ABSTRACT
This research was performed to provide the comprehensive understanding of risk of money laundering experienced by banks to underlie the formulation of models for identification, analysis, and management of this risk.

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Date of submission: 21.04.2020
Abstract
Money laundering is among the leading concerns affecting banks and other financial institutions across the globe. This research was performed to provide a comprehensive understanding of the risk of money laundering experienced by banks to underlie the formulation of models for identification, analysis, and management of this risk. The research involved two models, risk assessment and customer behavior models. The former model comprised money laundering risk, as the dependent variable, and various independent variables, including private entity’s nationality, private entity’s country of residence, private entity’s profession, corporate entity’s headquarters, corporate entity’s country of residence, and corporate entity’s economic activity. Conversely, the behavioral model, where customer behavior suspicion formed the explained variable, the counter number used by a client, client number, transaction operation code, and currency of the transaction, were the explanatory variables. AA Bank in Europe served as the sample for this study; 107 corporate entities, 107 private entities, and 100 individual clients were involved. Data for 2019 was obtained and regressively analyzed using the Excel Program. The study outcomes indicated that a direct relationship exists between money laundering risk and private entity’s country of residence, private entity’s profession, private entity’s nationality, corporate entity’s headquarters, corporate entity’s country of residence, and corporate entity’s economic activity. Furthermore, it showed that the state of residence and profession of a private entity do not significantly influence money laundering risk. Besides, it exhibited a direct, significant link between behavior suspicion and the customer number, transaction operation code, and the number of counters used by a client. Finally, the outcomes showed that the level of customer behavior suspicion increases while the number of currencies used by a client reduces; nonetheless, this finding was statistically insignificant at the 95% confidence level. Therefore, the research revealed the various aspects that should be considered during the formulation of anti-money laundering policies.

Keywords: Money laundering, Anti-money laundering, Risk assessment
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Chapter 1: Introduction

Money laundering describes multiple practices employed to disguise the origin of illicit profits and combine them with the legitimate economy. Delinquents, including unscrupulous officials, apply money laundering approaches to conceal the real sources of their earnings (Ferguson, 2018). Consequently, they can eschew detection by law enforcement and expend their incomes freely. This vice represents a vital component of most illicit enterprises, despite the wide variation among methods used. While corrupt public officials and large drug-trafficking enterprises use sophisticated, jurisdictional layering techniques, insignificant malefactors employ more uncomplicated strategies.

The money laundering process comprises three sequential stages. The initial phase, placement, entails transferring currency or other finance obtained from illicit operations physically to a location or into a form that is considerably less suspicious to law enforcement agencies and more opportune to the scoundrel. The earnings are inaugurated into the retail economy, or the nontraditional or traditional financial institutions (Reuter & Truman, 2003). In the second stage, layering, the funds are separated from their illicit origin by utilizing numerous complicated financial transactions to shroud the audit trail and conceal the proceeds. In the final phase, integration, of the money laundering process, the illicit proceeds are transformed into evidently legitimate business incomes through regular commercial or financial transactions. Remarkably, all money-laundering transactions may not involve all the three distinct stages; some may even include more.

All the illegitimate finances in the worldwide economy flow through similar channels. Nonetheless, these funds are used for distinct ends and acquired through different means. Thus,
this vice depicts diverse forms of settings and participants. The renowned varieties of illicit funds, criminal, errant, and commercial, typically utilize money laundering techniques to move flight capital and eschew tax across boundaries. It can involve the most reputable financial institutions unintentionally providing services to clients with evidently impeccable credentials (Ferguson, 2018). In some cases, money laundering may be perpetrated by various parties. In one incident, Richard Scrushy, a chief executive officer (CEO) and chairman of a renowned healthcare facility, was arraigned in court on eighty-five counts, including money laundering and fraud. Richard's financial executives confessed to having utilized fraudulent income statements to misguide financial institutions into offering a $1.25 billion line of credit (Reuter & Truman, 2003). Allegedly, they utilized personal checks, wire transfers, and cashiers' checks to acquire approximately $10 million exorbitant commodities and real estate.

The various money transfers seek to hide the source and destination of such wealth and transform it into assets that appear to be acceptable so that the money seems to have been rightfully acquired. Governments around the globe have devised different AML strategies for addressing money laundering to discourage their citizens from undertaking criminal operations; thus, safeguarding economic value. Money laundering affects the economy adversely since the criminals disrupt the microeconomic status as they target to avoid being detected by authorities, rather than to maximize proceeds from their investment venture. Hence, their operations interfere with the generation and efficiency of genuine production units.

Remarkably, no other new objective of money laundering has been developed. Thus, repressing this illegal activity through various anti-money-laundering AML approaches is imperative to combating terrorist funding, corruption, and organized crime. Since money laundering seeks to conceal the origin of unlawful funds, it is intrinsically difficult to establish its
global scope. According to the World Bank and International Monetary Fund (IMF) past reports, about two to four percent of the world's gross domestic product (GDP) originates from illegal sources. Other studies indicated that the finances that flow annually through the money laundering markets should range between $2 trillion and $3 trillion (Ferguson, 2018). Regardless of this variation, the consensus holds that the money laundering market is significant, as massive amounts of money are laundered annually. Nevertheless, there lacks an accurate estimate of the scope of this crime.

**Background of the Project**

The origin of money laundering is traced to the West, where it initially formed a mechanism of tax-evading and moving flight capital across borders. Drug dealers embraced the vice in the 1960s and 1970s to move their illicit finances across boundaries. In the 1980s and 1990s, other types of racketeers stepped into the same structure after recognizing how successfully it facilitated drug trafficking operations. Later in the 21st Century, terrorist financiers joined the structure to facilitate the movement of illegal money. Remarkably, criminal syndicate leaders, drug dealers, and terrorist masterminds have not formulated any sophisticated way of transferring illegitimate funds across borders (Ferguson, 2018). They solely employ the systems originally formulated to move commercially tax-evading and corrupt money across borders. Notably, the advancement of technology favors the sophistication of this crime, thereby rendering it increasingly problematic to banks. Governments around the globe have devised different AML strategies for addressing money laundering to discourage their citizens from undertaking criminal operations; thus, safeguarding economic value. The persistence of this
concern necessitates the detection of potential risks that predispose banks and other financial institutions to this crime.

This study anchors on the risk analysis in money laundering. It involved two models, including a risk assessment model of new entities and clients and the risk assessment model of client behavior, to recommend solutions for the prevention of money laundering. Official, responsible personnel in a financial institution that performs activities of public interest is authorized to actualize measures to inhibit money laundering and other proceeds. Such individual shall disclose information associated with the process for evaluating suspicious transactions or the implementation of other actions and measures to curtail money laundering. Generally, firms are required to analyze their clients in different cases procedurally, such as 1. when instituting a business relationship; 2. when the customer has performed a single or multiple related transactions worth EUR 15,000 (Simonovski & Nikoloska, 2016); 3. when terrorist financing or money laundering suspicion exists, regardless of the magnitude of funds or any exclusion; and 4. when the sufficiency and correctness of previously obtained data on the client are dubious. Moreover, the project exhibits the significance of AML risk-assessment procedures and compliance risk management programs for financial institutions.

**Problem Statement**

The World Bank and IMF statistics have indicated that approximately two to four percent of the worldwide GDP stems from illegitimate funds. Other studies, which used regression analysis and forecasts, have established a higher level ranging between five and six percent. These outcomes depict money laundering as a significant crime. Nonetheless, the criminal nature of these activities limits the availability of data for ascertaining these exact statistics. The motive
of money laundering, to 'clean' illicit wealth rather than maximize returns on investments, destabilizes the structure of financial agencies, with considerable impacts being on legal businesses (Ferguson, 2018). Consequently, this global concern leads to fluctuations in the foreign currency prices against the local currency and sabotages the system of banking in a nation.

Banks and other obliged institutions are required to apply policies to inhibit terrorist financing and money laundering. Financial information traceability has a vital deterrent influence. The European Union (EU) has shown significant efforts in countering the money laundering phenomenon through legislation to safeguard the reputation and integrity of its banking sector from the impacts of criminal operations. EU has had several amendments to hinder the misuse of the financial system for money laundering purposes. It adopted the first AML Directive in 1990 (Veron & Kirschenbaum, 2019). This law stipulates the application of due diligence by obliged entities when engaging in a business transaction. This legislation has been continually upgraded to improve its effectiveness. In 2015, this body adopted a modernized regulatory framework, which encompassed the suggestions of the Financial Action Task Force (FATF) made in 2012, as well as other issues that counter-terrorism financing and refine the highest standards for AML. Later in 218, the EU adopted a proposal that saw the creation of a centralized AML supervisor with the authority of the EU across Europe. Finance ministers of Germany, France, Italy, Spain, and the Netherlands participated in the formulation of this recommendation, which marks a significant milestone toward combating money laundering in Europe.

The centralized AML supervision is a quick reaction to a recent series of AML failures. The massively publicized lapses began with the collapse of various European banks, including
Latvia's ABLV Bank, Danske Bank, ABN Amro, Raiffeisen, ING, and Swedbank, due to money laundering concerns (Veron & Kirschenbaum, 2019). The investigative and remedial roles the EU has played have considerably built the literature on money laundering and its influence on the performance of the entire financial sector. However, deficiencies characterize these efforts since the enforcement of the amendments, in most cases, occur in different times and contexts upon the emergence of money laundering incident (Veron & Kirschenbaum, 2019). Thus, possible measures of detecting the occurrence of money laundering before its manifestation are necessary. Moreover, the macroeconomic setting of Europe differs widely among the member states, and these legislations are likely to face time lapse since the majority of them were done by 2018. Therefore, there is a researchable gap of knowledge, which this research sought to fill by addressing the research questions: 1. How does the AML risk assessment prevent the occurrence of money laundering? 2. What is the importance of AML risk-assessment procedures and financial institutions' adherence to risk management programs?

**Purpose of the Project**

The ultimate objective of this project is to yield a comprehensive understanding of the risk of money laundering to which AA Bank is predisposed to underpin the formulation of the models for identification, analysis, and management that are based on alerts that can counter and alleviate these risks. It comprises two segments based on the review of uncertainty in money laundering. The aim of the first part of this quantitative correlational project is to propose a solution for combating money laundering. The other part seeks to present insights on the significance of AML risk assessment procedures and the compliance of banks with risk management policies.
Firstly, it involved the measurement of risk associated with new clients and entities of the AA Bank before the institution approves any engagements with them. The risk of money laundering formed the dependent variable in this case. While the nationality, country of residence, and profession of the customer represented the independent variables for private entities, headquarters, economic activity, and state of residence denoted the explanatory variables for the corporate agencies. Each client was assigned a level of risk to current facets of the financial institution according to his or her attributes. Next, this classification facilitated the development of a regressive model of risk assessment. Finally, a risk assessment model for new entities was developed. The model employed multiple variables that characterized each client and entity, as either corporates or privates, to yield equitation that facilitated the evaluation of each client about their level of risk. Moreover, the project utilized the risk assessment model of client behavior to monitor the transactions of its customers and their suspicious operations according to behavioral deviations regarding the expected cluster-based behavior model. With this model, each cluster had an associated risk; besides, those with considerably high-risk were accorded special attention. A divergence from the expected behavior implied an exemplar of suspected money laundering.

Secondly, this project entailed the realization of the significance of AML risk assessment programs and the compliance of banks with risk management programs. The proposition of money laundering preventive measures based on possible risks would counter the prevalence of such incidents. The adoption and implementation of the recommended policies by financial institutions would determine the levels of money laundering. Besides, the effectiveness of those measures would be seen in the results realized after banks institute them. Therefore, this project
delved into suggesting recommendations for combating money laundering and determining the influence of these strategies on the financial system of AA Bank.

**Significance of the Project**

Money laundering is among the leading challenges facing financial institutions. The advancement of technology favors the sophistication of this crime, thereby rendering it increasingly problematic to banks. Thus, the development of advanced strategies and measures that can effectively prevent it is necessary. The outcomes of this project would be instrumental to multiple stakeholders, including the banking institutions and their managers, such as AA Bank, future scholars and researchers, and clients to financial agencies. The research would yield recommendations for combating money laundering. The implementation of these strategies would facilitate the detection of this risk before its occurrence (Ferguson, 2018). Hence, they would prevent the destabilization of the banking systems in Europe, which would, in turn, minimize the adverse effects of money laundering on the entire economy. Furthermore, the study would inform the policymakers on the influence of various AML risk management measures on the financial outcomes of financial institutions. Thus, they would empower the relevant stakeholders to evaluate the effectiveness of AML policies and guidelines in addressing the dangers of money laundering. This assessment would support the formulation of more strategies to address any inadequacies that may characterize the recommended model.

The outcomes of this project would be valuable to managers of different financial institutions. They would provide insights regarding the importance of ensuring stringent compliance with the guidelines and provisions of the AML Act. Thus, they would assist in maintaining the stability of banking institutions. Furthermore, these findings would inform
managers about their roles in ensuring the adherence to the set regulations and the improvement of their general financial productivity.

Future scholars and researchers would benefit from this research. Its findings form the foundation of the knowledge base in this domain; thus, allowing them to further the empirical literature on AML and financial outcome of financial institutions. This project would serve as a source of reference or their researches and besides pinpointing, where gaps of knowledge for future research exist. Hence, this project would promote the growth of general literature on AML risk exposure and banks’ financial performance.

**Definition of Terms**

**Money laundering:** It comprises illicit economic activities performed to transfer liquidity through the transformation of unlawfully acquired earnings into 'clean' wealth. It denotes a procedure that entails the concealment of specific assets with an illegitimate origin so that they appear to be from an acceptable source. This process is not only associated with the functioning of criminal entities, but it also indicates their success.

**Anti-money laundering:** These are policies aimed at countering the occurrence of illicit activities linked to money laundering. Mainly, they encompass the imposition of hefty fines and penalties. Financial institutions devise these measures to manage the risks associated with money laundering to guard their regulatory and reputation compliance.

**Risk assessment:** It refers to the process of making decisions where uncertainty exists. This procedure provides information concerning particular risks and forms part of a process for managing risk.
Summary of the Chapter

Money laundering represents a means of disguising the source of illegitimate money and incorporating it into the lawful economy. The sophistication of the techniques employed in perpetuating these activities vary according to the scope of a specific crime. It manifests in three sequential stages, including placement, layering, and integration, where each of them supports the execution of a significant role (Reuter & Truman, 2003). The illegitimate funds flow through similar passages in the worldwide economy. However, they are expended for different ends and acquired through distinct means. The development of AML measures remains the sole solution for addressing the prevalence of this crime. The establishment of the worldwide scope of money laundering is quite difficult considering that the objective of this vice is to conceal the source of illicit money. Statistics presented by the World Bank and the IMF revealed that a significant percentage of the global GDP arises from illegal sources (Ferguson, 2018). These huge criminal finances destabilize the economy substantially since their aim is not related to making returns on investments.

The origin of money laundering is traced to the West. A small group started it, and currently, it has become widespread; thus, a global concern. Technological advancements promote this crime, thereby necessitating constant upgrading of the preventive and remedial mechanisms to seal the loopholes associated with the limitations of the existing models. This project anchors on the analysis of risk in money laundering. It utilizes the risk assessment model of new organizations and clients and the risk assessment model of client behavior (Ferguson, 2018). It seeks to suggest solutions for combating money laundering and present understanding of the importance of AML risk-assessment mechanism and the adherence to risk management initiatives for financial institutions. The findings of this study would benefit financial institutions
and their managers, future scholars and researchers, and policymakers. This summary projects the critical points of Chapter 1. While Chapter 2 contains a review of existing literature on the risk assessment of money laundering, Chapter 3 discusses the methodology, statistical and inferential procedures, and design employed in this investigation. Chapter 4 details the results of data analysis, both statistical and inferential, and illustrates both a graphic and written summary of the study outcomes. Chapter 5 outlines a discourse and an elaboration on the outcomes, as they relate to the current body of research associated with the money laundering research.

Chapter 2: Literature Review

Introduction

The world scholars input considerable attention to the research on the peculiarities of banking transactions associated with money laundering. These researchers establish the essential role of banking transactions among the other methods of money laundering and emphasize the necessity of active counteraction of these illegitimate operations, both at the ban and the state levels. Furthermore, they estimate the ongoing trend of growth in the money that was laundered through the financial system. These studies aim at highlighting the techniques employed in various financial institutions worldwide to combat the utilization of their transactions as forms of finance laundering, as well as the role of bank personnel in this procedure. These investigators and authors emphasize the importance of formation regulators to increase the internal banking system of financial monitoring by implementing relevant coercive legislative acts.

According to the existing literature, numerous agencies are mandated to generate amendments for countering money laundering and terrorism. Chapter two outlines a review of the available literature to aid the identification of what other previous scholars studied. Consequently, the existing gaps of knowledge in this domain are described to guide the
performance of the current project. This section highlights the theoretical foundations of this research, the sound management of risks associated with money laundering and terrorist financing, the relationship between economic growth and money laundering, the management of enterprise compliance risk, and minimum capital requirement for market risk.

**Theoretical Foundations**

The future is uncertain; thus, its predictability is impossible. Nonetheless, the financial risk that emanates from uncertainty is manageable. The ability to identify risk, to estimate it, to appreciate its impacts, and to address it accordingly distinguishes the current economies from the previous ones (Crouhy, Galai, & Mark, 2006). The identification of risk is challenging, at times, and necessitates the arrangement of a dynamic economic shift of the uncertainty. Risk management denotes a continuous procedure of corporate risk mitigation. It concerns how firms are involved in the active selection of the variety and extent of risk that is appropriate for them to suppose. A significant proportion of enterprise decisions regard forgoing current resources for future uncertain proceeds. Hence, risk-taking and risk management are not contrary, but similar forces that compel all the modern economies.

The identification of risk exposures forms the initial stage of the risk management process. It has two wings, whereby in one of them, risk exposures are measured and estimated, and later the impacts of these exposures are assessed. In the other branch, instruments and facilities for shifting or trading risks are identified, and then the costs and benefits of these instruments are evaluated. The process continues with the convergence of the two wings at the stage of the formation of a risk reduction strategy (Crouhy, Galai, & Mark, 2006). The measure could either entail avoiding, transferring, mitigating, or maintaining the risk. The final phase of
the risk management process involves the evaluation of the performance of the strategy. This stage checks back to the risk mitigation strategy formulated step, in case limitations characterize the selected policy.

The development of the risk management paradigms for subduing risk emphasizes the spread of risk to institutions that are willing and capable of containing it. The proper distribution of risk facilitates considerably adequate absorption of shocks to the entire economic system, thereby reducing the likelihood of cascading inefficiencies that could undermine financial stability. Nonetheless, risk management has failed to consistently counter business accounting infamies or market turmoils emanating from the malfunctions in corporate governance. Sophisticated financial engineering, supplied various sectors, including the banking industry, conceals the real economic circumstance of ineffectively operated organizations (Crouhy, Galai, & Mark, 2006). Simpler ruses and accounting mistakes further intensify these breakdowns in corporate governance, and eventually, trigger a violent collapse of companies involved after periods of false success. The mixed achievement of risk management is attributable to the double-edged characteristic of risk management inventions. In a world that is substantially controlled by risk management inventions and concepts, the close examination of the progressively complex and fluid nature of risk and the means of ascertaining whether any discrepancy in the risk profile of a firm serves the shareholders' interests is indispensable.

In addressing the problem of money laundering, the risk assessment model guided the measurement and estimation of risk exposures related to this challenge. The risk factors include the attributes of new entities and corporates, such as the country of residence, profession, and nationality of the client, and the economic activity, country of residence, and headquarters of corporate entities (Crouhy, Galai, & Mark, 2006). The model facilitated the assessment of the
influence of these elements on the crime, as well as the identification of instruments and facilities to trade or shift the risks, the evaluation of benefits and costs of these mechanisms, and finally the formulation of a risk mitigation strategy whose performance is subject to assessment and modification, in case of any inadequacy. Thus, the risk theory facilitated the recommendation of solutions for addressing money laundering and depicted the importance of stringent adherence to AML guidelines and programs within banking institutions.

**Review of the Literature**

**Enterprise Compliance risk Management**

*Introduction*

Compliance denotes the adherence to the stipulation of law, organizational and industry codes and standards, accepted community and ethical standards, and principles of good governance. Multiple compliance violations have occurred in different sectors of social, economic, and political environment. The intensity of the outcomes of these breaches ranges from catastrophic to challenging. Banks and financial institutions are more prone to the impacts of violations and their consequences since they operate in the financial well-being of individual people and the economy (Ramakrishna, 2015). Thus, the players in this industry have understood that proactive compliance management and the related risks will form a business multiplier.

Evolution characterizes young compliance risk management in banks and financial institutions. Complying with authority has existed for a considerable period. However, the many nuances and dimensions emanating from the exponential rise in the sophistication of the financial world have immensely broadened its scope, thereby bringing it to the center phase. The institution and elevation of the chief compliance officer’s role mark a significant milestone in this transition (Ramakrishna, 2015). Nonetheless, the systematic incorporation of compliance into the strategic fabric of the services and business is yet to occur. Currently, the global recovery from the
inadequacy of compliance management risk and the absence of business models alignment with vigorous compliance necessitates the performance of more in-depth research in this field.

Regulation affects the behavior of banks by shaping the competitive environment and instituting frameworks within which these organizations can pursue their economic goals. Nevertheless, baking crises have constituted the trigger for the majority of amendments in recent times. Hence, it is difficult to ascertain whether regulation shapes the behavior of banks, or it is the effect of banks violating the stipulated fair business practices (Ramakrishna, 2015). Moreover, the origin of this phenomenon may not be defined with certainty since the interplay of both causes may have created the complicated behavior and structure of the banking industry and, by extension, the financial business, and its guidance.

Recently, financial services represent the most regulated industry. Massive regulations and expectations of compliance and increased supervision to enhance compliance characterize this industry. Additionally, unmatched scrutiny of this industry at regional, national, and global levels exists (Ramakrishna, 2015). The financial industry exhibits various changes, such as the rise of financial conglomerates that are increasing both in magnitude and numbers, insurance, bank, and intermediary market connections that are becoming commonplace, and the abolition of restrictions and barriers on commercial and investment banking combinations. Whether unified or not, these economic segments aggregate to form a country's economic vehicle to facilitate capital and currency movement across (Ramakrishna, 2015). They assist channel finances among lenders and borrowers; thus, financial services are responsible for the financial well-being of individuals, firms, and nations.

The criticality of this industry implies that its different stakeholders and the environment it operates in have expectations regarding dos and don’ts from it. These expectations are
presented in the form of regulations, laws, codes of conduct, and standards (Ramakrishna, 2015). Financial services firms are expected to adhere to these stipulations in a manner that ensures order in the system and protection of all stakeholders, including the entire financial services organizations. Remarkably, just like in other industries, regulatory change is constant in the financial services industry. The difference stems out from the rate of alterations. Multiple discourses, such as regulation versus deregulation, regulatory overlap versus regulatory gap, continue to persist. These processes have stimulated the trend of increased regulations, thereby increasing stakeholders’ needs for scrutiny, which predisposes the industry to multiple environment management crises (Ramakrishna, 2015). Consequently, this state has translated compliance activities from a transaction-focused nature to integral components of business management compliance. Hence, the expectation from and understanding of compliance is expanding manifold.

In the current times, compliance risk is regarded as the most dominant risk due to its impact and acceptance as a critical risk. This state is attributed to the difficulty of balancing environmental expectations and business objectives, as specified through various regulations and laws — disparity results in compliance risk. The compliance function is responsible for managing the conflict of interest and ensuring the creation of a balanced situation (Ramakrishna, 2015). The impossibility to address compliance risk through a cover of capital, a fixed percentage of capital, for example, the eight percent recommended for the traditional risks, such as market, credit, and operational risks capital cover, represents the other underlying challenge of this risk. This difficulty emanates from the inefficiency of both the quantification of the quantum of compliance risk carried by a bank and the actual provision for a worst-case scenario.
An evolution perspective leads to the association of compliance expectations with every approved regulation. However, the scope of compliance operations necessitates both enlargement and precise definition. Thus, the establishment of compliance and compliance function as a vital component of the banking industry is imminent (Ramakrishna, 2015). Consequently, an effective equation of the need for compliance with the contending force, which both impedes progress but catalyzes movement, is possible. Therefore, compliance is critical for maintaining the growth and development of business machinery.

**History and Evolution of Compliance**

Various past and present occurrences have shaped the structure and content of compliance in financial services. The history of formal compliance programs in the financial service industry is dated back to 2005. The initial stages entailed defining this phenomenon and recognizing its position among the types of risks. Nonetheless, the breaches that saw the emergence of this phenomenon are considerably older than it (Ramakrishna, 2015). Throughout history, people and organizations have broken the existing rules, which sometimes result in dire consequences. Thus, the account of compliance is closely linked to regulations, and regulations are after-effects of crises, scandals, and incidents that affected the economy.

Since 1980, more regulations and legislation concerning the financial services industry have been developed. This activity directly correlates to the increase in the complexity of the industry besides the breaches of the expected fair business practices (Ramakrishna, 2015). Various countries are involved in the formal role of shaping the compliance landscape globally.

**The Current Rate of Compliance**

Various agencies that promote the formal compliance structures exist. The Basel set of accords characterized by the expectation of transparency and disclosures, customer protection,
and market discipline and inhibition of financial crime have influenced the activities of the compliance world. Additionally, the 2005 BCBS 113 document and the 2002 Sarbanes-Oxley on compliance are regarded for their contributions toward the revolution of the discipline of compliance in the financial services industry, particularly the banking sector (Ramakrishna, 2015). Furthermore, the industrial realization of the compliance management risk and the consequent price of noncompliance have triggered the growth of this discipline. The twenty-first century's compliance universe is increasing both in-depth and breadth. The new normal has uncertainty, a regulatory system, and volatility that is struggling to rein in the circumstance. The ever-increasing business environment complexity and ever-deepening legislation situations stimulate a continuing proliferation of compliance expectations (Ramakrishna, 2015). The rising necessity for operational transparency stimulates organizations to find it essential to embrace a harmonized and consolidated technique to compliance.

While regulations drive compliance, business drives regulations. The propellers of compliance are currently focused subject to the pressure on companies and other institutions, for intense scrutiny, increased transparency, and speed of information transmission (Ramakrishna, 2015). Various important drivers of compliance exist; they are broadly classified into three, the direct drivers, the indirect but potent drivers, and the ideal driver.

*Financial Crime Management*

Mitigating and managing crime forms a very crucial compliance management function. Keeping track of the processes, policies, and updates, as well as ensuring the fulfillment of the stipulated obligations are an essential component of compliance responsibility. In this case, Know Your Customer (KYC Norms), and anti-money laundering and counter-terrorism financing are imperative aspects to emphasize.
Regarding KYC norms, financial services, particularly banks, are considered vulnerable to abuse and misuse of the system in the absence and ineffective implementation of proper checks and balances. These organizations serve as gatekeepers of massive chunks of financial transactions. The primary purpose of the KYC facet is to help banks actively avoid the risk of being used, intentionally or unintentionally, for financial crime, such as money laundering, tax evasion, terrorist financing. However, the business benefit of knowing the customer and his or her financial transactions is paramount. These could facilitate the prudent management of customer risk and the conduction of targeted marketing campaigns.

The KYC process involves four stages. They include customer acceptance strategy, the procedure of customer ascertainment, monitoring of transactions, and risk management. The Central Banks of different countries are responsible for formulating the KYC guidelines for their respective nations. Financial organizations are accountable for their client screening, both previous and ongoing. Customer due diligence and where appropriate, enhanced due diligence should be executed to ensure that actual and legitimate clients are utilizing the banking channels. This measure would bar illicit persons, such as the politically exposed people, or the nonexisting from accessing the banking portals. Additionally, it would aid in exercising caution concerning watch lists or negative lists of nations, individuals, professionals, or entities.

Money laundering and terrorism financing represent the two of the leading crisis that governments across the globe are struggling to counter. The financial action task force forms the intergovernmental agency that proposes worldwide standards on addressing terrorist finance and money laundering. Besides, this global taskforce, almost every country has instituted legislation to tackle this jeopardy. The extensive regulations and standards impose specific obligations on the financial services industry that need to be adhered to. Detection of noncompliance will lead
to colossal penalties, as the regulators are continually developing strictness and intolerance. The series of sanctions on worldwide majors, which amount to billions of dollars, indicate this trend. The other repercussions of money laundering include client mistrust, reputational damage, and additional costs to modify the system appropriately, and close monitoring by the regulators. Nonetheless, the most significant benefit of compliance is preventing the abuse of the system by illicit factors for antisocial operations.

Financial institutions need to pinpoint and report transactions of considerably large amounts that violate the designated thresholds prescribed by the respective nations. Moreover, they should expose suspicious accounts to the relevant authorities, particularly the financial intelligence unit, in their respective countries. The reporting requirements include client details, transaction monitoring abilities to establish the transactions that violate the threshold, and sequence and outlier detection to highlight suspicious customer accounts. Anomalies include rapid increases in finances, massive withdrawals, and wire transmissions of considerable amounts both from and to vulnerable nations or other blacklists of people, countries, or transactions. Compulsoriness characterize compliance with these obligations.

**Sound management of risks related to money laundering and terrorist financing**

The Basel Committee on Banking Supervision is acquainted with the risks associated with criminal operations, such as terrorism financing and money laundering, that financial institutions experience. The mandate of this committee involves stimulating the implementation of sound AML and countering financing of terrorism (CFT) procedures and policies that are essential in safeguarding the soundness and safety of financial institutions and the integrity of the global financial system. It stimulates the embracement of the standards that the financial action
task force (FATF) instituted regarding the International Standards on Combating Money Laundering and the Financing of Terrorism and Proliferation (Sound management of risks related to money laundering and financing of terrorism, 2019). Banking supervision through sound money laundering and financing of terrorism risk management has two primary objectives. Firstly, it aids in protecting the banks and national banking systems by hindering and deterring the utilization of financial institutions from laundering illegitimate earnings or moving or raising funds in support of terrorism. Secondly, it safeguards the probity of the works of governments and the international financial system in countering terrorism financing and addressing corruption. The prevalence of deficiency of sound ML/FT risk management inclines financial institutions to dire risks, remarkably operational, reputational, concentration, and compliance (Sound management of risks related to money laundering and financing of terrorism, 2019). All these risks are interrelated; nonetheless, any of them could lead to high financial costs to banks. Thus, all the critical elements of sound ML/FT risk management should be incorporated during risk mitigation.

Sound ML/FT risk management comprises various vital aspects. According to the recent Core principles for adequate banking supervision of 2012, all financial institutions should possess sufficient procedures and strategies, including stringent client due diligence regulations, to enhance professional and ethical standards in the banking sector and avert the financial institutions from being utilized unintentionally or intentionally, for criminal operations. The significant components of sound ML/FT risk management include evaluation, understanding, management, and mitigation of risks. The facets under this aspect are assessment and understanding of risks; proper governance arrangement; and the three lines of defense, which entail identifying, assessing, and controlling business risks. Customer acceptance policy forms
the other part of sound ML/FT risk management. It involves the development and implementation of precise customer acceptance strategies and procedures to identify the variety of clients that are likely to predispose a higher risk of FT and ML under the risk assessment of the bank (Sound management of risks related to money laundering and financing of terrorism, 2019). The other core element of this process is customer and beneficial owner identification, authentication, and profiling of risk. This segment requires the application of due diligence to both clients and beneficial owners and to individuals acting on their behalf. Continuous monitoring represents the other critical facet of sound ML/FT risk management. It states that the bank should clearly understand the reasonable and regular banking activity of its clients to enable it to identify and report suspicious operations to the relevant authorities. Management of information is another crucial element of this process. It encompasses record keeping, updating of information, and supplying information to supervisors. The final component of ML/FT risk management involves asset freezing and reporting of suspicious transactions. It consists of the identification of suspicious activities and acting accordingly. Hence, sound ML/FT risk management is an integrated process comprising various roles.

AML/CFT are employed in both cross-border and group-wide settings. Sound ML/FT risk management regards the legal needs of the host nation where a financial institution operates in other jurisdictions. In instances where the effective ML/FT risk management requirements of the host jurisdiction are more stringent relative to those of the group’s, the corresponding subsidiary should be allowed to assume and implement the host jurisdiction underlying requirements (Sound management of risks related to money laundering and financing of terrorism, 2019). The various aspects to be regarded in this case include the global process for
managing client risks, risk assessment and management, consolidated CFT/AML procedures and policies, mixed financial groups, and group-wide sharing of information.

Supervisors undertake diverse roles in the ML/FT risk management procedure. Firstly, they should actualize supervisory proceedings for prudential courses that are linked to the funding of terrorism and money laundering to financial agencies subject to the Core Principles (Sound management of risks related to money laundering and financing of terrorism, 2019). Secondly, they should aspire supervisory anticipations governing AML/CFT procedures and policies of banks. Thirdly, supervisors should use a risk-based technique to supervise the ML/FT risk management of financial institutions. Next, they are required to utilize specialized approaches and supplementary expertise to ensure an effective review of the higher-risk lines of client or business classes. Additionally, it is their responsibility to ensure the maintenance of sound FT/ML risk management by the banks to not only safeguard their security and soundness but also to shield the financial system's integrity. Moreover, the supervisors are required to regard the overall monitoring and oversight of adherence of a bank at the subsidiary and branch level and the ability of the group policy to encompass local legislative standards and ensure the application of the more stringent requirements where the group and local standards vary (Sound management of risks related to money laundering and financing of terrorism, 2019). Furthermore, home country supervisors are expected to ascertain the compliance of a prohibition with the group-wide CFT/AML mechanisms and processes during on-site inspections without facing any impediments where a cross-border setting is involved (Sound management of risks related to money laundering and financing of terrorism, 2019). Besides, home country supervisors are expected to ensure the presence of a relevant risk-based approach and the assignment of sufficient resources regarding the occurrence and scope of the audit of the group's
CFT/AML. Additionally, the supervisors are required to ensure that information concerning clients and transactions of financial institutions is subject to the same confidentiality policies, as are executable to the enormous array of information shared between supervisors on the operations of financial institutions (Sound management of risks related to money laundering and financing of terrorism, 2019). Furthermore, the home supervisors are required to inform the home supervisor where a bank should be subject to additional supervisory initiatives. Moreover, the supervisors should subject information about local customers to sufficient safeguards on use and confidentiality when reporting to the head office. Thus, supervisors play an essential role in ML/FT risk management.

The relationship between economic growth and money laundering

According to Stancu & Rece (2009), money laundered in an economy impacts economic growth, which is measured as real GDP growth rate. The objective of their project was to provide an overview of the link between money laundering and economic growth modeled by a regression equation. Eleven European nations, Russia, the USA, and Romania formed the data sources for this research. In their study, where money laundered served as the independent variable, whereas economic growth represented the explained variable, a linear regression model was employed to analyze data. The research findings revealed the existence of a positive relationship between the two variables (Stancu & Rece, 2009). They indicated that the least-squares function explained 23.7 percent of the total variance in the level of money laundering, regress. Thus, the variables are interrelated, and therefore, the model provided integral supplementary judgment and supported the formulation and implementation of AML service systems. The study proposes the increment of the quality of data series by the utilization of a
more significant number of predicate crimes employed in estimating the explained variable as the area of future study.

**Minimum capital requirement for market risk**

Constant amendments concerning the minimum capital requirements for market risk have been made. The Bassel Committee is responsible for this mandate. The minimum capital requirements for market risk encompasses various aspects. Firstly, the committee stipulates the elements to be included in the trading book and banking book of financial institutions. These two reports are subject to market risk capital requirements and credit risk capital requirements, respectively (Minimum capital requirements for market risk, 2019). The main specifications of this segment include the scope of the trading book, supervisory powers, standards for allocating instruments to the legislative books, documentation of instrument designation, restraints on shifting instruments between the regulatory books, the treatment of internal risk transfers, and internal risk transfer of equity and credit risk from banking book to trading book. Other stipulations include internal risk transfer general interest rate risk from banking book to trading book, domestic risk transfers within the boundary of application of the market risk capital requirement, and eligible hedges for the credit valuation adjustment capital requirement.

The Bassel committee encompasses a market risk terminology facet. This section highlights a high-level definition of terminologies utilized in frameworks involving credit valuation adjustment risk and market risk (Minimum capital requirements for market risk, 2019). It consists of various subtitles, including general, financial instruments, the calculations of market risk capital requirement, risk metrics, internal model validation, credit valuation adjustment risk, and risk factor modellability and eligibility terminology.
Another element of this report entails definitions and application of market risk. This component describes the techniques present for computing and the scope of use of market risk capital requirements. It outlines the description and scope of market risk application and methods of estimating market risk (Minimum capital requirements for market risk, 2019). Besides, the committee defines the standardized approach of the minimum capital requirements for market risk. This facet depicts the general provisions and the standardized approach structure for determining the assets for market risk-weighted based on risk. Besides, it specifies the definition of correlation trading portfolio.

The report documents the standardized approach for market risk. This section presents the calculation of the sensitivities-based technique. It outlines its primary concepts, instruments influenced by each of its components, and the procedure to compute the capital requirement under this method. Others include the estimation of the vega and delta risk capital requirement for each class of risk, computation of the curvature risk capital requirement for every category of risk, and estimation of combined sensitivities-based technique capital requirement (Minimum capital requirements for market risk, 2019). Moreover, the chapter encompasses sensitivities-based method's risk factor and sensitivity definitions for vega, delta, and curvature risks; for instance, general interest rate risk determinants, credit spread risk non-securitization risk factors, credit spread risk securitization of non-correlation trading portfolio risk elements, credit spread risk securitization of correlation trading portfolio risk aspects, equity risk determinants, commodity risk elements, and foreign exchange risk components. Furthermore, it addresses sensitivities-based technique's definition of sensitivities; necessities for pricing models or instrument price for sensitivity computation; delta risk's sensitivity definitions; vega risk's sensitivity definitions; requirements on sensitivity calculations; consideration of multi-
underlying options and index instruments; treatment of equity investments in funds; consideration of vega risk for multi-underlying instruments; and sensitivities-based technique's definition of risk weights, delta risk buckets, and correlations (Minimum capital requirements for market risk, 2019). Besides, it stipulates delta general interest rate risk buckets, correlations, and risk weights; delta credit spread risk non-securitizations buckets, correlations, and risk weights; delta credit spread risk (correlation trading portfolio) securitization buckets, correlations, and risk weights; delta credit spread risk (non-correlation credit portfolio) buckets, correlations, and risk weights; equity risk buckets, correlations, and risk weights; commodity risk buckets, correlations, and risk weights; foreign exchange risk buckets, correlations, and risk weights; and sensitivities-based technique’s definition of vega risk buckets, correlations, and risk weights.

According to the Bassel Committee, the default risk capital requirement of the standardized approach is a vital aspect of the minimum capital requirements for market risk (Minimum capital requirements for market risk, 2019). The various factors considered in the computation of this component include its central concepts, including jump to default risk; instruments that are susceptible to default risk capital requirement, the procedural approach followed when computing default risk of each risk class; default risk capital requirement for non-securitizations; determination of default risk capital requirement for non-securitization; and default risk capital requirement for noncredit trading portfolio and credit trading portfolio securitizations.

The standard approach method for market risk is instrumental in computing the residual risk add-on. It involves all instruments that bear residual risk distinctly and other capital requirement constituents under the standardized method (Minimum capital requirements for
The computation of the residual risk add-on is done alongside any other capital requirements within the standardized technique.

The Bassel Committee formulated the general criteria for financial institutions’ utilization of the internal models method. The employment of internal models to determine market capital requirements is dependent on the explicit consent of the supervisory authority of the bank (Minimum capital requirements for market risk, 2019). Factors requiring consideration include qualitative standards, model validation standards, external validation, and stress testing.

The amendment proposes the model requirements for the internal models approach. They include the stipulation of market risk factors, model eligibility of risk factors, bucketing strategy for the risk factor eligibility test, and principles for the modellability of risk elements that qualify the risk factor eligibility test.

Profit and loss attribution test and backtesting requirements should be recognized in the computation of minimum capital requirement for market risk employing the internal models method. The backtesting and profit and loss attribution test requirements for financial institutions that utilize the internal models approach should acknowledge various factors, including backtesting requirements, backtesting at the trading desk level, profit and loss attribution test requirements, and profit and loss attribution test data input alignment (Minimum capital requirements for market risk, 2019). A trading desk is defined as the level at which the approval of a model is appraised. Other important considerations are profit and loss attribution test metrics, the procedure for estimating the Spearman correlation metric, the process for establishing Kolmogorov-Smirnov test metrics, profit and loss attribution test metrics evaluation, and treatment for exceptional circumstances.
The committee outlines the process of calculating capital requirements according to the internal models. The procedure encompasses the computation of expected shortfall, calculation of capital requirement for modellable risk factors, estimation of capital requirement for non-modellable risk factors, calculation of default risk capital requirement, evaluation of capital requirement for model-ineligible trading desks and aggregation of capital requirement.

In this report, the simplified, standardized approach for computing risk-weighted assets for market risk is discussed. It entails risk-weighted assets and capital requirements, interest rate risk, specific risk, general market risk, interest rates derivatives, and equity risk (Minimum capital requirements for market risk, 2019). Additionally, it outlines specific and general market risks, equity derivatives, foreign exchange risk, measurement of exposure in a single currency, and the determination of the foreign exchange risk in a portfolio of foreign currency positions and gold. Others include maturity ladder approach, commodities risk, delta-plus technique, scenario method, and simplified approach, as well as their treatment alternatives.

The Bassel Committee amendment consists of transitional arrangements. This section presents the procedure of computing capital requirements per the internal models approach (Minimum capital requirements for market risk, 2019). The practice of any transitional arrangements forms the basis of the formulation of a new amendment.

This amendment guides the utilization of the internal models approach. It is particular on the application of principles for risk factor modellability and directive for backtesting requirements (Minimum capital requirements for market risk, 2019). They include trading de-level backtesting; bank-wide backtesting, including statistical considerations in describing the backtesting areas; and examples of the application of the principles for risk factor modellability, such as regression diagnostics for multi-factor beta models, recovery of price from risk elements,
periodic reconciliation of risk pricing with back office and front office prices, risk factor backtesting, and generation of risk elements from parameterized models.

**Summary of the Chapter**

The prevalence of money laundering crime and its evolution subject to technological advancement has attracted the attention of researchers to this domain. Mainly, they seek to address the interplay of various elements in fostering the thriving of this crisis. Besides, they aim to help in formulating effective policies for countering the vice. Due to the unpredictability of the future, the theoretical foundations of the majority of this literature are based on concepts that facilitate risk identification, risk estimation, appreciation of its effects, and the formulation of appropriate counter-strategies (Crouhy, Galai, & Mark, 2006). Risk assessment is a process that involves various stages.

Compliance is among the proposed measures of avoiding money laundering risk. Its evolution is subject to past and present incidents. Remarkably, many issues of noncompliance are current in various sectors of operation. However, multiple agencies that promote formal compliance exist. Financial institutions, including, banks, are considerably susceptible to the effects of breaches of compliance and their consequence (Ramakrishna, 2015). Thus, such organizations should proactively manage compliance and related risks to improve their performance. Currently, compliance risk is considered the most dominant risk, and every approved regulation concerning it is linked to substantial expectations.

According to Stancu & Rece (2009), money laundering impacts economic growth. Such findings have triggered the amendment of legislation to prevent the influence of these criminal activities on the global economy. Different sound measures of countering money laundering and
terrorist financing risks have been instituted. They include the formulation of anti-money laundering measures and combating the financing of terrorism processes and strategies (Sound management of risks related to money laundering and financing of terrorism, 2019). Various organs, such as the Bassel Committee, have been entrusted with the mandate to amend and upgrade policies on countering money laundering and terrorism financing. Furthermore, these organizations play different roles in producing stipulations that facilitate the unearthing of any possible means of exploiting the banking systems through intelligence (Anti-money laundering supervision, 2018). Notably, the Bassel Committee specifies various facets encompassed in a minimum capital requirement for market risk. This agency outlines the multiple approaches and risks that are instrumental in combating risk (Minimum capital requirements for market risk, 2019). Despite the availability of extensive literature on this knowledge domain, there is a need for risk assessment using models to refine the measures in place.

Chapter 3: Methodology

Introduction

Money laundering is a serious challenge facing banks and other financial institutions around the globe. Various strategies and amendments have been instituted to counter this risk. Nonetheless, rapid technological advancement renders these measures obsolete, thereby necessitating the implementation of improved ones. This project aims at presenting a comprehensive understanding of the money laundering risk to which AA bank is prone to underpin the formulation of alert-based AML models for risk identification, analysis, and management that can combat and alleviate these risks. Consequently, it would be clear how AML risk assessment inhibits the money laundering incidents, besides the significance of AML
risk-assessment processes and the banks’ compliance with the risk management program. The chapter presents the methodology and design employed in undertaking this project. Moreover, population and sample selection, data sources, data reliability and validity, and data collection and analysis procedures are discussed. It closes with a summary, which synthesizes the content of the methodology section.

**Project Methodology**

This project adopted quantitative methodology, which involves the collection, categorization, synthesis, analysis, as well as interpretation of quantitative data. It explores a phenomenon by collecting numerical data that is analyzable using mathematical techniques. A quantitative methodology is appropriate for this project since it simplifies large data amounts; thus, increasing the chances of realizing accurate conclusions. Additionally, it provides factual data required to answer a research question by focusing on quantifiable social behavior aspects. Furthermore, this methodology supports the numerical computation of statistics that relay information concerning the population of interest. Unlike other approaches, quantitative methodology comprised standardized steps and is executed systematically, thereby lowering bias rates during data collection and analysis. Reliability and validity characterize the outcomes of this technique; hence, increasing their generalization to a larger population.

This quantitative methodology supported the realization of information that addressed the concerns of the money laundering risk. It allowed data gathering, categorization, analysis, synthesis, and interpretation. Hence, it aided helped to evaluate the ability of AML risk assessment to counter money laundering incidents, the importance of these procedures, and why financial institutions should comply with risk management programs.
Project Design

This project employed descriptive statistics design. Descriptive statistics denotes a set of mathematical information analyses that yields a meaningful data summary. The description of these statistics occurs in numerical manuscript tables or texts. This design helped in summarizing information concerning the study sample and facilitated the statistical collection and analysis of data based on the various aspects regarding money laundering. It represented the most appropriate design for gathering data compared to others since it enabled the derivation of valuable information regarding money laundering risk from empirical data.

Population and Sample Selection

The population denotes an entire set of study participants that depict similar observable attributed that are of interest to the researcher. Financial institutions, including banks, form the population of this study. They are susceptible to the risk of money laundering. The sample constituted AA Bank in Europe. Several private entities, corporate entities, private clients, and corporate clients were involved in this study. The money laundering risk assessment model involved 214 subjects, 107 private entities, and 107 corporate entities. Conversely, the customer behavior model employed 100 clients.

Data Collection

The study utilized secondary data from the AA Banks' database. It obtained statistical, one-year period data for 2019. For the first model of risk assessment of new entities, the variables of interest encompassed nationality, country of residence, and profession for private entities, and headquarters, country of residence, and economic activity for corporate entities. Contrarily, the second model of assessing customer behavior utilized a different sample from the
one used in the previous model. Employing the study sample used in the risk assessment model, which had a predictable basis, would be inappropriate since the behavioral model needed to analyze the related transactions made by the customers to evaluate their behavior. Hence, this project phase utilized the transactions for different private clients and various corporate clients of the AA Bank for the year 2019. Furthermore, hard clustering, where each data unit falls into a cluster entirely or not, was employed to develop clusters using variables, such as the number of counter used by a customer, client number, operation code, and transaction currencies. There need for conducting further tests for examining the reliability and validity of the data used was unnecessary since the data was collected from valid and reliable secondary data sources.

**Data Analysis Procedures**

The process of data analysis entailed cleaning data collected from AA Bank’s database and aligning it to the objectives of this study. The excel program was employed in the data analysis, where both descriptive statistics and inferential statistics were applied. Data analysis involved two models, the risk assessment model and behavioral model.

The risk assessment model is a predictive statistical regression-based framework that was performed on new entities and clients. It determined the bank's decision to accept or decline new customers and entities at first contract. It involved various phases. Firstly, a degree of risk was assigned to existing entities of AA Bank concerning their country of residence, profession, and nationality. Secondly, this clustering represented the premise for the formulation of a regressive model of risk assessment. Finally, a risk assessment model for new entities was developed through numerous variables that characterize each entity and client, both corporate and private
institutions. This procedure yielded an equation that facilitated the evaluation of each element concerning their level of risk.

The behavioral model entailed monitoring the transactions of the clients of AA Bank and their suspicious activities to reveal any behavioral deviations from the expected cluster-based behavior. With this model, an associated risk characterize each cluster, where classifications with substantial risks are regarded targets of special consideration. The existence of a divergence from the anticipated behavior translates into a caution of suspected money laundering. The behavioral model is instrumental in signaling any illicit activity promptly; hence, it is a considerably eminent tool for banks to counter money laundering.

**Model Specification**

The project employed multiple regression analysis to project the relatedness between the explained and independent variables.

The two models exhibited the following forms:

**Risk assessment model**

\[ Y = \beta_0 + \beta_1 X_{1R} + \beta_2 X_{2R} + \beta_3 X_{3R} + \beta_4 X_{4R} + \beta_5 X_{5R} + \beta_6 X_{6R} + \epsilon \]

Where \( Y \) = money laundering risk

\( \beta_0 \) = Equation coefficient

\( \beta_1 X_{1R} \) = private entity’s nationality

\( \beta_2 X_{2R} \) = private entity’s country of residence

\( \beta_3 X_{3R} \) = private entity’s profession.

\( \beta_4 X_{4R} \) = corporate entity’s headquarters

\( \beta_5 X_{5R} \) = corporate entity’s country of residence
\( \beta_{6R} X_{6R} \) = corporate entity’s economic activity

\( \varepsilon \) = the error term

**The behavioral model:**

\[
Y = \beta_{0B} + \beta_{1B} X_{1B} + \beta_{2B} X_{2B} + \beta_{3B} X_{3B} + \beta_{1R} X_{1R} + \varepsilon
\]

Where \( Y \) = client behavior

\( \beta_{0B} \) = equation coefficient

\( \beta_{1B} X_{1B} \) = counter number used by a client

\( \beta_{2B} X_{2B} \) = client number

\( \beta_{3B} X_{3B} \) = transaction operation code

\( \beta_{1R} X_{1R} \) = currency of a transaction

\( \varepsilon \) = the error term

**Chapter Summary**

The development of the alert-based risk assessment and behavioral model to facilitate the identification, analysis, management of money laundering risks encompassed various activities and procedures. The study adopted a quantitative methodology, which facilitated the use of mathematical techniques to transform numerical data into an understandable form. The analyzed data was instrumental in the formulation of conclusions regarding the project. The study adopted the descriptive statistics design, which provided meaningful data summary in tables and figures, thereby yielding valuable insights from the available information.

The study population encompassed banks and other financial institutions. AA Bank in Europe formed the study sample. The one-year data, for 2019, used in this project was obtained from this bank’s database. The two dependent variables of the study were money laundering risk
and client behavior. Conversely, the explanatory variables included nationality, country of residence, and profession for private entities, and headquarters, country of residence, and economic activity for corporate entities. Others were the number of counters used by a customer, client number, operation code, and transaction currencies. A regression analysis was run using the excel program to indicate the relationship between the risk of money laundering and customer behavior with the respective set of explanatory variables. The outcomes of the investigation were presented in tables and figures to ease understanding.

Chapter 4: Data Analysis & Results

Money Laundering Risk Assessment

The money laundering risk assessment model was used to establish factors that foster criminal activities. Various variables, including private entity's nationality, private entity's country of residence, private entity's profession, corporate entity's headquarters, corporate entity's country of residence, and corporate entity's economic activity, were regressed against the money laundering risk. Since these variables are non-numeric, which limited the performance of the regression function in the Excel program, they were coded first before inputting the data into the Excel program. Coding entailed assigning codes to all the variables to generate a coding scheme. The coding schemes for the different variables were as follows:
Regression analysis was undertaken to evaluate the influence of the private entity’s nationality, private entity's country of residence, private entity's profession, corporate entity's headquarters, corporate entity's country of residence, and corporate entity's economic activity on the level of money laundering risk predisposed to AA Bank in Europe. The subsequent sections indicate the outcomes of the Model Summary and Regression Coefficients of the analysis.

**Table 1: Model Summary - Money Laundering Risk Assessment**

<table>
<thead>
<tr>
<th>ML Risk</th>
<th>Private Entity's Nationality</th>
<th>Private entity's country of residence</th>
<th>Private entity's profession</th>
<th>Corporate entity's headquarters</th>
<th>Corporate entity's country of residence</th>
<th>Corporate entity's economic activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = High</td>
<td>1 = Nation with high corruption index</td>
<td>1 = Country with unsecure economical and political systems</td>
<td>1 = Professions with undefined salary structures</td>
<td>1 = Localities without AML policies</td>
<td>1 = States with few requirements for the documentation needed for opening businesses</td>
<td>1 = Products/services with high ML risk</td>
</tr>
<tr>
<td>2 = Medium</td>
<td>2 = Nation with medium corruption index</td>
<td>2 = Country with somehow secure economical and political systems</td>
<td>2 = Professions with doubtfully defined salary structures</td>
<td>2 = Localities with inadequate AML policies</td>
<td>2 = States with several requirements for the documentation needed for opening businesses</td>
<td>2 = Products/services with medium ML risk</td>
</tr>
<tr>
<td>3 = Low</td>
<td>3 = Nation with low corruption index</td>
<td>3 = Country with secure economical and political systems</td>
<td>3 = Professions with well-defined salary structures</td>
<td>3 = Localities with strict AML polices</td>
<td>3 = States with numerous requirements for the documentation needed for opening businesses</td>
<td>3 = Products/services with low ML risk</td>
</tr>
</tbody>
</table>

Regression Statistics

- **Multiple R**: 0.934540166
- **R Square**: 0.873365323
According to the model summary, the coefficient of correlation, $R$, of the money laundering risk assessment model is $0.9345$. This outcome implied the existence of a strong positive linear relationship between money laundering risk and the various independent variables. Furthermore, the adjusted coefficient of determination, adjusted $R$ square, of this model is $0.8658$, which showed that the explanatory variables, private entity’s nationality, private entity's country of residence, private entity's profession, corporate entity's headquarters, corporate entity's country of residence, and corporate entity's economic activity, explain $86.58\%$ change in the level of money laundering risk in AA Bank.

**Table 2: Regression Coefficients – Money Laundering Risk Assessment**

<table>
<thead>
<tr>
<th></th>
<th>Coefficients</th>
<th>Standard Error</th>
<th>t Stat</th>
<th>P-value</th>
<th>Lower 95%</th>
<th>Upper 95%</th>
<th>Lower 95.0%</th>
<th>Upper 95.0%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-0.24035</td>
<td>0.094705</td>
<td>-2.53789</td>
<td>0.012696</td>
<td>-0.428242</td>
<td>-0.052459</td>
<td>-0.428242</td>
<td>-0.052459</td>
</tr>
<tr>
<td>Private entity's nationality</td>
<td>0.275882</td>
<td>0.058813</td>
<td>4.69082</td>
<td>0.000009</td>
<td>0.159198</td>
<td>0.392566</td>
<td>0.159198</td>
<td>0.392566</td>
</tr>
<tr>
<td>Private entity's country of residence</td>
<td>0.027525</td>
<td>0.057652</td>
<td>0.477439</td>
<td>0.634091</td>
<td>-0.086854</td>
<td>0.141904</td>
<td>-0.086854</td>
<td>0.141904</td>
</tr>
<tr>
<td>Private entity's profession</td>
<td>0.045583</td>
<td>0.051218</td>
<td>0.889981</td>
<td>0.375612</td>
<td>-0.056032</td>
<td>0.147199</td>
<td>-0.056032</td>
<td>0.147199</td>
</tr>
</tbody>
</table>
The equation established by the regression analysis was:

\[ Y = -0.2404 + 0.2759X_{1R} + 0.0275X_{2R} - 0.0455X_{3R} + 0.1698X_{4R} + 0.3988X_{5R} + 0.1907X_{6R} + \varepsilon \]

Where \( Y \) = money laundering risk; \(-0.2404\) = equation coefficient; \( X_{1R} \) = private entity’s nationality; \( X_{2R} \) = private entity’s country of residence; \( X_{3R} \) = private entity’s profession; \( X_{4R} \) = corporate entity’s headquarters; \( X_{5R} \) = corporate entity’s country of residence; \( X_{6R} \) = corporate entity’s economic activity; and \( \varepsilon \) = the error term.

Thus, when all the variables of this study were held constant, the money laundering risk of AA Bank in Europe would be at -0.2404. The model revealed the existence of inverse relationships between money laundering risk and all the explanatory variables. High levels of money laundering risk matched low degrees of all the independent variables. This observation implied that a unit improvement in a country’s corruption index position, economic and political systems, salary structures, AML policies, strictness for the requirements for the documents needed for opening businesses, and the risk levels associated with products and services lowered money laundering risk by 0.2759, 0.0275, 0.0455, 0.1698, 0.3988, and 0.1907, respectively. Therefore, each activity has a distinct magnitude of influence on money laundering risk.
According to the test of significance at a 95% percent level of significance, all the relationships between money laundering risk and the independent variables, except the private entity’s country of residence and private entity’s profession, were statistically significant. The corporate entity's headquarters, represented by the level of anti-money laundering policies instituted in that locality, had a substantial influence on the level of money laundering risk in AA Bank, p = 0.0236 < 0.05. Moreover, the products and services produced and offered by corporate entities impacted the degree of AA Bank’s money laundering risk significantly since p = 0.0038 < 0.05. The private entity's nationality, represented by corruption index, and the corporate entity's country of residence, denoted by the requirements for the documentation needed for opening businesses, had p values of 0.000009 and 0.000002, respectively. Thus, the two variables had a significant impact on money laundering risk. Remarkably, the equation coefficient of the money laundering risk behavior model was statistically significant at 95% level of confidence since its p-value was 0.0127 < 0.05.

Conversely, the relationships between money laundering risk and the private entity's profession, the stipulation of salary structures, besides private entity’s country of residence, represented by nature of economic and political systems, were statistically insignificant at the 95% level of confidence. Their p-values at the level of significance were larger than 0.05. The p-value of the former variable was 0.3756, whereas that of the latter is 0.6341. Thus, the intensity of anti-money laundering risk is statistically significantly determined by the type of anti-money laundering policies in place and the degree of risk attributed to specific products and services. Nonetheless, the definition of salary structures and the nature of political and economic systems of a nation do not statistically significantly affect the risk of money laundering.
The Behavioral Model

The behavioral model sought to examine the transactions of customers of AA Bank to reveal any suspicious behavior that would reveal any behavior deviations from the predesigned cluster-based behavior. While customer behavior denoted the dependent variable, customer number, transaction operation code, the currency of transaction, and the counter number used by the client represented the independent variables. Similar to the variables used in the money laundering risk assessment model, these aspects were non-numeric; thus, coding them was necessary to facilitate the performance of the regression analysis. The coding schemes of the various variables encompassed:

<table>
<thead>
<tr>
<th>Customer Behavior</th>
<th>Customer Number</th>
<th>Transaction Operation Code</th>
<th>Currency of Transaction</th>
<th>Counter Number Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = More suspicious behavior</td>
<td>1 to 100</td>
<td>001 to 00100</td>
<td>1 = More than 2 currencies</td>
<td>1 = Used only 1 counter</td>
</tr>
<tr>
<td>2 = Suspicious behavior</td>
<td></td>
<td></td>
<td>2 = 2 currencies</td>
<td>2 = Used different counters</td>
</tr>
<tr>
<td>3 = Less suspicious behavior</td>
<td></td>
<td></td>
<td>3 = 1 currency</td>
<td></td>
</tr>
</tbody>
</table>

A regression analysis was conducted to show the relationship between the explained variable, customer behavior, and the independent variables, customer number, transaction operation code, currency of transaction, and the counter number used by the client. The following sections present the model summary and regression coefficients of the behavioral model analysis.

Table 3: Model Summary – Customer behavior

<table>
<thead>
<tr>
<th>Regression Statistics</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple R</td>
<td>0.936962803</td>
</tr>
<tr>
<td>R Square</td>
<td>0.877899295</td>
</tr>
</tbody>
</table>
The summary model indicated that the coefficient of correlation, \( R \), of the behavioral model was 0.9369, which reflected the existence of a robust, positive linear relationship between the client behavior and the explanatory variables of this model. The adjusted coefficient of determination, adjusted \( R \) square, of this model was 0.8637, which showed that the independent variables under investigation, customer number, transaction operation code, the currency of transaction, and the counter number used by the customer, explained 86.37\% change in the customer behavior at AA Bank.

Table 4: Regression Coefficients – Customer Behavior

<table>
<thead>
<tr>
<th></th>
<th>Coefficients</th>
<th>Standard Error</th>
<th>( t ) Stat</th>
<th>( P )-value</th>
<th>Lower 95%</th>
<th>Upper 95%</th>
<th>Lower 95.0%</th>
<th>Upper 95.0%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0</td>
<td>#N/A</td>
<td>#N/A</td>
<td>#N/A</td>
<td>#N/A</td>
<td>#N/A</td>
<td>#N/A</td>
<td>#N/A</td>
</tr>
<tr>
<td>Customer Number</td>
<td>0.008194</td>
<td>0.002679</td>
<td>3.05876</td>
<td>0.00288</td>
<td>0.013511</td>
<td>0.002876</td>
<td>0.002876</td>
<td>0.013511</td>
</tr>
<tr>
<td>Transaction Operation Code</td>
<td>0.000812</td>
<td>0.000251</td>
<td>3.23135</td>
<td>0.00169</td>
<td>0.00313</td>
<td>0.00131</td>
<td>0.00131</td>
<td>0.00313</td>
</tr>
<tr>
<td>Currency of Transaction</td>
<td>-0.06411</td>
<td>0.090726</td>
<td>-0.70664</td>
<td>0.48151</td>
<td>-0.2442</td>
<td>0.11598</td>
<td>-0.2442</td>
<td>0.11598</td>
</tr>
<tr>
<td>Counter Number Used</td>
<td>0.414227</td>
<td>0.149998</td>
<td>2.76155</td>
<td>0.00689</td>
<td>0.116483</td>
<td>0.71197</td>
<td>0.116483</td>
<td>0.71197</td>
</tr>
</tbody>
</table>
The regression analysis of the customer behavior model yielded the following equation:

\[ Y = 0 + 0.0082X_{1B} + 0.0008X_{2B} - 0.0641X_{3B} + 0.4142X_{1R} + \varepsilon \]

Where \( Y \) = client behavior; \( 0 \) = equation coefficient; \( X_{1B} \) = counter number used by a client; \( X_{2B} \) = client number; \( X_{3B} \) = transaction operation code; \( X_{1R} \) = currency of a transaction; and \( \varepsilon \) = the error term.

The level of suspicion in customer behavior at AA Bank would remain at 0 if all the explanatory factors of this study were held constant. While a unit change in customer number would increase the suspicion of customer behavior by 0.0082, a unit increase in the change of transaction operation code and the counter number used by a client would increase customers' behavior suspicion by 0.0008 and 0.4142, respectively. Conversely, a unit increase in the number of currencies involved in transactions would decrease suspicion in the behavior of customers by 0.0069.

At the 95% level of significance, the relationship between the customers' behavior suspicion and all the independent variables, except the currencies involved in transactions, were statistically significant. The p-values of the customer number, transaction operation code, and the number of counters used by a client were 0.0029, 0.0017, and 0.0069<0.05, respectively. Thus, these associations were statistically significant. Conversely, the link between the dependent variable and the number of currencies used by a client is statistically insignificant at 95% confidence level; \( p = 0.4815 > 0.05 \). Hence, while the customer number, the transaction operation code, and the number of counters/bank tellers involved in the operations of a customer significantly influence suspicion of the customer behavior, the number of currencies used by a customer to transact does not.
Chapter 5: Discussion

Risk Assessment Model

The regression analysis outcomes of the money laundering risk assessment model revealed the unequal impacts of the various independent study variables on the dependent variable, money laundering risk. The results indicated that the nationality of a private entity, which served as a proxy for the particular nation's corruption index, significantly influenced the extent of money laundering risk AA Bank is susceptible to. This finding supported the works of Kyriakos-Saad, Esposito, & Schwarz (2012), which asserts that a close link between corruption and money laundering exists. Corruption offenses, for example, theft of public goods or bribery, yield considerable amounts of proceeds that require to be laundered to enter the financial system without the illegitimacy stigma. Simultaneously, corruption may stimulate money laundering, as corrupt staff may influence the process by which funds are laundered, and empower launderers to evade all sanctions and controls (Anti-money laundering supervision, 2018). According to FATF reports on money laundering classifications, all the phases of the money laundering process, placement, layering, and integration, exist in the laundering of the corruption proceeds, disregarding the form in which corruption manifests. Furthermore, research has shown that nations with an inconsiderable level of restraint over corruption tend to have deficient levels of adherence to the anti-money laundering and to counter the funding of terrorism standards. Therefore, the convergence of the outcomes of this study with those of Kyriakos-Saad, Esposito, & Schwarz (2012) strengthens the knowledge base concerning the relationship between money laundering risk and the corruption index of a private entity's nationality.

An increase in the deterioration of security of legal and economic systems, which denoted the private entity’s country of residence, trigger a rise in money laundering risk. Nonetheless, the regression analysis failed to depict the level of statistical significance of this relationship, p =
These findings support the works of Kyriakos-Saad, Esposito, & Schwarz (2012), which emphasize the importance of reinforcing customer due diligence provisions and extending refined due diligence strategies to all domestic and foreign politically-exposed individuals. Additionally, this past research advocated for the improvement of transparency of legal arrangements and persons, including crucial treaties to be evaluated concerning their implementation and ratification. Finally, this article supports the increased cross-border wire-transfers transparency. Thus, the country of residence of a private entity is critical to money laundering risk.

According to the regression analysis, irregularities in defining the private entity's salary structures, which depend on the private entity's profession, had a positive association with the money laundering risk. However, this link is statistically insignificant ($p = 0.003756 > 0.05$). When the identity and sources of a private entity's wealth are easily identifiable, and the transactions of such individuals exhibit substantial conformity to the known profile, then the money laundering risk is low (Simonovsk & Nikoloska, 2016). Moreover, employees whose salary structures are well defined can be categorized as low-risk clients. Furthermore, people who receive remuneration from government-owned companies, government departments, statutory, and regulatory bodies are classifiable as low risk. Hence, difficulties in defining a private entity's occupational income may translate into increased money laundering risk.

The headquarters of a corporate entity, which determines the anti-money laundering policies in place, is a critical determinant of the level of money laundering risk. A positive statistically significant link exists between these two variables ($p = 0.0236$). Typically, money launderers exploit both the sophistication intrinsic to the worldwide financial system, as well as the variations between the different national anti-money laundering and anti-corruption laws and
systems. These criminals are particularly attracted to jurisdictions with ineffective or weak controls where they can transfer their proceeds quickly without detection (Kyriakos-Saad, Esposito, & Schwarz, 2012). Robust anti-money laundering strategies are instrumental in preventing, detecting, and countering money laundering and enhancing overall financial sector stability and integrity. Hence, the anti-money laundering policies are critical determinants of the risk of money laundering.

A significant positive relationship between the country of residence of a corporate residence, which shows the required documentation for opening businesses, and money laundering risk exists, $p = 0.000002 < 0.05$. In the United Kingdom, Her Majesty's Revenue and Customs (HMRC) supervises businesses for anti-money laundering purposes to ensure fit and appropriate or approval requirements under the Regulations (Anti-money laundering supervision, 2018). These prerequisites ensure that firms' beneficial topmost management and owners are the right individuals to execute those roles. Relevant individuals must pass the relevant test before the entity can register and retain registration with HMRC (Anti-money laundering supervision, 2018). Registration is a legislative requirement to trade, rather than an endorsement or recommendation of the business (Anti-money laundering supervision, 2018). Thus, bureaucratic procedures and requirements for registering businesses are essential factors for reducing money laundering risk.

The economic activity undertaken by a corporate entity is statistically significantly related to money laundering risk: $p = 0.0038 < 0.05$. The intensity of risk is dependent on the precise services or products offered by the entity. Products that are easily provided by financial institutions, for example, mortgages or loans, have low risks. Conversely, products with high levels of anonymity or refer to cash transactions are potentially risky (Simonovski & Nikoloska, ...
2016). International correspondent banking services, private banking services, services associated with trading with noble and precious metals, services related to developing, or new technologies exemplify some risky economic activities. Thus, the operations of corporate entities are critical to the level of money laundering risk affecting financial institutions.

**Behavioral Model**

The behavioral model regression analysis revealed that customer numbers, transaction operation codes, and the number of counters used by a client significantly influence the client suspicion behavior; the p values of these relationships were 0.0029, 0.0017, and 0.0069 <0.05, respectively. Nonetheless, the relatedness between the customer number and transaction operation code with the dependent variable may not have a meaningful implication since the role of these explanatory variables is to identify the clients of AA Bank with their corresponding transactions. Conversely, the model showed that an inverse relationship between customer behavior suspicion and the currencies used to transact exists. Nevertheless, this link lacked statistical significance at the 95% confidence level, p = 0.4815 > 0.05.

The currency of transaction and the counter number are important variables considered in this study. The outcomes showed that the number of currencies involved in a customer's transaction had a statistically insignificant negative link with customer behavior suspicion, p = 0.4815 > 0.05. This finding implied that less currencies were attributable to more suspicion of customer behavior, thereby counteracting existing research by Simonovsk & Nikoloska (2016). In their study, these researchers asserted that the higher the number of currencies used, the higher the extent of customer behavior suspicion. From the money laundering perspectives, activities of various categories of clients may be attributed to high risk. Firstly, the considerable and
unexplainable geographic distance between the entity required to implement the transactional activity and the residence place of the client is associated with high risk and strong suspicion of the customer behavior, as it may involve the use of numerous currencies (Anti-money laundering supervision, 2018). Secondly, the frequent and unexplainable transfer of assets between accounts in different financial institutions or regions using various currencies trigger increased customer behavior suspicion (Simonovsk & Nikoloska, 2016). Next, frequent and unexplainable cash flows between banks in different geographic regions are attributed to increased suspicion in customer behavior. Additionally, client operations that provide money services, such as exchange of foreign-exchangeable activities, remittances, and services for fast money transfer, occur internationally; thus, they may involve numerous currencies, thereby raising the suspicion in customer behavior. Hence, the number of currencies used by clients, subject to their geographic regions of operation, influence the customers' behavioral suspicion. Remarkably, the outcome of this study was statistically insignificant at the 95% level. Thus, inconclusiveness characterizes the findings on the link between the number of currencies used to transact and customer suspicion behavior.

The regression analysis indicated the existence of a positive statistically significant relationship between the suspicion level of client behavior and the counter number used, $p = 0.0069 < 0.05$. It is essential to consider the number of counters used by a particular customer to transact when determining the suspicion level of the client. Specifically, the regions or branches in which the customer undertakes banking services, that is, entry and payment of money, should be assessed (Anti-money laundering supervision, 2018). Such information is instrumental in determining whether the client changes various bank branches often to leave suspiciousness in some bank staff or a client intends to undertake banking services with single bank personnel
RISK ANALYSIS IN MONEY LAUNDERING

(Simonovsk & Nikoloska, 2016). Besides, it facilitates ascertaining whether the location of the branches of the financial institutions where the transactions are performed are suspected of having the existence of supporters of extremism and radicalism. Thus, the number of counters a customer uses to transact may reveal their suspicion level regarding money laundering risk.

Chapter 6: Summary, Conclusion, and Recommendations

Introduction

Money laundering risk is subject to various determinants. This section presents a summary of the data analysis outcomes. The summarized findings help in the generation of conclusions. Whereas, the primary results of this research are instrumental for the formulation of necessary recommendations for policymakers. This chapter further outlines the limitations of this study and proposes suggestions for future research.

Summary of the Findings

The risk assessment model revealed the existence of a strong, direct positive relationship between money laundering risk and different explanatory variables, including the private entity’s country of residence, private entity’s nationality, private entity’s profession, corporate entity’s headquarters, corporate entity's country of residence, and corporate entity's economic activity. Among these links, the relationships between money laundering link and all independent variables, except private entity’s country of residence and private entity’s profession, were significant at the 95% confidence level. Thus, money laundering risk is considerably subject to the corruption level of a country, the number of documentation required to open businesses, the nature of AML instituted by a country, and the type of products and services offered by
corporate entities, but not the nature of the economic and political systems and salary structures related to private entities.

The behavioral model indicated that a direct, significant association between customer behavior suspicion, transaction operation code, customer number, and the number of counters used by a client to transact exist. Conversely, it indicated the existence of an insignificant negative link between the level of customer behavior suspicion and the number of currencies involved.

**Conclusion**

The two models used in this study, risk assessment and behavioral, reveal that the extent of money laundering risk facing banks is subject to the interplay of different elements. The study concluded that the nationality of a private entity, which defined corruption index, significantly affects money laundering risk. Additionally, it deduced that increased leniency of anti-money laundering policies intensified the risk, whereas the reduction of the documentation required to register businesses fosters this risk; thus, the corporate entity's headquarters and its country of residence affect money laundering risk. Besides, the provision of products and services associated with substantial money laundering risk and deficient specification of professionals' salary structure stimulate this risk. From the client behavioral model, it was concluded that the customer number, transaction code, and the number of counters/bank tellers attending clients significantly influence the suspicion of the client's behavior. Finally, this model indicated that the number of currencies used by the clients statistically fail to impact the suspiciousness in their behavior.
Recommendations for Policy and Practice

The study recommends the institution of stringent anti-money laundering mechanisms to counter the risk of money laundering. Furthermore, nations should enhance the security of their economic and political systems to prevent the flow of illicit money and its introduction into the economy. Moreover, the remuneration structures should be adequately defined to allow the easy ascertainment of the wealth of professionals to inhibit their engagement in criminal activities. Besides, a considerable number of documentation and strict procedures should be adhered to during the opening of businesses to ensure that entities and businesses are registered and ran by the appropriate individuals. Additionally, any economic activity that offers products or services considered money laundering risky should be banned to prevent the prevalence of this vice to other regions. Finally, the behavior of clients, particularly regarding the number of currencies and counters used to transact, should be examined deeply to unearth any suspicion concerning money laundering activities. Consequently, the bank could take preventive measures that could thwart the money laundering risk before it occurs.

Limitations of the Study

The data used in this study was solely obtained from AA Bank in Europe. Thus, it may not be generalized to remedy the situation in other banks worldwide since it is not an adequate representative of the entire financial institutions' population. Furthermore, the data used was for the year 2019, which may fail to reflect the exact levels incidents involving various variables in the past and future years. However, the findings are useful since the significant advancement of global technology by 2019 is relatable to the extent of the money laundering risk prevalence.
Suggestions for Future Study.

The current study was performed on one bank, AA Bank in Europe; further studies should focus on various listed commercial banks or microfinance institutions from different regions. Moreover, future studies may involve data of the past years, preferably ten, to draw comparisons on the trend of money laundering risk facing AA Bank over the specified period.
References


APPENDIXES

Appendix I: Risk Assessment Model

Chart 1: All independent variables against money laundering risk

Corporate and private entities characteristics against ML Risk

Chart 2: Statistics of different ML risk levels
Chart 3: Corporate entity’s headquarters against ML risk

Chart 4: Private entity’s country of residence against ML risk
Appendix II: Behavioral Model

Chart 5: Number of currencies and counters used against customer behavior
Chart 6: Number of currencies used against behavior suspicion

Number of Currencies Used against behavior suspicion
Chart 7: Number of counters used against behavior suspicion

- Used different counters
- Used 1 counter only