development in Uganda. Similarly, inflation, as measured by the consumer price index ($B = -0.007$, $t = -0.081$, $p = 0.939$), and the borrowing rate ($B = -0.110$, $t = -0.989$, $p = 0.379$) exhibited insignificant relationships with DCPS, with high p-values far exceeding the 0.05 threshold. These findings imply that inflationary pressures and borrowing costs were not critical determinants of financial sector development during the study period, potentially due to mitigating macroeconomic factors or regulatory dynamics. The unemployment rate ($B = 0.105$, $t = 0.432$, $p = 0.688$) also shows an insignificant relationship with DCPS, indicating that fluctuations in unemployment did not significantly influence financial sector development.

5. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter provides a summary of the key findings of the study, drawn from an analysis of the relationship between anti-money laundering compliance and financial sector development in Uganda. It presents actionable recommendations for policy and practice, followed by suggestions for further research.

5.2 Summary of the Key Findings

The study investigated the relationship between AML compliance and financial sector development in Uganda, focusing on trends in AML performance indicators, the impact of AML compliance, and the influence of key economic control variables such as inflation, borrowing rates, and unemployment. Over the study period (2012–2023), Uganda made significant progress in improving its AML compliance index, reflecting stronger adherence to international standards. The study revealed a negative correlation between AML compliance and DCPS, suggesting that stronger AML regulations are associated with reduced credit availability, which measures financial sector development. This could indicate that increased regulatory costs and stringent compliance checks discourage lending, limiting economic growth, which aligns with Ahmed et al. (2021) and Ofoeda, Agbloyor, Abor, et al. (2022), who observed similar trends in banking and microfinance sectors, respectively.

The role of control variables in shaping financial sector outcomes was also examined. Borrowing rates showed a significant inverse relationship with financial sector development, suggesting that higher borrowing costs discourage investment and limit the financial sector's growth potential. Additionally, there is a positive correlation between AML compliance and borrowing rates, implying that increased regulatory costs may be transferred to consumers via higher interest rates. Furthermore, the study's findings indicate that unemployment has an insignificant association with financial sector development in Uganda. This observation deviates from the expected negative relationship, where higher unemployment rates would typically lead to reduced credit demand and increased default risks. Kagochi (2019) found that in Sub-Saharan African countries, inflation negatively impacts financial sector development

due to the increased cost of business financing, interest rates, and operational costs for businesses. The insignificant relationship observed in the Ugandan context might point to specific labour market characteristics or social safety nets that buffer the financial sector from the adverse effects of unemployment.

However, the correlations between DCPS and inflation, as measured by CPI, are weak and statistically insignificant, indicating limited influence of inflation and employment rates on financial sector development. This contrasts with the general expectation that inflation and high borrowing costs would negatively impact credit demand and investment, thereby hindering financial sector development. Boyd et al. (2001) posited that inflation increases the cost of borrowing, making credit more expensive for both businesses and individuals, which could potentially dampen economic activity and reduce overall credit availability. The insignificant relationship observed in the Ugandan context could suggest that other macroeconomic factors or regulatory dynamics might mitigate the adverse effects of inflation and high borrowing costs on financial sector development.

Regression analysis highlighted AML compliance as a key driver of financial sector development in Uganda, although this relationship weakened as more variables were introduced into the model. In the simplest model, Model 1, AML compliance alone explained 63.5% of the variance in DCPS with a significant negative effect. In Model 2, the addition of the Consumer Price Index (CPI_t) increased the explained variance slightly to 67.7%, but CPI_t itself is not a significant predictor. When further variables like Borrowing Rate and Unemployment Rate are included in Model 3, the model explained 76.3% of the variance in DCPS_t but lost significance overall, with none of the predictors remaining significant individually. This suggests that AML compliance alone had the most consistent impact on credit availability, while additional variables contributed little to strengthening this relationship.

5.3 Conclusions

The study concludes that AML compliance in Uganda has enhanced financial transparency, institutional governance, and financial stability, thereby supporting investor confidence and reducing financial crime risks. However, the associated costs of compliance may hinder the ability of financial institutions to expand and innovate, particularly in a developing economy like Uganda. These findings align with the Financial Intermediation Theory, which underscores the importance of regulatory

measures in fostering financial system stability, even as they impose constraints on credit provision.

Overall, the results underscore the need for balanced AML frameworks that enhance financial integrity while minimizing potential adverse effects on financial sector growth. Policymakers must design AML measures that consider sector-specific dynamics and broader economic conditions to foster sustainable financial development alongside robust regulatory compliance.

5.4 Recommendations

Based on the findings, the study makes the following recommendations:

1. Policy reforms for balanced AML compliance. Policymakers should aim to balance between stringent AML enforcement and financial sector growth. Simplifying compliance procedures and adopting risk-based AML frameworks can reduce the regulatory burden on financial institutions. Tailored policies may also address sectorspecific challenges to ensure inclusivity while maintaining high compliance standards.
2. Support for financial institutions. The government and regulatory bodies should provide technical and financial support to financial institutions, particularly smaller banks, to help them meet AML compliance requirements. Initiatives such as subsidized training programs and grants for technology adoption could enhance their capacity to comply with regulations without compromising growth.
3. Enhancing financial literacy. Increased financial literacy among businesses and the public is essential to improving compliance and participation in the formal financial system.
4. Periodic assessment of AML policies. Regular reviews of AML policies are necessary to evaluate their impact on financial sector development. These assessments should involve input from financial institutions, businesses, and other stakeholders to ensure that regulatory measures remain effective and adaptive to changing economic conditions.

5.5 Suggestions for Further Research

The study suggests that future research should explore the impact of AML compliance on specific financial sectors within Uganda, such as microfinance, retail banking, and trade finance. These sectors may experience unique effects from AML regulations due to differences in transaction sizes, client demographics, and operational structures. Examining how compliance requirements influence financial sector development across these areas could provide critical insights into sector-specific challenges and opportunities. Additionally, further investigation into the role of technology in AML compliance, such as the adoption of digital solutions to streamline compliance processes and reduce operational costs, could offer practical strategies for enhancing efficiency while maintaining regulatory standards. Such research could assist policymakers in designing targeted AML frameworks that are both effective in combating financial crimes and supportive of financial sector growth, particularly in developing economies like Uganda.

The study also recommends investigating the broader economic implications of AML compliance, focusing on its interaction with inflation, borrowing rates, and employment levels, given their relevance to Uganda's financial sector development. Moreover, research on the relationship between AML compliance and the informal sector is critical, as the informal economy constitutes a significant portion of Uganda's financial landscape. Understanding whether AML regulations encourage formalization or impose barriers to credit access in the informal sector could provide actionable insights for enhancing financial inclusion. Finally, comparative studies between Uganda's AML compliance framework and those of similar economies could highlight best practices and lessons for creating AML policies that balance regulatory rigor with financial sector growth. Such research would contribute to the development of AML measures that not only promote financial integrity but also align with Uganda's unique economic needs and realities.

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