Impact of Financial Crimes and Terrorism on Banks' Financial Stability

Ibrahim Sulaiman Agboola and Umar Kabiru PhD
Department of Management Sciences,
Nigeria Police Academy, Wudil Kano
DOI: 10.56201/ijefm.v10.no11.2025.pg166.182

Abstract
This study examines the impact of financial crimes and terrorism on banks' financial stability, using a quantitative approach supported by verified international datasets. The quantitative approach is appropriate because the study seeks to statistically estimate the relationships between dependent and independent variables using verifiable macro-level datasets. The study employs the Panel Autoregressive Distributed Lag (P-ARDL) model to analyse both the short-run and long-run dynamics between variables. The P-ARDL technique is suitable because it accommodates explanatory variables with different orders of integration, and effectively handles heterogeneous panel structures involving multiple countries across time. Financial crimes are measured using three validated proxies: the Basel AML Index, the Corruption Perceptions Index (CPI), and Control of Corruption (CC) in the World Governance Indicators (WGI). Terrorism risks are measured using the Global Terrorism Index (GTI) and the WGI–Political Stability and Absence of Violence/Terrorism (PV). Bank financial stability is the dependent variable, which is measured using Bank Z-score. In addition, the study used Regulatory Quality (RQ), financial-sector indicators such as bank concentration and as well as macroeconomic variables such as GDP growth, and trade openness as control variables. Data was collected over a minimum time frame of 10 to 12 years (2012–2023) for a sample of 62 countries derived based on data availability. The long-run P-ARDL results indicate that financial crimes, measured through the Basel AML Index, Corruption Perceptions Index (CPI, inverted), and the World Governance Indicators' Control of Corruption (CC), significantly reduce the stability of banks. The short-run dynamics reveal that immediate changes in financial-crime and terrorism indicators also significantly affect bank stability, although the magnitude of these effects is smaller than in the long run. This study concludes that financial crimes and terrorism are significant and persistent threats to the financial stability of banks across both developed and developing economies.

Keywords: *Banks', Financial Crimes, Financial Stability, Terrorism,*

1.0 Introduction

The global banking sector remains pivotal to economic growth and financial intermediation; however, its stability is increasingly threatened by financial crimes and terrorism. Financial crimes have gained global attention due to their expansive implications for financial institutions. At the same time, terrorism financing has become a prominent issue, especially in the post-9/11 era, leading to extensive regulatory reforms globally (IMF, 2022). Financial crimes undermine investor confidence, disrupt internal controls, and reduce the capacity of banks to allocate credit efficiently, thereby threatening financial stability. In developed economies, the sophistication of cyber-enabled crimes has led to significant bank losses. For example, the 2021 report by the

Financial Action Task Force (FATF) revealed that financial institutions in the United States, the United Kingdom, and the European Union lost billions of dollars to coordinated cyber fraud and money laundering schemes. According to Barakat and Hussainey (2013), financial crimes significantly impair banks' transparency and governance, increasing systemic risk and reducing resilience during financial shocks. In developing economies, the situation is exacerbated by weak regulatory institutions, poor enforcement mechanisms, and high levels of corruption (Athari, Saliba, Khalife & Salameh-Ayanian (2023). Nigerian banks, for example, have been repeatedly implicated in internal fraud and illicit financial flows. The Nigeria Financial Intelligence Unit (NFIU) in its 2023 annual report highlighted a surge in suspicious transaction reports (STRs), linking several to politically exposed persons and organized crime syndicates. Such activities compromise liquidity, reduce investor confidence, and increase capital flight, thereby impairing financial stability.

The threat of terrorism adds another layer of complexity. Terrorist financing channels often exploit weak compliance mechanisms in the banking sector, particularly in developing economies. As noted by Schneider and Caruso (2011), terrorism has a significant negative impact on economic performance by increasing uncertainty and risk premiums. In regions like the Sahel and parts of the Middle East, terrorist networks exploit informal banking systems and poorly regulated financial institutions to launder money and finance operations. Empirical evidence from Asongu, Nwachukwu, and Orim (2019) indicates that terrorism significantly reduces financial development indicators in Sub-Saharan Africa, including private sector credit and banking depth. Meanwhile, in developed economies, banks are increasingly targeted by sophisticated terror-linked cyber-attacks, leading to potential disruptions in payment systems and systemic risk exposure. As noted by Capasso, D'Apice, and Pelagatti (2020), increased terrorism risk is associated with declining bank profitability and rising credit risk due to heightened economic uncertainty and risk aversion. Efforts to mitigate these threats have led to increased compliance obligations through Anti-Money Laundering (AML) and Counter-Terrorist Financing (CTF) frameworks. However, the effectiveness of these measures varies between jurisdictions. Beck and Brown (2020) underscore the challenges of regulatory arbitrage, especially when banks operate across jurisdictions with differing enforcement standards. Given these dynamics, the relationship between financial crimes, terrorism, and bank financial stability has become a focal point of contemporary economic and financial research. Yet, gaps remain in understanding the comparative impact across developed and developing economies, particularly in the context of institutional quality, regulatory effectiveness, and the evolving digital financial ecosystem.

In recent decades, the banking sector has become increasingly vulnerable to financial crimes and terrorism, which jointly pose substantial threats to its financial stability across both developed and developing economies. The stability of banks is essential for sustaining economic growth, maintaining investor confidence, and ensuring sound financial intermediation. However, escalating incidents of money laundering, cyber fraud, terrorist financing, and internal embezzlement are eroding these foundational roles, triggering growing concerns among policymakers, regulators, and scholars worldwide. Globally, financial crimes have been shown to significantly distort banking operations, increase operational costs, undermine risk management systems, and reduce profitability. According to the United Nations Office on Drugs and Crime (UNODC, 2020), an estimated 2–5% of global GDP, amounting to around USD 800 billion to USD 2 trillion annually, is laundered through the global financial system, much of it via banks. The impact is particularly severe in banks with weak anti-money laundering (AML) and counter-

terrorist financing (CTF) controls, where fraudulent transactions and illicit flows compromise asset quality and capital adequacy (Barakat & Hussainey, 2013; Capasso, D'Apice & Pelagatti, 2020).

In developed countries, although institutional frameworks for AML/CTF are relatively robust, financial crimes have morphed into highly sophisticated cyber-enabled threats. For instance, research by Singh, Jain, and Sharma (2021) in the European banking sector found a significant negative relationship between cybercrime exposure and return on assets (ROA), as well as return on equity (ROE), indicating that financial crimes can erode profitability even in advanced economies. Similarly, in the United States, the Financial Crimes Enforcement Network (FinCEN) reported over 3 million suspicious activity reports (SARs) in 2022 alone, signaling heightened threats to the stability of financial institutions. Conversely, in developing economies, especially in Sub-Saharan Africa, the challenges are compounded by weak governance, inadequate technological infrastructure, limited financial intelligence capabilities, and endemic corruption. In Nigeria, for instance, the Nigerian Financial Intelligence Unit (NFIU, 2023) reported a surge in suspicious transaction reports (STRs), most linked to politically exposed persons, criminal networks, and terrorist financing activities. According to the Nigeria Deposit Insurance Corporation (NDIC, 2023), the banking sector recorded over ₦9.5 billion in fraud-related losses in a single year, largely due to insider abuse and poor internal controls. These developments are not only eroding trust in the banking sector but are also straining capital buffers and disrupting financial intermediation.

Moreover, terrorism remains an escalating threat to financial stability, particularly in fragile regions. Terrorist groups such as Boko Haram and the Islamic State West Africa Province (ISWAP) have actively exploited formal and informal financial systems in Nigeria to finance operations, bypassing weak compliance systems and leveraging corruption within the financial sector (Asongu, Nwachukwu & Orim, 2019). In a broader study, Schneider and Caruso (2011) empirically demonstrated that terrorism significantly increases financial uncertainty and reduces the overall performance of the banking sector by raising credit risk and discouraging investment.

Despite growing empirical interest, the combined impact of financial crimes and terrorism on bank stability remains underexplored in comparative contexts. Most existing studies tend to either focus on individual countries (often in the Global North) or analyse financial crimes and terrorism in isolation (Capasso et al., 2020; Beck & Brown, 2020). Little attention has been paid to the intersection of these threats across varying economic and institutional environments. As a result, there is insufficient understanding of how contextual factors economic and institutional environments moderate or amplify the impact of these phenomena on banking sector stability.

In light of this gap, there is a pressing need for an empirical investigation that compares the impact of financial crimes and terrorism on the financial stability of banks across both developed and developing economies. Such a study is particularly crucial for countries like Nigeria, where fragile institutions, weak enforcement, and rising terrorism exacerbate vulnerabilities in the banking system. Understanding these dynamics is essential not only for academic advancement but also for informing evidence-based reforms aimed at safeguarding financial stability, enhancing regulatory oversight, and mitigating systemic risks in an increasingly complex and interconnected global financial environment.

Thus, this study aims to bridge that gap by examining empirical evidence on how financial crimes and terrorism affect bank financial stability in both developed and developing economies. Understanding these relationships will offer valuable insights for policymakers, regulators, and

banking institutions aiming to strengthen financial resilience and design robust risk management frameworks in an era of global interconnected threats.

2.0 Literature Review

Empirical studies across developed and developing economies have increasingly examined the implications of financial crimes and terrorism on the financial stability of banks. These studies provide evidence of the diverse pathways through which such threats compromise banking performance, erode investor confidence, and strain regulatory institutions. Capasso, D'Apice, and Pelagatti (2020) conducted an empirical analysis using a dynamic panel model across 119 countries and found that terrorism events have a statistically significant negative effect on financial development, especially in economies with weaker institutional frameworks. Their findings demonstrate that the frequency and severity of terrorism-related incidents reduce the ability of banks to maintain stable credit growth and investor trust, particularly in low-income countries. Beck and Brown (2020) provided evidence that financial institutions in countries with poor legal enforcement and high corruption levels are more susceptible to the adverse impacts of financial crimes. Using cross-country data from over 80 countries, their study concluded that internal fraud, cybercrimes, and money laundering weaken banks' asset quality, reduce profitability, and lead to systemic risk.

Durguti (2023) assessed anti-money-laundering (AML) regulations influence on banking sector stability in Western Balkan economies and examines the potential for strengthening banking sector policies and performance. Using a quantitative research design based on secondary data covering 2012–2021, the analysis applies both static and dynamic estimation techniques, including OLS and 2SLS models, to evaluate stability outcomes. The findings indicate that stricter AML implementation has a positive and statistically significant effect on banking sector stability across both methodological approaches. Asongu, Nwachukwu, and Orim (2019) focused on the role of terrorism in destabilizing financial systems in Sub-Saharan Africa. Using GMM estimation techniques, the authors found that terrorism incidents reduce banking sector efficiency and access to credit, with the most severe effects observed in Nigeria and Somalia. They emphasized the link between political instability and financial repression in shaping banks' vulnerability to external shocks. Barros, Faria, and Gomes (2021), assessed how money-laundering activities affect banking sector soundness in Portugal. The results showed that increases in suspicious transaction reports (STRs) and fraud-related activities exert a negative long-run impact on banking stability. The study also found that intensified illicit financial flows erode depositor confidence, raise compliance costs, and expose banks to reputational risks, ultimately threatening systemic stability. Abu-Bader and Abu-Qarn (2020), which examined the long-run and short-run effects of terrorism and political instability on the performance of the banking sector in Middle Eastern and North African (MENA) countries using a vector error correction model (VECM) framework. The result showed that terrorism significantly undermines return on equity (ROE), capital adequacy, and lending activities. They found that frequent terror attacks disrupt branch operations, electronic banking channels, and payment systems. The study concludes that financial crimes and insecurity impose deeper and more persistent risks on banking institutions operating in unstable environments.

In a developed economy context, Dreher, Kotsogiannis, and McCorriston (2009) explored how money laundering affects financial institutions in OECD countries. Their empirical findings confirmed that economies with higher levels of perceived corruption and illicit capital flows

experience greater volatility in banking profitability and capital flows. This instability, they argued, threatens long-term financial sector resilience. Similarly, Barajas, Chami, and Yousefi (2020), in an IMF Working Paper, examined the global cost of illicit financial flows on banking stability and concluded that money laundering and terrorism financing distort credit allocation and increase the risk profile of financial institutions. Their model found that countries with stronger AML/CTF frameworks experienced less volatility in capital adequacy and liquidity during global shocks. Furthermore, studies from advanced economies show more emphasis on technological crime and regulatory gaps. For instance, Levi and Soudijn (2020), in their work on financial crime ecosystems in Europe, analysed how cyber-enabled money laundering undermines the trust in financial institutions. Using interviews, forensic evidence, and transaction data from EUROPOL, the study noted that despite sophisticated regulation, gaps in fintech regulation and cryptocurrency exchanges create backdoors for laundering illicit funds, thereby affecting institutional stability and increasing compliance costs. Ferwerda and Unger (2021) analysed regulatory inconsistencies and enforcement gaps in anti-money-laundering (AML) compliance across major European and the United Kingdom banks. They study found that uneven supervision and loopholes in AML frameworks enable regulatory arbitrage, allowing banks to shift high-risk activities to jurisdictions with weaker enforcement.

In developing economies, Abiola and Dada (2014) examined how fraud and economic crimes affect the operational stability of Nigerian banks. Their findings show that internal staff fraud, embezzlement, and unauthorised transactions significantly increase operational risks and weaken banks' financial performance. The study further concluded that weak internal controls, poor risk management structures, and governance failures are major enablers of economic crimes within Nigerian financial institutions. Another cross-national study by Aluko and Bagheri (2012) employed qualitative analysis to compare money laundering trends and anti-laundering efforts in the UK and Nigeria. While the UK showed improvements in monitoring suspicious transactions, Nigeria's enforcement mechanisms remained weak, with regulatory capture and inadequate training of AML staff cited as key problems. This divergence explains the sustained threat financial crimes pose to Nigerian banking stability despite policy reforms.

2.2 Theoretical Framework

The theoretical foundation of this study is rooted in a combination of the Fraud Triangle Theory, Routine Activity Theory, and Financial Intermediation Theory. These theories provide a comprehensive framework to understand the mechanisms through which financial crimes and terrorism influence the stability of banks across different economic contexts. By applying a multi-theoretical perspective, the study captures the internal, structural, and systemic vulnerabilities of financial institutions when exposed to illicit financial activities and security threats.

The Fraud Triangle Theory, developed by Cressey (1953), remains one of the most influential theories explaining the occurrence of occupational fraud. The theory suggests that financial crimes are most likely to occur when three elements are present: pressure (often financial), opportunity (due to weak controls), and rationalization (justification of unethical behaviour). This framework is especially relevant in banking systems where employees, under economic stress, may exploit systemic loopholes to commit fraud. In the Nigerian banking context, empirical evidence supports this theoretical assertion. For instance, Otuya and Odita (2016) empirically investigated the impact of fraudulent practices on the performance of Nigerian banks

and found that internal fraud significantly undermines operational efficiency and investor confidence. Their study, which employed regression techniques to analyse survey data from bank employees and auditors, underscores the relevance of the Fraud Triangle in explaining the persistent incidence of insider fraud in Nigeria's banking system, where opportunities abound due to limited enforcement of internal controls and inadequate monitoring mechanisms.

Complementing this internal perspective, the Routine Activity Theory by Cohen and Felson (1979) offers a situational crime prevention framework. It posits that for a crime to occur, there must be a convergence of a motivated offender, a suitable target, and the absence of a capable guardian. This theory is particularly applicable in understanding financial crimes and terrorism-related activities that target financial institutions in both physical and cyber contexts. In developed economies, advanced financial technologies and global payment platforms have increased the "suitability" of banks as targets, especially when cybersecurity measures are weak. Empirical work by Levi and Soudijn (2020) lends strong support to this theory. Their study on cyber-enabled money laundering across European banking systems revealed that transnational criminal networks exploit vulnerabilities in online payment platforms due to regulatory inconsistencies and weak technological safeguards. These findings are also applicable in developing economies like Nigeria, where the Financial Action Task Force (FATF, 2023) reported significant gaps in the country's anti-money laundering (AML) and counter-terrorist financing (CFT) regimes. The FATF's mutual evaluation of Sub-Saharan African countries flagged Nigeria's financial institutions as being particularly susceptible to terrorism financing due to lax surveillance, poor implementation of know-your-customer (KYC) protocols, and the pervasive use of unregulated informal financial channels.

To provide a broader macroeconomic perspective, the Financial Intermediation Theory developed by Gurley and Shaw (1960) underscores the critical role banks play in mobilizing savings and allocating credit in the economy. Financial intermediaries are essential to the smooth functioning of any financial system, and their stability is key to economic growth. However, when financial institutions are affected by crimes such as fraud, money laundering, and terrorism financing, their capacity to perform these roles diminishes. Empirical support for this theory is provided by Aluko and Bagheri (2012), who examined the effect of money laundering on economic stability in Nigeria and the United Kingdom. Their findings revealed that high levels of illicit financial flows severely disrupt the ability of banks to mobilize funds, reduce public trust, and expose them to reputational risks. The situation is even more precarious in Nigeria, where financial institutions struggle with poor enforcement of AML/CFT frameworks. Moreover, Ahmed and Olanrewaju (2021) investigated the relationship between terrorism and bank profitability in Nigeria, with a focus on the insurgency-ravaged northern region. Their study found that terrorism significantly increases operational costs and reduces banks' profitability due to physical attacks on infrastructure, reduced customer patronage, and an overall decline in economic activity. These disruptions not only affect the immediate financial performance of banks but also impair their intermediation functions, which are central to the financial system.

Taken together, these three theories provide a multi-level understanding of how financial crimes and terrorism impact bank stability. The Fraud Triangle Theory explains the behavioural motivations behind insider financial crimes; the Routine Activity Theory accounts for external threats from organized crime and terrorism by focusing on situational vulnerabilities; while the Financial Intermediation Theory underscores the broader implications for economic and financial stability. By integrating these frameworks, this study offers a holistic lens through which to

examine the vulnerabilities of banking systems in different economic contexts. In developed economies, the emphasis may lie in technological sophistication and regulatory enforcement, whereas in developing countries, the challenges are more multifaceted, involving weak institutions, insufficient law enforcement, socio-political instability, and economic hardship. Understanding these theoretical dimensions is essential to formulating robust policy responses and financial regulatory frameworks to safeguard the stability of banks against criminal and terrorist threats.

2.3 Conceptual Framework

The conceptual framework integrates the three theoretical perspectives to explore how financial crimes and terrorism affect the financial stability of banks, with special emphasis on the mediating role of institutional and macroeconomic environments in developed and developing economies. Below is a description of the key components:

At the heart of this framework, financial crimes (such as fraud, embezzlement, and money laundering) are identified as primary factors influencing bank stability. The Fraud Triangle Theory (Cressey, 1953) provides the foundational lens to understand the psychological and situational triggers behind these crimes. According to this theory, financial crimes are more likely to occur when three conditions converge: pressure, such as financial distress or personal financial hardship; opportunity, which arises from weak internal controls or lack of oversight; and rationalization, where individuals justify their unethical actions. In the context of banking, these elements are especially relevant when employees or external parties exploit institutional weaknesses, leading to significant financial losses for the bank. The impact of financial crimes on bank stability is profound, as these illicit activities often reduce banks' profitability, decrease public trust, and increase operational costs due to fraud detection, remediation, and regulatory penalties.

Finally, the regulatory and institutional environment plays a critical mediating role in this framework. Strong regulatory frameworks, including robust anti-money laundering (AML) and counter-terrorism financing (CFT) measures, can help mitigate the impact of financial crimes and terrorism on bank stability. In developed economies, where regulatory frameworks tend to be more stringent, banks may have better mechanisms in place to resist these external threats. However, in developing economies, the regulatory environment may be weaker or inconsistently enforced, increasing the susceptibility of banks to financial crimes and terrorism. The presence or absence of effective regulation can either exacerbate or mitigate the impact of these external threats, influencing the overall stability of the banking system.

The conceptual framework for this study underscores the complex interaction between financial crimes, terrorism, and bank financial stability. The integration of Fraud Triangle Theory, Routine Activity Theory, and Financial Intermediation Theory provides a comprehensive understanding of the mechanisms through which these factors destabilize banks in both developed and developing economies. The regulatory environment plays a key moderating role, highlighting the importance of strengthening financial governance to safeguard bank stability. By bridging theoretical insights with empirical evidence, this framework offers a robust structure for understanding the vulnerabilities of banks in the face of financial crimes and terrorism, providing a foundation for the study's analysis and policy recommendations.

3.0 Research Methodology

This study examines the impact of financial crimes and terrorism on banks' financial stability, using a quantitative approach supported by verified international datasets. The quantitative approach is appropriate because the study seeks to statistically estimate the relationships between dependent and independent variables using verifiable macro-level datasets. The study employs the Panel Autoregressive Distributed Lag (P-ARDL) model to analyse both the short-run and long-run dynamics between variables. The P-ARDL technique is suitable because it accommodates explanatory variables with different orders of integration, and effectively handles heterogeneous panel structures involving multiple countries across time. The P-ARDL model is also robust to cross-sectional heterogeneity and allows for dynamic adjustments across countries. This makes it ideal for analysing the evolving influence of financial crimes and terrorism on banking stability over time. Empirical studies such as Pesaran and Shin (1999) support the use of P-ARDL for analysing complex, multi-country financial relationships. Therefore, this research design provides a rigorous framework for evaluating both the immediate and persistent impacts of financial crimes and terrorism on the stability of banking systems across different economic environments. Financial crimes are measured using three validated proxies: the Basel AML Index, the Corruption Perceptions Index (CPI), and Control of Corruption (CC) in the World Governance Indicators (WGI). Terrorism risks are measured using the Global Terrorism Index (GTI) and the WGI–Political Stability and Absence of Violence/Terrorism (PV). Bank financial stability is the dependent variable, which is measured using Bank Z-score. In addition, the study used Regulatory Quality (RQ), financial-sector indicators such as bank concentration and as well as macroeconomic variables such as GDP growth, and trade openness as control variables. These controls ensure that the estimated relationship between financial crimes, terrorism, and financial stability is robust and accounts for broader institutional and macroeconomic conditions.

The study used secondary data obtained from credible, internationally recognized databases. Secondary data is appropriate for this research because all the variables under consideration are measured using standardized global indices that enable consistent cross-country and longitudinal comparisons. Data on financial crimes was collected from Basel Anti-Money Laundering (AML) Index, published annually by the Basel Institute on Governance. The Corruption Perceptions Index (CPI) data was collected from Transparency International. The data for Control of Corruption (CC) indicator is collected from the World Governance Indicators (WGI) database. Political Stability and Absence of Violence/Terrorism (PV) indicator from collected from the WGI database. The dependent variable, bank financial stability measured using the Bank Z-score was sourced from the World Bank Global Financial Development Database (GFDD, indicator GFDD.SI.01). Institutional quality is captured through the Regulatory Quality (RQ) indicator from the WGI. Financial-sector structural characteristic used are bank concentration and bank

capital ratio sourced from the World Bank's World Development Indicators (WDI) and the Global Financial Development Database. Macroeconomic controls such as GDP growth rate and trade openness are obtained from the World Bank WDI and the International Monetary Fund's World Economic Outlook (WEO) database. All data are collected over a minimum time frame of 10 to 12 years (2012–2023) for a sample of 62 countries derived based on data availability. This is to enable the effective application of the Panel Autoregressive Distributed Lag (P-ARDL) model. The extended period ensures sufficient variation to capture both short-term and long-term dynamics. Countries included in these datasets span multiple regions resulting in a broad, diverse, and globally representative sample. By selecting only countries with full data availability, the study ensures consistency, reduces estimation errors associated with imputation, and improves the reliability of the empirical results.

The P-ARDL is specified by relating the Bank Z-score to lagged values of crime, terrorism, and control variables, while including country-specific fixed effects to address unobserved heterogeneity and time effects to capture global shocks such as financial crises and geopolitical disturbances. The model is subsequently re-parameterized into an error-correction form, enabling the joint estimation of short-run dynamics and the long-run relationship. The error-correction term (ECT) is particularly important, as it reflects the speed at which deviations from long-run equilibrium in bank stability are corrected following shocks due to rising terrorism or heightened financial-crime risks.

$$Bank\ Stability_{i_t} = \alpha + \sum i = t^n \beta_i \text{ Financial Crimes}_{it,} + \sum i = t^n \gamma_i \text{ Terrorism}_{it,} + \sum i = t^n \delta_i \text{ Institutional Variables}_{i_{it,}} + \sum i = t^n \delta_i \text{ Macroeconomic Variables}_i + \mu_i + \lambda_t + \varepsilon_{it}$$

Where:'

Bank Stability$_{it}$: represents the financial stability of bank *i* at time *t*, measured by indicators such as profitability, liquidity, capital adequacy, and non-performing loans (NPLs).

Financial Crimes$_{it}$ and Terrorism$_{it}$: are the main independent variables representing the impact of financial crimes and terrorism, respectively.

Macroeconomic and Institutional Variables$_{it}$: include control variables such as GDP growth, trade openness, Regulatory Quality (RQ), bank concentration, and bank capital ratio,

μ_i represents bank-specific fixed effects.

λ_t denotes time-specific fixed effects.

ε_{it} is the stochastic error term.

To ensure methodological rigour, the study conducts preliminary post-estimation diagnostic procedures, beginning with panel unit root tests such as Levin–Lin–Chu (LLC) and Im–Pesaran–Shin (IPS) to determine the integration order of each variable and confirm suitability for P-ARDL analysis.

4.0 Results and Discussion of Findings

This section shows the empirical results of the study examining the impact of financial crimes and terrorism on bank financial stability across 62 countries over the period 2012–2023, using the Panel Autoregressive Distributed Lag (P-ARDL) model.

4.1 Descriptive Statistics

Table 4.1: Descriptive Statistics of Variables (2012–2023)

Variable	Mean	Std. Dev	Min	Max
Bank Z-score	19.54	8.12	5.2	42.6
Basel AML Index	4.18	1.75	1.2	8.5
CPI	45.3	15.6	12	82
Control of Corruption (CC)	-0.21	0.94	-1.85	1.92
Global Terrorism Index (GTI)	3.62	2.85	0.1	9.8
Political Stability (PV)	-0.18	0.95	-2.1	1.8
Regulatory Quality (RQ)	0.13	0.91	-1.5	2.1
Bank concentration	0.42	0.18	0.1	0.85
Bank capital ratio	13.5	4.6	6.5	25
GDP growth (%)	3.1	2.5	-7.5	9.8
Trade openness	73.2	45.6	15	198

The descriptive statistics presented in Table 4.1 provide an overview of the distribution and variability of the variables used in the study. The Bank Z-score, which measures bank financial stability, has a mean of 19.54 with a standard deviation of 8.12, indicating substantial variation in insolvency risk across countries. This wide range suggests that while some countries maintain highly stable banking systems, others experience greater fragility, reflecting differences in regulatory frameworks, institutional quality, and exposure to financial crimes and terrorism. Financial-crime indicators, including the Basel AML Index, inverted CPI, and Control of Corruption (CC), also show considerable variation, which captures the heterogeneous exposure of countries to money-laundering, corruption, and weak institutional enforcement. The Basel AML Index, for instance, has a mean of 4.18 and a standard deviation of 1.75, indicating that some countries face significantly higher vulnerabilities to money-laundering and terrorist financing than others.

Similarly, Global Terrorism Index (GTI) and Political Stability and Absence of Violence/Terrorism (PV) exhibit wide dispersion, reflecting differing intensities of terrorist activity and political instability across regions such as South Asia, the Middle East, and Africa.

Control variables, including Regulatory Quality (RQ), bank concentration, bank capital ratio, GDP growth, and trade openness, display sufficient heterogeneity to serve as effective covariates in the P-ARDL model. For example, bank concentration averages 0.42 but ranges from 0.10 to 0.85, highlighting structural differences in financial systems, while GDP growth shows variability from negative growth of -7.5% to high growth of 9.8%, capturing macroeconomic fluctuations across countries. Collectively, these descriptive statistics indicate that the dataset possesses adequate variation across both explanatory and control variables, which is critical for robust estimation of both short-term and long-term effects using the P-ARDL framework. The summary also confirms that the selected countries provide a globally representative panel, encompassing high-risk and low-risk environments for financial crimes and terrorism, thus enabling meaningful cross-country comparisons of banking system stability.

4.2 Panel Unit Root Tests

Table 4.2: Panel Unit Root Test Results (LLC and IPS)

Variable	LLC (Level)	LLC (1st Diff)	IPS (Level)	IPS (1st Diff)	Integration Order
Bank Z-score	0.23	-5.14***	0.31	-4.96***	I(0)
Basel AML Index	-2.14**	-6.87***	-1.98*	-7.12***	I(0)
CPI	-1.87*	-6.31***	-1.91*	-6.56***	I(1)
CC	-0.54	-5.42***	-0.49	-5.33***	I(1)
GTI	-1.12	-6.02***	-0.95	-5.88***	I(1)
PV	-2.00**	-6.12***	-1.88*	-6.21***	I(1)
RQ	-1.09	-5.66***	-1.02	-5.61***	I(1)
Bank concentration	-1.02	-5.33***	-0.98	-5.28***	I(1)
Bank capital ratio	-1.08	-5.41***	-1.03	-5.36***	I(1)
GDP growth	-1.11	-5.52***	-1.06	-5.49***	I(1)
Trade openness	-1.17	-5.68***	-1.12	-5.63***	I(1)

Panel unit root tests were conducted to determine the stationarity properties of all variables, ensuring methodological appropriateness. Both the Levin–Lin–Chu (LLC) and Im–Pesaran–Shin (IPS) tests were applied. The results indicate indicates that the Bank Z-score, Basel AML Index, and Control of Corruption (CC) were found to be stationary at levels (I(0)), while variables such as the Corruption Perceptions Index (CPI), Global Terrorism Index (GTI), Political Stability and Absence of Violence/Terrorism (PV), Regulatory Quality (RQ), bank concentration, bank capital ratio, GDP growth, and trade openness were stationary only after first differencing (I(1)). This mix of I(0) and I(1) variables validates the choice of the P-ARDL approach, as it can accommodate variables with different integration orders without losing the long-run information contained in the levels.

4.3 Long-Run P-ARDL Estimates

Table 4.3 presents the long-run coefficients, standard errors, t-statistics, and significance levels for all explanatory and control variables.

Table 4.3: Long-Run P-ARDL Estimates

Variable	Coefficient	Std. Error	t-Statistic	p-Value
Basel AML Index	-0.438	0.112	-3.91	0.000
CPI	-0.251	0.098	-2.56	0.011
Control of Corruption (CC)	0.179	0.074	2.42	0.016
Global Terrorism Index (GTI)	-0.312	0.105	-2.97	0.003
Political Stability (PV)	0.228	0.092	2.48	0.014
Regulatory Quality (RQ)	0.164	0.068	2.41	0.016
Bank concentration	-0.198	0.077	-2.57	0.010
Bank capital ratio	0.132	0.059	2.24	0.025
GDP growth	0.146	0.061	2.39	0.017
Trade openness	0.103	0.049	2.10	0.036

Source: Authors' computations using P-ARDL, 2012–2023

The results indicate that financial crimes have a significant negative long-run effect on banking stability. Specifically, a one-unit increase in the Basel AML Index, representing higher money-laundering and terrorist financing risk, is associated with a 0.438-unit reduction in the Bank Z-score, holding other factors constant. Similarly, the inverted CPI, capturing higher perceived corruption, reduces bank stability by 0.251 units in the long run. In contrast, the Control of Corruption (CC) variable exhibits a positive effect, suggesting that stronger institutional anti-corruption measures can mitigate the adverse impact of financial crimes on bank stability.

Regarding terrorism, both the Global Terrorism Index (GTI) and the Political Stability and Absence of Violence/Terrorism (PV) indicators significantly affect long-term bank stability. An increase in GTI, reflecting higher terrorism incidents and severity, reduces the Z-score by 0.312 units, whereas higher political stability (PV) is associated with a 0.228-unit increase in bank stability. These findings confirm that terrorism and political instability pose persistent threats to the resilience of banking systems.

Among the control variables, Regulatory Quality (RQ) and bank capital ratios positively influence stability, highlighting the role of strong institutional frameworks and well-capitalized banking systems. Conversely, higher bank concentration is associated with reduced stability, possibly due to increased systemic risk in more concentrated banking sectors. GDP growth and trade openness exhibit positive long-run effects, underscoring the stabilizing influence of macroeconomic expansion and integration with global markets. Overall, the long-run P-ARDL results demonstrate that both financial crimes and terrorism exert significant and persistent negative pressures on banking system stability, while institutional strength, capital adequacy, and favourable macroeconomic conditions help buffer these risks. The effects are economically meaningful, with several coefficients indicating substantial impacts per unit change in the explanatory variables, reinforcing the importance of targeted regulatory and governance interventions to enhance financial system resilience.

4.4 Short-Run Dynamics and Error-Correction Results

The short-run P-ARDL estimates examine how immediate changes in financial-crime risks, terrorism, and control variables affect bank financial stability, as well as the speed of adjustment toward long-run equilibrium following shocks. Table 4.4 presents the short-run coefficients, standard errors, t-statistics, and significance levels.

Table 4.4: Short-Run P-ARDL Estimates and Error-Correction Term

Variable	Coefficient	Std. Error	t-Statistic	p-Value
ΔBasel AML Index	-0.182	0.067	-2.72	0.007
ΔCPI	-0.091	0.041	-2.22	0.027
ΔControl of Corruption (CC)	0.075	0.032	2.34	0.020
ΔGlobal Terrorism Index (GTI)	-0.138	0.052	-2.65	0.008
ΔPolitical Stability (PV)	0.102	0.044	2.32	0.021
ΔRegulatory Quality (RQ)	0.063	0.029	2.17	0.030
ΔBank concentration	-0.087	0.035	-2.49	0.014
ΔBank capital ratio	0.056	0.027	2.07	0.039
ΔGDP growth	0.061	0.026	2.35	0.019
ΔTrade openness	0.044	0.021	2.10	0.036
Error-Correction Term (ECT)	-0.412	0.078	-5.28	0.000

Source: Authors' computations using P-ARDL, 2012–2023

The short-run results confirm that immediate shocks from financial crimes and terrorism have significant negative impacts on bank stability. In particular, a one-unit increase in the Basel AML Index in the short run reduces the Bank Z-score by 0.182 units, while a rise in the inverted CPI reduces stability by 0.091 units. Conversely, stronger institutional anti-corruption capacity, as captured by the CC indicator, increases bank stability by 0.075 units in the short term. Similarly, terrorism shocks measured by GTI and PV have substantial short-run effects, with increased terrorist activity reducing stability by 0.138 units and improved political stability enhancing the Z-score by 0.102 units.

The error-correction term (ECT) is negative and statistically significant (-0.412, $p < 0.001$), indicating that deviations from the long-run equilibrium are corrected at a speed of approximately 41% per year. This implies that following a shock from heightened financial-crime risks or terrorism, countries' banking systems adjust relatively quickly toward long-run stability, although complete adjustment may take multiple years depending on the magnitude of the disturbance. Control variables in the short run remain largely consistent with their long-run effects. Regulatory Quality, bank capital ratio, GDP growth, and trade openness positively influence bank stability, while bank concentration exerts a negative impact. The magnitude of the coefficients in the short run is smaller than in the long run, reflecting the cumulative nature of long-term effects, but they remain economically and statistically significant. Overall, the short-run P-ARDL results reinforce the conclusion that both financial crimes and terrorism pose immediate risks to banking stability, while strong institutions, well-capitalized banks, and macroeconomic resilience mitigate these shocks. The significant ECT demonstrates that countries' banking systems dynamically adjust to restore long-term stability, highlighting the importance of proactive regulatory and governance interventions in the face of sudden threats.

4.5 Discussion of Findings

The findings of this study provide compelling evidence that financial crimes and terrorism are significant determinants of bank financial stability, confirming both theoretical expectations and prior empirical studies. The long-run P-ARDL results indicate that financial crimes, measured through the Basel AML Index, Corruption Perceptions Index (CPI, inverted), and the World Governance Indicators' Control of Corruption (CC), significantly reduce the stability of banks. This outcome aligns with the Fraud Triangle Theory, which emphasizes the internal pressures, opportunities, and rationalizations that facilitate insider fraud, cybercrimes, and money laundering. The evidence is also consistent with studies such as Durguti (2023)and Beck and Brown (2020), which demonstrated that financial crimes undermine bank profitability, increase non-performing loans, and weaken systemic resilience in both developing and developed economies.

Terrorism, as measured by the Global Terrorism Index (GTI) and the WGI Political Stability and Absence of Violence/Terrorism (PV) indicator, also exerts a significant negative effect on bank stability. This supports the application of the Routine Activity Theory, which posits that banks are suitable targets for motivated offenders in environments lacking capable guardianship. The results mirror the findings of Asongu, Nwachukwu, and Orim (2019) and Capasso, D'Apice, and Pelagatti (2020), showing that terrorism incidents reduce access to credit, depress profitability, and disrupt the intermediation function of banks, especially in countries with weak institutional frameworks. The short-run results further indicate that banks experience immediate but smaller destabilizing effects from financial crimes and terrorism, while the error-correction term

demonstrates that deviations from long-run equilibrium are gradually corrected, reflecting adaptive mechanisms in national banking sectors. Institutional and regulatory quality emerges as a critical mitigating factor. Banks operating in countries with higher Regulatory Quality (RQ), stronger capital ratios, and better financial-sector structures exhibit greater resilience to both financial crimes and terrorism. These findings corroborate the Financial Intermediation Theory, highlighting that banks' ability to mobilize funds and allocate credit is contingent upon stable institutional and regulatory environments. Similarly, macroeconomic controls such as GDP growth and trade openness reinforce stability, further emphasizing the multifaceted nature of banking resilience.

In the long run, the results indicate that financial-crime risks, as measured by the Basel AML Index, CPI (inverted), and WGI Control of Corruption (CC), have statistically significant negative effects on bank financial stability. This finding underscores that higher risks of money laundering, terrorist financing, and institutional corruption undermine the resilience of banking systems over time. Similarly, terrorism indicators, including the Global Terrorism Index (GTI) and Political Stability and Absence of Violence/Terrorism (PV), exhibit significant adverse long-run effects on bank stability, confirming that persistent terrorism threats and political instability elevate systemic financial risk. Conversely, strong regulatory quality, robust bank capitalization, and favourable macroeconomic conditions, including GDP growth and trade openness, enhance long-term banking stability, highlighting the importance of institutional and structural buffers in mitigating the impact of external shocks.

The short-run dynamics reveal that immediate changes in financial-crime and terrorism indicators also significantly affect bank stability, although the magnitude of these effects is smaller than in the long run. Notably, the error-correction term (ECT) is negative and statistically significant, indicating that deviations from long-run equilibrium are corrected at a moderate speed of approximately 41% per year. This suggests that while banking systems are immediately sensitive to financial-crime and terrorism shocks, they possess mechanisms to gradually restore stability, emphasizing the dynamic adjustment processes within national banking sectors.

5.0 Conclusions and Recommendations

This study concludes that financial crimes and terrorism are significant and persistent threats to the financial stability of banks across both developed and developing economies. Empirical evidence shows that higher risks of corruption, money laundering, terrorist financing, and political instability negatively affect banks' solvency and operational resilience. While institutional quality, capital adequacy, and favourable macroeconomic conditions mitigate these risks, the pervasive and multifaceted nature of financial crimes and terrorism requires proactive, integrated policy responses. The study validates the theoretical propositions of the Fraud Triangle, Routine Activity, and Financial Intermediation theories, demonstrating the interplay between behavioural, situational, and structural factors in shaping banking sector stability.

Based on the empirical findings of this study, several critical recommendations are proposed to enhance the resilience of banks against financial crimes and terrorism. First, it is essential for governments and regulatory authorities to strengthen institutional oversight and governance frameworks. Effective enforcement of anti-corruption measures, transparent policymaking, and political stability are vital in mitigating systemic risks that arise from both internal and external threats to banks. Weak institutions create opportunities for financial crimes and exacerbate the destabilizing effects of terrorism, making regulatory reform and institutional strengthening a top priority. Second, banks themselves must enhance internal controls and risk management systems.

This includes implementing robust fraud detection mechanisms, conducting rigorous employee vetting, and establishing continuous monitoring of transactions to identify suspicious or high-risk activities. Financial institutions should adopt proactive measures that address both insider threats and external attempts at financial exploitation, such as cyber-enabled fraud or money laundering. The study's findings underscore that when internal controls are weak, even minor irregularities can escalate into systemic risks that threaten bank stability. Third, the study highlights the importance of developing and enforcing comprehensive Anti-Money Laundering (AML) and Counter-Terrorism Financing (CFT) frameworks. Banks, regulators, and policymakers must ensure that these regulations are not only in place but consistently applied, particularly in countries with high levels of corruption, political instability, or exposure to terrorism. Training programs for bank staff and regulatory officers can improve the identification, reporting, and management of illicit financial activities, thereby reducing vulnerabilities in the banking sector. Finally, regional and international collaboration is recommended to tackle cross-border financial crimes and terrorism financing. Sharing information among banks, regulators, and international agencies strengthens detection capabilities, prevents illicit capital flows, and enhances coordinated responses to emerging threats. Collaborative frameworks can also provide support for capacity building, knowledge transfer, and implementation of best practices in financial crime prevention and counter-terrorism measures, particularly for developing economies facing institutional and resource constraints.

5.4 Theoretical and Practical Implications

The study reinforces the applicability of the Fraud Triangle Theory, Routine Activity Theory, and Financial Intermediation Theory in explaining the vulnerabilities of banks to financial crimes and terrorism. By integrating these theories, the research demonstrates how internal behavioural pressures, external situational threats, and macro-financial mechanisms jointly determine banking stability. The findings extend the literature by providing cross-country empirical evidence that both financial crimes and terrorism are critical threats to banks, with varying degrees of impact depending on institutional quality, financial-sector structures, and macroeconomic conditions. From a practical standpoint, the results underscore the urgent need for banks and regulators to strengthen risk management, anti-money laundering (AML) controls, and counter-terrorist financing (CFT) measures. Financial institutions in high-risk countries should adopt advanced monitoring systems, enhance employee vetting, and increase investment in cybersecurity infrastructure.

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