The current issue and full text archive of this journal is available on Emerald Insight at:
https://www.emerald.com/insight/1368-5201.htm

Money-laundering risk and preventive measures in Pakistan

Irfan Hassan Jaffery
Department of Financial Monitoring Unit, State Bank of Pakistan, Karachi, Pakistan, and

Riffat Abdul Latif Mughal
Department of Management Sciences, Shaheed Zulfikar Ali Bhutto Institute of Science and Technology, Karachi, Pakistan

Abstract

Purpose – The purpose of this paper is to examine the effectiveness of anti-money laundering/combating of financing of terrorism (AML/CFT) measures in Pakistan. Key variables of AML/CFT regulations of Pakistan are used. This study explores the impact of customer due diligence, record keeping, wire transfers, correspondent banking, reporting of transactions, new technology and internal controls/compliance/trainings on money-laundering risk.

Design/methodology/approach – Data is collected with the help of questionnaires developed in light of Financial Actions Task Force (FATF) recommendations and the AML/CFT regulations of Pakistan.

Findings – Results show that customer due diligence, correspondent banking and new technology may help control money-laundering risk in Pakistan, whereas impact of record keeping, wire transfers and reporting of transactions did not have an effect on money-laundering risk. This study suggests a better implementation of these measures.

Research limitations/implications – The current study was limited to Pakistani banks. For more conclusive results, future studies should replicate similar studies in other countries.

Practical implications – Findings of this study may help the State Bank of Pakistan in taking measures to simplify the process of implementing FATF rules and regulations regarding AML/CFT, regular monitoring and trainings to the staff of banks and development finance institutions in customer due diligence, correspondent banking and new technology. Further, it helps to take appropriate measures in resolving banks-specific issues related to AML/CFT.

Social implications – Effective AML/CFT control measures would strengthen socio-economic growth in a country. Further, formalization, compliance and integrity would eliminate money laundering risk. It would create an economy that works with equity and promotes transparency.

Originality/value – This research paper supports implementation of AML/CFT regulations, proper monitoring and novel supervision of banks.

Keywords Money-laundering risk, Anti-money laundering, Customer due diligence, Pakistan, Financial Action Task Force, Money-laundering risk in Pakistan

Paper type Research paper

1. Introduction

Money laundering (ML) refers to the financial crime which involves dealing with illegitimate proceeds and concealment of their origin. It involves driving money from illegal activities

The authors acknowledge the support of Financial Monitoring Unit, State Bank of Pakistan and Shaheed Zulfiqar Ali Bhutto Institute of Science and Technology Karachi for continuous support. Also, the authors are thankful to Sundas Azeem (PhD Scholar and Lecturer-SZABIST Islamabad) for proofreading.

1368-5201
DOI 10.1108/JMLC-02-2020-0016

and making these funds available for future use as clean money. Financial Actions Task Force (FATF) has defined the term as follows:

> "A process of criminal acts for the purpose of generating profits and disguising their criminal proceeds as it allows the use of profits without jeopardising the illegitimate source of income".

Money laundering has a negative effect on the economic and social aspects of a society. McDowell and Novis (2001) discussed the economic consequences, including economic instability and distortion, loss of revenues and weak integrity of the financial system. Socially, money laundering provides fuel to criminal activities such as corruption, drug trafficking, terrorism, arms dealing and bribery. Furthermore, it helps criminals to avoid prosecution, conviction and confiscation of their illegal funds, while proficient anti-money laundering (AML) efforts prevent the ability of criminals to use their illegal money for further crimes (McDowell and Novis, 2001).

Considering the importance of money laundering to an economy, this study focuses on the strategies of the State Bank of Pakistan (SBP) for successful implementation of AML rules and regulations in the country. Our study helps in understanding the money-laundering risk (MLR) prevailing in the banking sector of Pakistan with the help of variables suggested by FATF.

We study the impact of customer due diligence (CDD), reporting of transactions, correspondent banking, fund transfers, record keeping, new technology, internal controls/compliance and employee trainings on money laundering, assuming that these factors have negative impact on MLR. Further, we study the gaps in AML regulations of Pakistan with international recommendations, challenges faced by the banks in successful implementation of AML regulations and respondents suggestions in the light of research outcomes.

1.1 Money-laundering process

Fanta and Mohsin (2010) categorized money into the clean money and dirty money. The funds derived from lawful resources are known as clean money, whereas the proceeds of illegal activities are called dirty money. According to Reuter and Trumen (2004), "Money Laundering is the transformation of criminal proceeds into assets which are difficult to be traced back to the underlying misconduct." They describe the following three phases of the money laundering process:

(1) *Placement*: It is the initial stage in which the proceeds generated from illegal means are injected into the financial system through banks and other financial institutions. In banks, it can be done through depositing cash into the bank accounts, purchasing banking instruments and exchanging funds and remittances. It is the most vulnerable stage of ML, as stringent controls and preventive measures may stop the illegal funds to be comingled into the financial institution. Further, this stage provides an opportunity to identify and trace the sources of funds to lessen the risk.

(2) *Layering*: After placement, the money launderer makes a complex layer over the funds through multiple transactions to hide the source. At the layering stage, criminals try to take away as much funds as possible from the origin, to separate them from illegal activity. Layering is done through routing the funds into multiple accounts at different banks, and the funds can be transmitted to other jurisdictions with weak regulations. Off-shore accounts, shell companies and risky banking products may also be used for this purpose. The objective is to impede the audit trail and disguise the source of funds.

(3) *Integration*: Once the purpose of layering is achieved, the funds are integrated into the economy as legitimate funds. This involves the purchase of assets such as properties, luxury items and financial assets. It becomes almost impossible to trace the funds after integration. It is pertinent to mention here that illegally derived funds may be used for further crimes and terrorist financing via integration.

1.2 Money-laundering risk

Financial institutions are exposed to the risk that their products and services may be used for money laundering. Therefore, it is the obligation of financial institutions to identify and assess such risk triggered from criminal elements. Ross and Hannan (2007) explained three basic types of MLR and emphasized adopting a risk-based approach in combating money laundering:

(1) *Probabilistic risk* is the probability of a risk to occur and is difficult to detect in every event of money laundering. A risk-based approach enables overcoming such type of risk by categorizing it. For example, if we know money laundering is normally associated with corruption, then a strong relationship will exist between politically exposed persons (PEPs) and money laundering, which will ultimately mitigate the risk of money laundering.

(2) *Consequence risk* is the risk associated with the seriousness or magnitude of the money laundering act. Money-laundering activities, which contain high volumes of funds, require more attention. Failure in detecting and reporting money laundering also warrants a reputational risk on financial institution.

(3) *Regulatory risk* is connected to vulnerability of a banking product or branch with weak monitoring. Such type of products/services or branches are exposed to high level of MLR, known as regulatory risk.

According to a research conducted by the United Nations Office on Drugs and Crime (UNODC, 2011), criminal proceeds amounting to US$ 1.6tn, which is 3.6% of global GDP, were laundered in the year 2009 and approximately US$800mln to US$2trn of money laundering occurs each year. Money laundering continues to damage economies and societies and the risk of money laundering is increasing with advancement in technology. New modes of payments and rapid movement of funds have made financial institutions riskier.

1.3 Money-laundering risk in Pakistan

Pakistan is considered as high-risk country for money laundering. The situation of anti-money laundering/combating of financing of terrorism (AML/CFT) regime has remained critical in past. FATF placed Pakistan on public statement (black list) in 2008 because of deficiencies in AML/CFT regime. Pakistan was removed from public statement (black list) to public document (gray list) in June 2010 because of the progress made in the AML/CFT system. The significant development during this period was the enactment of AML Act, 2010. In February 2015, Pakistan was detached from public document (gray list) after considerable completion of FATF action plan. In 2018, Pakistan was again placed on public document (gray list) of FATF mainly because of strategic deficiencies in money-laundering control and terrorist financing regime.

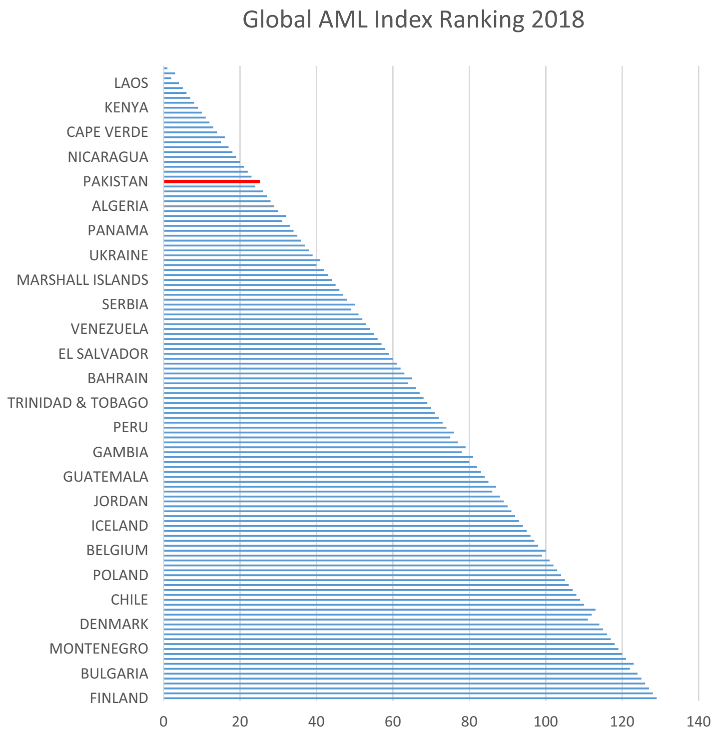
International Narcotics Control Strategy Report (II)-March 2018 published by *the Bureau of International Narcotics and Law Enforcement Affairs (USA)* stated, "Tax evasion, fraud, corruption, trade in counterfeit goods, contraband smuggling, narcotics trafficking and human smuggling are the major predicate offences for money laundering." The reports identified the following major MLRs:

- Pakistan–Afghanistan border is unregulated and facilitates the illegal movement of goods and monies.
- In fiscal year 2017, US$19.3bln were remitted back to Pakistan through the formal banking sector.
- The presence of alternative remittance system (Hawala/Hundi) because of poor supervision and regulation, unavailability of formal banking sector in backward areas and a lack of penalties imposed against illegally operating businesses.

According to the Basel AML Index 2018, "Pakistan ranked on 25th position among 121 countries in the world in terms of assessing the risk of money laundering and terrorist financing" (Figure 1).

1.4 Financial system of Pakistan

The financial sector of Pakistan is composed of banks, microfinance banks, development finance institutions (DFIs), non-bank financial institutes (NBFIs), insurance companies and



Source: Boguslavska (2018) personal communication, October 5, 2018

Figure 1.
Global AML Index ranking 2018

central directorate of national savings (CDNS). Table 1 shows the assets composition of financial sectors in Pakistan according to SBP's Financial Stability Review, 2017.

This study focuses on Pakistan's banking sector, whereby the risk of money laundering and counter-preventive measures will be assessed in light of international standards of AML. Pakistan's banking system is highly vulnerable to the risk of money laundering owing to its significant contribution (74%) to the overall financial system of the country. Furthermore, Kemal (2014) stated that the banking sector is more exposed to ML risk because banks primarily deal with money deposition, withdrawal and transfer, in addition to providing other financial services, placing them at a higher risk of money laundering.

1.5 Anti-money laundering/combating of financing of terrorism regulation for banks/ development finance institutions

AML/CFT regulations are the comprehensive money-laundering preventive measures for banks/DFIs issued by SBP on September 13, 2012. These regulations require the following anti-money laundering steps from banks and DFIs:

- *CDD*: The basic requirement for banks is to identify and verify the customer/entity before establishing a relation and/or conducting a transaction. It further extents to the identification of beneficial owner/natural person and PEPs. This regulation also provides guidelines to mitigate the ML risk posed by high-risk customers.
- *Correspondent banking*: This regulation entails preventive measures for banks while providing or availing correspondent banking services (inter-bank transactions).
- *Wire/fund transfer*: This regulation includes responsibilities for the parties involved in wire transfer, i.e. originator, beneficiary and intermediary.
- *Reporting of transactions [suspicious transaction reports (STR*s)/currency transaction reports *(CTRs)]*: It requires reporting of transactions to Financial Monitoring Unit (FMU) which appears suspicious to the bank (STR) and cash-based transactions exceeding the threshold of PKR 2.0mln (CTR).
- *Record keeping*: Banks are required to maintain the records of all transactions for at least 10 years (or permanent record where necessary) and make it timely available for Law Enforcement Agencies.
- *Internal controls, audit/compliance and training*: This regulation binds the banks to formulate an AML policy. It requires an independent audit and compliance function within the bank. It further emphasizes training and capacity building of bank employees to develop an understanding of MLR and their preventions.

Various techniques and tools are used for money laundering, mainly by advancement in technology, which requires ongoing amendments and updating AML/CFT regulations. In

Sector	Assets in billions (PKR)	% of Assets	% Growth
Banks	18,530	74.0	15.91
MBFs	247.1	1.0	45.27
DFIs	207.1	0.9	10.47
NBFIs	1,140	4.6	−23.3
Insurance	1,314	5.3	11.7
CDNS	3,521	14.2	−0.05

Table 1.
SBP's financial stability review 2017 – assets composition

Pakistan, SBP has updated AML/CFT regulations on October 18, 2018, in the light of FATF recommendations and emerging MLRs.

2. Compliance and challenges in controlling money laundering

Ahmed (2017) examined the challenges faced in implementation of regulations and the effectiveness of AML regulations in Bangladesh. Results showed the cultural and infrastructural constraints in completion of CDD exercise and the impact of alternative remittance system (Hawala/Hundi) on proper implementation of AML regulations. The research indicated that proper risk assessment, technology, ongoing supervision and education/training on money laundering have increased the effectiveness of AML regulations, whereas alternative remittance system, weak infrastructure, cultural restriction, corruption and tax amnesty weaken anti-money laundering efforts in Bangladesh (Ahmed, 2017).

Viritha (2015) studied the compliance and challenges in mitigating money laundering in India. The study focused on implementation of AML preventive measures such as AML policy, risk assessment and management, procedures of customer identification, transaction monitoring and reporting, effective control of wire transfers, regular updates and record-keeping measures with respect to know your customer (KYC). The results showed that in Indian banks, lack of resources, employee training, customer's support and information exchange were the major hindrance in implementation of AML measures.

Shanmugam and Thanasegaran (2008) conducted the research on the importance of dealing with MLR and preventive measures of Malaysian authorities. The study was based on secondary data and explained that strict guidelines regarding customer identification and verification, suspicious transaction reporting and record keeping are imposed on banks to curtail money laundering. However, Bekhouche (2018) stated that enhanced supervision, capacity building and international coordination are essential factors that reduce MLR in Malaysia.

Gibbs (2017) assessed the effectiveness of AML/CFT measures in United Arab Emirates using qualitative approach in which secondary data related to AML/CFT policies and regulatory documents and primary data from interviews of professionals were sanitized. According to him, robust regulatory framework, AML legislation enforcement and awareness, private sector commitment/cooperation and transparency in system were the key elements in effective implementation of anti-money laundering regulations. However, his findings showed uneven progress and inconclusive results.

Shahin (2013) studied the case of banks in Lebanon in compliance with international regulations on money laundering. He used the chronological method of analysis and described that banks in Lebanon are achieving AML standards by complying with FATF recommendations, cooperating with other countries through mutual legal assistance and abiding domestic guidelines and policies issued by the central bank.

On the other hand, Vaithilingam (2007) studied the factors affecting money laundering in 88 countries. The research focused on relationship of technology/innovation, legal framework, quality of human capital and ethical behavior of firms with the pervasiveness of money laundering in the banking and non-banking sectors. The study indicated that technology and quality of human capital have minor impact on money laundering, whereas legal framework and ethical behavior of firms play a vital role in controlling money laundering in banks and non-banking financial institutions.

In a comparative study, Geiger and Wuensch (2007) explored AML/CFT practices of banks and financial institutions in Germany, Switzerland and Singapore. The authors stated that to be effective in the fight against money laundering, banks and financial institutions should comply with the laws and regulations of AML and they should apply a risk-based approach to mitigate MLR. He further said that avoiding risk is not the right approach to deal with money laundering and reporting of suspicious activity report is the effective tool when the banks are confused regarding legitimacy of proceeds.

Ross and Hannan (2007) have also emphasized a risk-based approach to control money laundering. They suggested that preventive measures should be made in accordance with the level of MLR, which reduce compliance cost and increase regulatory performance. They further explained the conditions to be sufficed for risk-based approach to achieve outcomes of AML preventive measures. These conditions include proper understanding of risk, quantifiable models for assessing risk and availability of appropriate knowledge about the outcomes of assessment. Conversely, Araujo (2008) studied the incentive-based approach to cope with money laundering.

Ajayi and Abdulkarim (2010) argued that an increase in MLR threatens financial institutions. They suggested the following steps for effective control such as hiring of experts to monitor compliance policies, record keeping of customer information and transactions, employee training to enhance their skills in identifying suspicious and false transactions and back up the records of globalized attempts to limit money laundering crime.

Likewise, Smet and Mention (2011) claim that effective customer record keeping has an impact on money laundering. In a case study of Luxembourg banks, they proposed a matrix to help minimize problems in customer record keeping. The matrix consists of four factors, which include measuring consumer MLR, following up customer, teamwork of authorities and customer acceptance decision. Additionally, Mugarura (2011) also claimed that training employees in record keeping and reporting suspicious transactions are the best tools to fight money laundering.

Ping (2010) stated that money laundering is a well-known crime and is performed in a furtive way under the legal system which makes it hard to be discovered. Ping (2010) studied 20 money laundering cases and concluded that banks, insurance companies, shell companies and cash smuggling are conventional modes of money laundering, whereas real estate, international trade, off-shore companies and lottery business are relatively advanced channels of money laundering. He suggested the need for awareness of this secret financial crime and establishment of balanced system to fight against money laundering.

Cotterill (2001) stated that funds are easy to detect when introduced into the financial system, hence KCY/CDD measures are required. If the transaction passes the CDD process, then reporting the transaction is compulsory. Moreover, money laundering can be reduced and controlled by implementing proper AML regulations through employee training, maintaining record of customer files and their transactions, ensuring proper monitoring of internet users and promoting global cooperation.

According to Bergstrom and Helgesson (2011), fighting money laundering is the duty of both public and private sectors. He stated that money-laundering enables hiding the source and origin of illegal money gathered from human trafficking and drug trafficking, and convert their illegal money into legitimacy. He also claimed that an alliance between these two sectors is not used because it results in criticizing each other on performance and it further weakens the accountability which can result in the failure of anti-money laundering standards.

Jun and Lishan (2010) considered different cases regarding implementation of anti-money laundering regulations and reported that, in developing nations, they are executed by two ways, that is, implementation without enforcement and selective execution. China is one of the examples which come under a category of adoption without enforcement. Therefore, they claim, there is negative relationship between effectiveness of anti-money laundering regulations and money laundering. Also mentioned main reason for increase in laundering crime in China is because of political pressure there is no-to-moderate enforcement of FATF recommendations. In addition, Naheem (2018) explored the challenges occurring because of international money-laundering schemes in China. Further, Sharman (2008) stated that AML techniques in developing countries are not effective because of weak implementations of regulations and policies.

Further, Nardo (2011) not only analyzed illegal money market but also studied the legal money market and considers them equal in portion and found that they are interconnected, while there is also a small portion between them known as semi-legal market. To keep a proper and effective regulation in the market and to make transactions crime-free, it is important to outsource and make good ties with people working in the market and gather strong intelligence on its functionality and establish transparency in markets and system.

2.1 Financial Actions Task Force anti-money laundering/combating of financing of terrorism assessment methodology

FATF (2012) gives 40 recommendations for assessing a country's AML/CFT regime. The FATF methodology for mutual evaluation is composed of technical compliance and an effective system of AML/CFT. Technical compliance is the assessment of the country's laws and regulations in accordance with FATF recommendations. In addition, FATF determines the outcomes through onsite visit of country, whereby the assessment team meets all relevant stakeholders. The agenda of these meetings was based on 11 immediate outcomes that FATF determined for assessing the effectiveness AML/CFT system (see Table 2).

The theoretical framework is developed based on in-depth literature review, FATF recommendations (2018) and regulations for banks and DFIs operating in Pakistan (Figure 2).

2.2 Hypothesis

The relationship among variables was tested based on the main hypothesis:

H1: Customer due diligence, suspicious transaction reporting, correspondent banking, wire transfer, record keeping, new technology and internal controls/compliance and employee trainings have impact on money-laundering risk.

3. Research methodology

Data was collected from public, private, Islamic, foreign and microfinance banks operating in Pakistan. A total of 102 employees working in the compliance department of various banks were contacted for data collection.

As discussed above and in Table 2, FATF determined the variables mentioned in equation (1), for assessing the effectiveness of AML/CFT system in a country. The data of these variables was gathered using a standard questionnaire developed as per FATF recommendations. A five-point Likert scale was used for data collection. Keeping in view the study's key objectives, the following multiple regression model was used to check the effect of independent variables on MLR:

$$MLR = \beta_0 + \beta_1 CDD + \beta_2 RK + \beta_3 CB + \beta_4 WT + \beta_5 ROT + \beta_6 NT + \beta_7 CCT + \mu \tag{1}$$

where MLR refers to money-laundering risk, CDD refers to customer due diligence, RK refers to record keeping, CB refers to correspondent banking, WT refers to wire transfers, ROT refers to reporting of transactions, NT refers to new technology and CCT refers to internal controls/compliance/training.

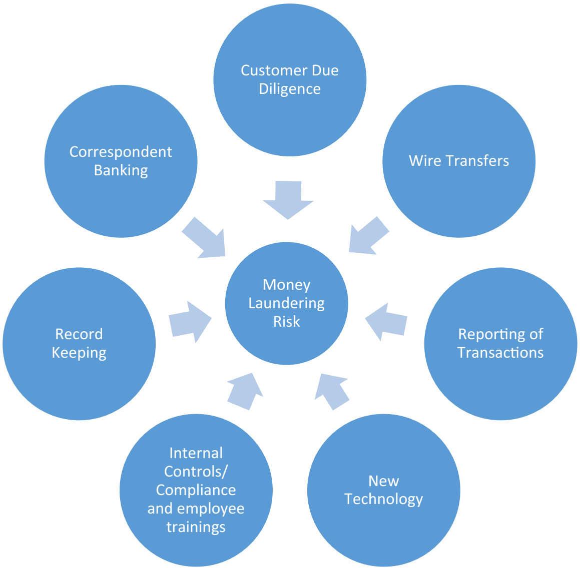
Table 2. Comparison of FATF recommendations and AML/CFT regulations of Pakistan

Preventive measure	FATF recommendation	Domestic AML/CFT regulations
Customer due diligence	Prohibition of anonymous accounts Customer's identification and verification Identification of beneficial owner Identification of natural person behind legal person Establishing purpose and intended nature of business relation Ongoing monitoring and screening of transactions	Prohibition of anonymous or fictitious accounts Customer's identification and verification Identification and verification of beneficial owner Identification and verification of natural person acting on behalf of customer Information on purpose and intended nature of business relation Ongoing monitoring and screening of transactions CDD measure for walk-in customers Review of new, as well as existing products and services for ML risk Enhance due diligence of accounts related to PEPs, government and NGOs/NPOs/charity Dealing with dormant accounts and prohibition of personal accounts for business transactions Assessment of asset side products and customers
Record keeping	Maintain records of customer and their transactions for at least 5 years Availability of record for domestic competent authorities upon inquiry	Maintain records of customer and their transactions for at least 5 years Availability of record for domestic competent authorities upon inquiry
Politically exposed persons	Proper system for identification of PEPs Senior management should approve the establishment of relationship with PEPs Rational measures for identifying the sources of funds for PEPs Enhance due diligence monitoring	Covered under customer due diligence
Correspondent banking	Complete information of respondent bank before establishing relation Assessment of respondent bank's AML/CFT controls Requirement of approval from senior management for establishing relation Understanding of core responsibilities of other institution Ensuring that respondent bank is carrying CDD measures and can provide CDD documents of customer upon request	Adequate information of respondent bank before establishing relation Assessing the suitable controls of respondent bank's relevant to AML/CFT Requirement of approval from senior management for establishing relation Understanding of core responsibilities of other institution Ensuring that respondent bank is carrying CDD measures and can provide CDD documents of customer upon request Special attention required for establishing correspondent banking relation with high countries as per FATF Prohibition of correspondent banking with shell banks
Money Transfer Services	All money transfer service providers are licensed and have effective monitoring and compliance system	Under FERA-1947, SBP is authorized to issue license to MVTS

(*continued*)

Table 2.

Preventive measure	FATF recommendation	Domestic AML/CFT regulations
	Agents of money or value transfer services (MVTS) are licensed and have effective monitoring and compliance system	
New technology	Identification and assessment of ML risk posed by new products, business practices and delivery mechanism Identify risk in relation to new technologies Proper measure to mitigate such risks	Risk of new products is covered in CDD portion, although the banks are required to use new technology to combat money laundering; however, the risk posed by new technology is not addressed in regulations
Wire transfers	Proper information of originator and beneficiary of wire transfer Identification of wire transfers which lack required originator and beneficiary information Screening of wire transfers against designated persons	Identification and verification of originator and beneficiary for inward and outward wire transfers Capturing the adequate details of wire transfers Transactions with incomplete information of originator should be considered as suspicious and blocked Screening of wire transfers is not addressed
Internal Controls	Development of internal AML/CFT policy and procedure for banks Ensure that foreign branches of banks and their subsidiaries are applying AML/CFT measures	Development of internal AML/CFT policy and procedure for banks Ensure that foreign branches of banks and their subsidiaries are applying AML/CFT measures Establishment of compliance system and department Maintenance of the independent audit function Training and capacity building of bank employees related to AML/CFT
High-risk countries	Enhance due diligence for the customer/transactions that belong to high-risk countries as per FATF Appropriate countermeasures against such countries	Covered in correspondent banking part
Reporting of suspicious transactions	Proper implementation of systems for identification of suspicious transactions Immediate reporting of STRs to Financial Intelligence Unit (FIU)	For proper system to identify suspicious transactions, banks are required to use new technology in this regard Reporting of suspicious transaction report (STR) and currency transaction report (CTR) to FMU on immediate basis not later than 7 days Bank employees/directors are protected under AML Act 2010 when they report STR/CTR Bank employees/directors are prohibited under AML Act 2010 to tip off
Tipping off and confidentiality	Protection of bank employees and directors by law on disclosure of information to FIU Prohibition for bank employees and directors by law on tipping off	Covered in AML Act 2010



Source: FATF recommendations (2018)

Figure 2. Theoretical framework

4. Results and findings

The descriptive statistics of 102 participants is shown in Table 3.

Professionals and academicians were contacted to examine the content validity of the questionnaire. Further, Cronbach's alpha is used for measuring the reliability. Table 4 shows that the Cronbach's alpha value is 0.746 (greater than 0.7), hence thereof the questionnaire is reliable to study the variables.

Table 5 shows the correlations of the study variables.

The impact of the abovementioned variables and hypothesis have been examined through ordinary least squares regression.

Table 6 shows the results. The overall model is a good model and F-statistics (20.108) and its probability value of 0.000 (p-value < 0.001) depict that the model is significant at 1% confidence level.

The econometric representation of the model is in equation (1):

$$MLR = \beta_0 + \beta_1 CDD + \beta_2 RK + \beta_3 CB + \beta_4 WT + \beta_5 ROT + \beta_6 NT + \beta_7 CCT + \mu$$

$$MLR = 5.998 - 0.386CDD + 0.053RK - 0.210CB + 0.051WT + 0.012ROT - 0.391NT - 0.076CCT + \mu$$

Results show CDD ($\beta_1 = -0.386$, $p < 0.05$), CB ($\beta_3 = -0.210$, $p < 0.05$) and NT ($\beta_6 = -0.391$, $p < 0.01$) significantly impact MLR, whereas RK ($\beta_2 = 0.053$, $p = 0.486$), WT ($\beta_4 = 0.051$, $p = 0.603$), ROT ($\beta_5 = 0.012$, $p = 0.911$) and CCT ($\beta_7 = -0.076$, $p = 0.501$) do not significantly impact MLR. These results show that of the AML/CFT factors, CDD, correspondent banking and new technology are effective in reducing MLR, whereas record

Table 3.
Frequency distribution

	Age				Education			Banking experience			Category of Bank				
	Between 20 and 30 years (%)	Between 30 and 40 years (%)	Between 40 and 50 years (%)	Between 50 and 60 years (%)	Graduate (%)	Masters (%)	Doctorate (%)	Less than 5 years (%)	Between 5 and 10 years (%)	More than 10 years (%)	Private bank (%)	Public bank (%)	Islamic bank (%)	Foreign bank (%)	Microfinance bank (%)
Gender															
Male	74	93	82	0	71	85	0	70	83	94	86	80	90	50	75
Female	26	8	18	100	29	15	100	30	17	6	14	20	10	50	25
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

keeping, wire transfers, and Controls/Compliance/Training do not play a significant role in reducing MLR in Pakistan.

5. Conclusion and recommendations

Results show that CDD steps taken by Pakistani banks, in addition to correspondent banking and new technology, are effective in reducing MLR. This suggests these preventive measures are being implemented well to decrease money laundering.

Perhaps of greater concern are the findings that record keeping, wire transfers, reporting of transactions as well as internal controls/compliance/training at Pakistani banks are ineffective at mitigating MLR in the country. Regulatory bodies should consider revamping these to make them effective.

The study shows a strong impact of CDD on MLR, as evidenced in Shanmugam and Thanasegaran (2008), Ajayi and Abdulkarim (2010) and Cotterill (2001). The results for the hypothesis of new technology are in line with Ahmed (2017) but inconsistent with the findings of Vaithilingam (2007). Moreover, the results indicate insignificant impact of reporting of transactions and record keeping in combating the risk, which is inconsistent

Table 4. Reliability statistics

Cronbach's alpha	No. of variables
0.746	8

Table 5. Correlation results

		MLR	CDD	RK	CB	WT	ROT	NT	CCT
Money-laundering risk	Pearson correlation	1	−0.669**	−0.419**	−0.631**	−0.543**	−0.447**	−0.689**	−0.620**

Note: **Significant at $p < 0.001$

Table 6. Regression results

Model	Unstandardized coefficients *B*	Std. error	Standardized coefficients Beta	*t*	Sig.
(Constant)	5.998	0.148		40.541	0
Customer due diligence	−0.386	0.119	−0.339	−3.243	0.002
Record keeping	0.053	0.075	0.064	0.7	0.486
Correspondent banking	−0.21	0.104	−0.213	−2.026	0.046
Wire transfers	0.051	0.097	0.052	0.522	0.603
Reporting of transactions	0.012	0.107	0.01	0.112	0.911
New technology	−0.391	0.117	−0.366	−3.329	0.001
Internal controls/compliance/training	−0.076	0.113	−0.074	−0.676	0.501

a) Dependent variable: money-laundering risk

R	*R* square	Adjusted *R* Square	Std. error of the estimate	Durbin–Watson	*F*	Sig.
0.774	0.6	0.57	0.38816	1.959	20.108	0.000

with studies of Kemal (2014), Geiger and Wuensch (2007), Smet and Mention (2011) and Mugarura (2011). The research also shows weak inverse relation between internal controls/compliance/training; these results are somehow match with the findings of Kemal (2014) and Cotterill (2001).

The following recommendations are made for effective control and mitigation of the MLR in Pakistan:

- Regulatory bodies such as SBP should increase awareness among financial institutions on money laundering, and provide trainings for identification, preparation and communication of relevant cases so that effective control and monitoring can reduce the associated risks.
- Electronic record keeping system should be placed in banks for swift retrieval of records and files. There is a need for proper screening of wire transfer transactions; such types of transactions are widely used for layering of funds, in which funds are transferred to off-shore companies and banks.
- The purpose of wire transfer transactions should be recorded with true spirit.
- With respect to increased reporting of transactions, online systems should be introduced and implemented.
- There is a need to simplify the procedures for reporting of transactions to FMU.
- The role of FMU should be highlighted to all banks for better understanding of purpose of suspicious transaction reporting.
- Preventive measures for identifying and mitigating risk of new technology should be incorporated in AML/CFT regulations in Pakistan.
- Regulatory bodies should allocate special resources and budgets for trainings and capacity building of employees and other stakeholders.

References

Ahmed, S.A. (2017), "Practical application of anti-money laundering requirements in Bangladesh: an insight into the disparity between anti-money laundering methods and their effectiveness based on resources and infrastructure", *Journal of Money Laundering Control*, Vol. 20 No. 4, pp. 428-450.

Ajayi, K. and Abdulkarim, H. (2010), "Insulating the vaults from the tide of dirty money: are the flood gates secure?", *Journal of Money Laundering Control*, Vol. 13 No. 1, pp. 33-44.

Araujo, R. (2008), "Assessing the efficiency of the anti-money laundering regulation: an incentive-based approach", *Journal of Money Laundering Control*, Vol. 11 No. 1, pp. 67-75.

Bekhouche, I.E. (2018), "Money laundering in Malaysia, regulations and policies", *International Journal of Law*, Vol. 4 No. 2, pp. 22-26.

Bergstrom, M. and Helgesson, K.S. (2011), *Market Studies*, Vol. 49 No. 3, pp. 1-22.

Boguslavska, K. (2018), "Data Basel AML index. [E-mail]".

Cotterill, N. (2001), "Money laundering", *Foreign Policy*, Vol. 124, pp. 16-22.

Fanta, F. and Mohsin, H.M. (2010), "Anti-money laundering regulation and crime: a two-period of money-in-the-utility-function", *Journal of Economic Cooperation and Development*, Vol. 32 No. 3, pp. 1-20.

Geiger, H. and Wuensch, O. (2007), "The fight against money laundering: an economic analysis of a cost-benefit paradoxon", *Journal of Money Laundering Control*, Vol. 10 No. 1, pp. 91-105.

Gibbs, T. (2017), "An analysis of the effectiveness of anti-money laundering and counter terrorist funding legislation and its administration in the UAE", Doctoral dissertation, School of Advanced Study, University of London, available at: https://sas-space.sas.ac.uk/6698/ (retrieved on 26 October 2018).

Jun, T. and Lishan, A. (2010), "Combating money laundering in transition countries: the inherent limitations and practical issues", *Journal of Money Laundering Control*, Vol. 13 No. 3, pp. 215-225.

Kemal, U. (2014), "Anti-Money laundering regulations and its effectiveness", *Journal of Money Laundering Control*, Vol. 17 No. 4, pp. 416-427.

McDowell, J. and Novis, G. (2001), "The consequences of money laundering and financial crime", bureau of international narcotics and law enforcement affairs", *US Department of State*, Vol. 6 No. 2, pp. 6-8, available online at: www. hsdl.org/?view&did=3549 (retrieved on 25 October 2018).

Mugarura, N. (2011), "The institutional framework against money laundering and its underlying predicate crimes", *Journal of Financial Regulation and Compliance*, Vol. 19 No. 2, pp. 174-194.

Naheem, M.A. (2018), "China's dirty laundry – international organizations posing a risk to China's AML systems", *Journal of Money Laundering Control*, Vol. 21 No. 2, pp. 189-202.

Nardo, M. (2011), "Economic crime and illegal markets integration: a platform for analysis", *Journal of Financial Crime*, Vol. 18 No. 1, pp. 47-62.

Ping, H. (2010), "A typological study on money laundering", *Journal of Money Laundering Control*, Vol. 13 No. 1, pp. 15-32.

Reuter, P. and Trumen, A.M. (2004), *Chasing Dirty Money, the Fight against Money Laundering, Institute of International Economy, Washington, DC*, available at: https://piie.com/bookstore/chasing-dirty-money-fight-against-money-laundering (retrieved on 25 October 2018).

Ross, S. and Hannan, M. (2007), "Money laundering regulation and risk-based decision-making", *Journal of Money Laundering Control*, Vol. 10 No. 1, pp. 106-115.

Shahin, W. (2013), "Compliance with international regulation on AML/CFT: the case of banks in Lebanon", *Journal of Money Laundering Control*, Vol. 16 No. 2, pp. 109-118.

Shanmugam, B. and Thanasegaran, H. (2008), "Combating money laundering in Malaysia", *Journal of Money Laundering Control*, Vol. 11 No. 4, pp. 331-344.

Sharman, J.C. (2008), "Power and discourse in policy diffusion: anti-money laundering in developing states", *International Studies Quarterly*, Vol. 52 No. 3, pp. 635-656.

Smet, D.D. and Mention, A.L. (2011), "Improving auditor effectiveness in assessing KYC/AML practices", *Managerial Auditing Journal*, Vol. 26 No. 2, pp. 182-203.

Vaithilingam, S. (2007), "Factors affecting money laundering: lesson for developing countries", *Journal of Money Laundering Control*, Vol. 10 No. 3, pp. 352-366.

Viritha, B. (2015), "Combating money laundering by the banks in India: compliance and challenges", *Journal of Investment Compliance*, Vol. 16 No. 4, pp. 78-95.

Further reading

FATF (2018a), *Methodology for Assessing Compliance with the FATF Recommendations and the Effectiveness of AML/CFT Systems*, FATF, Paris, France, available at: www.fatf-gafi.org/faq/moneylaundering/ (accessed on 20 October 2018).

FATF (2018b), "The FATF recommendations", available at: https://rm.coe.int/fatf-recommendations-2012-updated-october-2018-/168093829b (accessed on 20 October 2018).

FATF (2018c), "Publications on Pakistan", available at: www.fatf-gafi.org/countries/#Pakistan (accessed 5 October 2018).

FATF (2018d), "Who We are", available at: www.fatf-gafi.org/about/ (accessed on 21 August 2018).

Financial Action Task Force (2018), "What is money laundering", available at www.fatf-gafi.org/faq/moneylaundering/ (viewed on 20 September 2018).

Financial Monitoring Unit Government of Pakistan (2016), "Anti-Money laundering act, act no. VII", available at www.fmu.gov.pk/docs/laws/Anti-Money%20Laundering%20Act%202010-As%20amended%20upto%20May%202016.pdf (accessed on 4 October 2018).

State Bank of Pakistan (2017a), "Financial stability review- 2017", SBP, Karachi, available at: www.sbp.org.pk/FSR/2017/ (viewed on 2 November 2018).

State Bank of Pakistan (2017b), "Financial statements analysis of financial sector- 2013-17", Statistics Department, SBP, Karachi, available at: www.sbp.org.pk/departments/stats/FSA-2013-17.pdf (accessed on 2 November 2018).

State Bank of Pakistan (2018a), "Anti-Money laundering and combating the financing of terrorism (AML/CFT) regulations for banks and DFIs, updated November 2017", SBP, Karachi, available at: www.sbp.org.pk/bprd/2018/CL16-B.pdf (accessed on Retrieved on 2 November 2018).

State Bank of Pakistan (2018b), "AML/CFT regulations for banks and DFIs", available at: www.sbp.org.pk/bprd/2017/CL29-Annex.pdf (accessed 4 October 2018).

United Nations Office on Drugs and Crime (2011), "Illicit money: how much is out there?", available at: www.unodc.org/unodc/en/frontpage/2011/October/illicit-money_-how-much-is-out-there.html (accessed on 20 October 2018).

United States Department of State Bureau of International Narcotics and Law Enforcement Affairs (2018), "International narcotics control strategy report (II) – March 2018", available from www.state.gov/documents/organization/278760.pdf (retrieved on 5 October 2018).

About the authors

Irfan Hassan Jaffery is an Anti-Money Laundering Analyst, Department of Financial Monitoring Unit, State Bank of Pakistan. He has completed his MBA-Finance from Shaheed Zulfiqar Ali Bhutto Institute of Science and Technology Karachi.

Riffat Abdul Latif Mughal is a Lecturer of Accounting, Finance and Economics in Department of Management Sciences – Shaheed Zulfiqar Ali Bhutto Institute of Science and Technology Karachi. She is currently pursuing her PhD in Finance from the same institute. She has also supervised a number of MS Research Studies and MBA thesis in SZABIST Karachi and Islamabad Campuses. Riffat Abdul Latif Mughal is the corresponding author and can be contacted at: riffat.mughal@szabist.edu.pk