



“Cost-management in correspondent banking relationships”

AUTHORS	Larysa Sloboda  https://orcid.org/0000-0002-8953-9111
ARTICLE INFO	Larysa Sloboda (2017). Cost-management in correspondent banking relationships. <i>Geopolitics under Globalization</i> , 1(2), 21-33. doi: 10.21511/gg.01(2).2017.03
DOI	http://dx.doi.org/10.21511/gg.01(2).2017.03
RELEASED ON	Thursday, 28 December 2017
RECEIVED ON	Sunday, 10 September 2017
ACCEPTED ON	Sunday, 03 December 2017
LICENSE	 This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License
JOURNAL	"Geopolitics under Globalization"
ISSN PRINT	2543-5493
ISSN ONLINE	2543-9820
PUBLISHER	LLC “Consulting Publishing Company “Business Perspectives”
FOUNDER	Sp. z o.o. Kozmenko Science Publishing



NUMBER OF REFERENCES

22



NUMBER OF FIGURES

6



NUMBER OF TABLES

3

© The author(s) 2019. This publication is an open access article.



BUSINESS PERSPECTIVES



LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10, Sumy,
40022, Ukraine

www.businessperspectives.org

Received on: 10th of September, 2017

Accepted on: 3rd of December, 2017

© Larysa Sloboda, 2017

Larysa Sloboda, Ph.D. (Economics),
Associate Professor, Lviv Banking
Institute of Banking University,
Ukraine.



This is an Open Access article, distributed under the terms of the [Creative Commons Attribution-Non-Commercial 4.0 International license](https://creativecommons.org/licenses/by-nc/4.0/), which permits re-use, distribution, and reproduction, provided the materials aren't used for commercial purposes and the original work is properly cited.

Larysa Sloboda (Ukraine)

COST-MANAGEMENT IN CORRESPONDENT BANKING RELATIONSHIPS

Abstract

Cost-management is essential and highly specific sphere, which requires applying adequate decision-making approach as a part of the bank's internal value creation process. Correspondent banking is a dynamically growing area of management and controlling methods applied in banks on the one hand and high risk financial segment of the regulators' measures and expectations around the world on the other. The purpose of this research is to outline the main challenges for cost-management development in correspondent banking relationships (CBRs) around the world with recommendations for Ukraine. The paper explains the key reasons and essential components of cost-management system for managing risks and costs in CBRs based on the analytical results of transactions volume, comparing drivers of restriction of CBRs, rapidly growing number of different types of compliance and operational costs. As a result, the study highlights the cost-cutting measures based on digital assets solutions and blockchain technologies that can help banks to eliminate and lower costs of customer on-boarding, due diligence and money laundering prevention, foreign exchange and currency hedging, treasury and payment operations, liquidity and capital raising.

Keywords

banking, risks, compliance costs, Anti-Money Laundering (AML), Know your Customer (KYC), due diligence, blockchain technologies

JEL Classification G21, G28

INTRODUCTION

Ukraine's ability to create a competitive banking sector should be based on the modern trends of international compliance requirements and risk assessment, including new challenges of banking capital development around the world. After significant transformation of the Ukrainian banking sector according to the European integration strategy considerable attention should be paid to the formation of effective financial payment policies in line with international compliance practice and regulatory innovations implementation in correspondent banking. Correspondent banking services and payments processing are essential in enabling banks, non-banking and electronic money institutions (EMI), corporate companies and individuals to transact internationally and make cross-border payments. These services are attractive business lines for international banks around the globe. Modern global payments infrastructure moves money from one payment system to another through a series of internal book transfers between financial institutions, especially banks. These money transfers have a high level of business risks and rapidly growing compliance costs as a consequence of the low level of coordination of transfers across different systems (operational risks), slow (often 3-5 days) funds settlement (liquidity risks), error prone during client on-boarding, due diligence and transaction period (operational and compliance risks) and high volume of system-wide costs for global cross-border transactions (systemic and financial risks). As a result of high

risky correspondent banking activity around the world, financial institutions and banks have faced the high volume of expenses on managing, supporting and servicing correspondent banking relationships (CBRs). Thus the study of cost-management in CBRs requires attention of bankers, regulators and other stakeholders of the banking sector development in every country.

1. LITERATURE REVIEW

Implementation of effective cost management methods in correspondent banking activities at the international level is one of the most important and discussed issues in the area of finance and banking among professionals, scientists, lawyers, risk consultants, advisors and other users of analytical publications. Famous risk experts and knowledgeable participants from different authorities, especially World Bank, International Finance Corporation, Basel Committee on Banking Supervision, Central Banks, Financial Authorities, External Audit Companies and others, play an important role in the development and implementation of modern practical approaches to the creation of the cost-management in CBRs.

The research of the theoretical and methodological aspects of correspondent banking activities for the development of banking capital on the international financial market was conducted by both foreign and domestic scholars. In particular, Soon-Lim (2001) prepared an empirical study of international correspondent banking in Austria focusing on the determination factors of CBRs and selection criteria of correspondents.

The famous American economist Obstfeld (2004) investigated the role of cost distortions and risks in correspondent banking on the global capital markets, and drew attention to the peculiarities of the country risk sharing through international banking services on different stages of the capital market development – integration, crisis and growth. Ramakrishna (2015) outlined compliance risk management methods for banks and financial services based on the modern compliance regulatory approach to supervised international banking activities. The author concluded that quality of cost benefit analyses in correspondent banking has a significant positive impact on the compliance regulations in global and regional applicability to maintain safety and stability of the financial system. Also, she identified and classified types of

compliance costs, which should be managed in banks.

Grasshoff et al. (2017) investigated the influence of intensifying compliance regulation on strategic and operational planning of international banking activity in different countries. They mentioned that increasing costs on the financial services provision had motivated all banks to create more effective and efficient processes based on technological innovations.

Analysis of sources and publications conducted by Ukrainian authors, shows that insufficient attention was paid to theoretical aspects of correspondent banking services in currency operations, as analytical results about cost assessment in CBRs were not presented. In Ukraine, researches of correspondent banking services in international payments are conducted by Myhailiv et al. (2004), Straharchuk and Straharchuk (2010), Stasinevych and Blagodatnuy (2016), Rudenko (2018).

The existing diversity of opinions shows lack of consensus of researchers, practical experts and regulators about managing risks and costs in CBRs, and harmonization of cross boarder banking services with the international compliance requirements. Despite a significant number of scientific and practical investigations in the area of cost-management assessment process in CBRs, and there are many complex issues, which need further development and enhanced regarding of the new challenges and risks in correspondent banking.

2. METHODS

The methodological basis of the study is a comparative analysis of the modern issues of regulation correspondent banking services regarding the international compliance requirements on Customer Due Diligence, Know Your Customer (KYC) processes and Anti-Money Laundering (AML) pre-

vention. The author applies statistical analyses and logical interpretation to estimate analytical trends related to the volumes and factors of compliance costs that banks face in CBRs by regions, and outlines cost-cutting measures for banks based on the blockchain technologies.

The purpose of this article is to outline the main issues for the development of cost-management measures in CBRs globally with recommendations for Ukrainian banking sector based on the analytical results of correspondent banking volume transactions assessment, comparison of drivers of termination or restriction of CBRs, analyses of rapidly growing number of different types of compliance and operational costs.

3. RESULTS

A number of empirical and theoretical cases show that correspondent banking is an attractive business around the world with the high level of profitability. However, the highest level of banking profitability of these services complies with more regulation issues and deals with increased competition and country risks on the financial market.

As some experts from the International Finance Corporation (IFC) of the World Bank Group mentioned, correspondent banking is the provision of a current or other liability account and/or related services to another financial institution used to meet its cash clearing, liquidity management and short-term borrowing or investment needs, which includes trade related documentary credits (IFC World Bank, 2015). There are two main participants in correspondent banking relationships – the correspondent (confirming) bank, which provides payment services to the applicant bank and the applicant (issuing) bank, which asks for the application process for opening a correspondent account or responding to an inquiry from a counter-party bank undertaking a KYC compliance review.

As World Banks' professionals reported, confirming banks listed various reasons why establishment of a CBRs sometimes is not possible, including: difficulties in obtaining the required information in time, and in English; concerns

about quality related to the content, completeness and accuracy of documentation received; concerns about country banking supervision, country risk, small transaction volume; need for validation and verification of data provided. Furthermore, applicant banks indicated few concerns in correspondent banking account opening, such as: none reported that other banks had expressed concerns about the documentation and information sent; few reported difficulties in meeting the due diligence requirements of other banks; some reported that other, non-due diligence related, reasons were given for declining a relationship (IFC World Bank, 2009). The vital reasons of these identified issues include the following obligatory conditions on establishing and maintaining CBRs:

- Firstly, modern banking institutions are operating under rigorous global and local compliance requirements, established by their national, state and internal regulators and authorities. None of the banks can provide correspondent banking activities to another bank without complying firstly with strict due diligence obligations, as part of risk management requirements and tools to ensure that the bank providing the correspondent services knows with whom it is conducting business.
- Secondly, customer due diligence policies and procedures according to the type of services that are being provided – retail, credit, correspondent, have become increasingly important globally to prevent unexpected losses, additional operating expenses, fraud of money laundering and terrorist financing risks. Customer due diligence is a process that continues from the start to the end of a customer relationship. Banks are increasingly demanding that customers provide detailed anti-corruption due diligence information to verify their probity and integrity.
- Thirdly, the basic due diligence obligations are ordinarily established by the authorities, that are frequently based upon international standards such as the Financial Action Task Force on Money Laundering (FATF) 40+9 Recommendations, the Basel Committee on Banking Supervision recommendations,

Table 1. Types of cost and risk by obligatory stages of CBRs

Stages of CBRs	Key work streams and required information	Types of cost	Types of risk
Stage 1. Customer on-boarding & Documentation reviewing	Applying risk-profile determines and choosing the type of due diligence to undertake based on the following criteria: Applicant Bank's domicile; Applicant Bank's ownership; Applicant Bank's management structure; Applicant Bank's type of business model; Applicant Bank's customer base.	Operational cost Technology cost Staff cost	Country risk Customer risk Operational risk Information risk Data Security risk Outsourcing risk
Stage 2. KYC Due Diligence	Reviewing and controlling the following Data collection: where the Applicant Bank's ultimate parent is incorporated; where operating unit conducts its business; corporate legal form of the Applicant Bank's; whether its shares are traded on an exchange; the identity of any significant controlling interests; no PEP in the ownership structure and executive management; the structure and experience of the Applicant's executive management; the business purpose for correspondent banking; the geographic market reached; no use the institution's products & services to engage in business with Shell banks; a results of site visit to the Applicant Bank	Compliance cost Technology cost Data Collection cost Staff cost	Market risk Customer risk Operational risk Information risk Data Security risk Reputational risk Legal risk
Stage 3. AML control & Sanction screening	Monitoring the following questions in AML area: the nature of the Applicant bank AML controls; the extent to which AML controls are globally applied; quality of the Applicant Bank's AML control; complication of Copy of Wolfsberg Questionnaire, copy of AML policies & procedures, copy of the USA Patriotic Act Certification, name & contact details of the Compliance Officer.	Compliance cost Data Collection cost Staff cost	Prudential Risk Regulatory risk Operational risk Information risk Data Security risk Reputational risk Legal risk
Stage 4. Enhanced Due Diligence	Controlling the following specific information: recent material changes in the Executive management structure (within 2 years); understanding the role of possible PEPs in the Applicant Bank; client identification controls (compliance with standards); name of the External Auditor; overview of the Applicant's Bank Customer Groups.	Compliance cost Data Collection cost Staff cost	Regulatory risk Market risk Customer risk Operational risk Information risk Data Security risk Legal risk Reputational risk Outsourcing risk
Stage 5. Correspondent account opening and Payment transaction	After confirming all obligatory documentation and Data collection the Correspondent bank provides an account opening for an Applicant bank during three days, get fees payments and provide financial transaction.	Technology cost Opportunity cost Staff cost Possible penalties cost	Country risk Capital risk Regulatory risk Cyber security risks Market risk Currency risk Liquidity risk Treasury risk

the European Banking Authority Technical Standards, the European Central Bank issues, International Monetary Fund reports, the Wolfsberg Group Principles, including the best regulatory and compliance practices on correspondent banking payments provision.

Applying these obligations to reduce risk of CBRs is a very expensive process, which needs to identify the various types of costs, and to implement adequate cost-management measures. Cost-management in CBRs is a part of overall bank management information and control system of customers on-boarding and documentation reviewing, KYC Due diligence, AML control and sanction screening, correspondent account opening and payment transaction providing (Table 1).

These obligatory conditions on establishing and maintaining CBRs should be based on the four main characteristics of transparency in the global banking industry, such as: accessibility (openness) of information (provision of information in the open access or at first request), completeness of information coverage (provision of sufficient volume of information to explain past and future actions of banks or their clients); timeliness (information should be provided with a minimum delay, including forecast for future), integrity of information (tools and channels of information policy should be consistent and coordinated with each other) (Kozmenko, 2008). This means, that transparency of information about applicant bank's current position and business growth plans play significant role in on-boarding process, due diligence providing and communication stages before establishing CBRs.

Based on the analyses of the panel discussion (February 2017) held by the Institute of International Finance (IIF) and Bankers Association for Finance and Trade (BAFT) consultants, the key issues in developing cost-management in CBRs could be outlined. The main of them are the following:

- classifying risks in correspondent banking appropriately;
- applying risk-based approach in the context of providing correspondent banking services. In particular, there should be greater focus on how regulatory authorities and the industry can identify and implement ways to simplify AML requirements and reduce the costs associated with AML and sanctions compliance in correspondent banking services;
- paying significant attention to the nested correspondent banking relationships (downstream clearing), particularly on requiring Know Your Customers' Customer standards (KYCC);
- providing detailed information gathering for a correspondent bank to apply Customer Due Diligence (CDD);
- conducting assessment of the respondent bank's AML controls;
- organizing customer acceptance and retention to make sure that correspondent accounts will not be used by shell banks, avoiding any suggestion of an obligation to conduct KYCC;
- providing ongoing monitoring with the strong suggestion that the level of monitoring in a CBRs should be commensurate with the respondent bank's risk profile;
- applying the risk assessment policy separately to different respondents who are members of the same financial group with cross-border considerations;
- insuring that standardization of information requirements (or templates) for risk-management and Know Your Customer utilities

should be extended to include international standardization of basic due diligence information and "enhanced due diligence" information for higher-risk relationships.

Therefore, there arises the necessity to reduce expenses in correspondent banking services and to analyze some analytical trends related to the volumes of costs that banks face in conducting the correspondent banking business around the world.

Correspondent banking services, that enable provision of domestic and cross-border payments, have been terminated in some jurisdictions following the global financial crisis. In recent years, several countries have reported reduction in CBRs by global banks. Pressure on CBRs has been associated with restricted access to financial services for certain categories of customers, business lines, jurisdictions or regions. In regard to the World Bank Group analytical findings, the survey and other available evidence indicate that smaller emerging markets and developing economies in Africa, the Caribbean, Central Asia, Europe and the Pacific as well as countries under sanctions may be mostly affected. While the factors leading to the withdrawal of CBRs are multiple and inter-related, they are ultimately individual business decisions (World Bank, 2015).

These drivers operate concurrently, and their relative significance varies on a case by case basis. Banks' cost-benefit analyses have been shaped by the re-evaluation of business models after the global financial crisis, including changes in the regulatory and enforcement landscape. But the new macroeconomic environment, more stringent prudential requirements, and higher compliance costs are putting pressure on banks' profitability and weighing on their decisions on correspondent services. Table 2 shows comparison of the drivers of termination or restriction of foreign correspondent banking services based on views of different groups of respondents (Central banks, large International and local banks).

As a result, almost all drivers are compliance-related and the most vulnerable group in this case is large international banks. Also, it is possible to define one, most common driver of CBR's withdrawal, that joins all the three groups of respondents

Table 2. Comparison of the drivers of termination or restriction of foreign correspondent banking services

Source: World Bank (2015).

Types of drivers	Central Banks (%)	Large International Banks (%)	Local or Regional Banks (%)
Lack of profitability of certain foreign CBR services/products	64	80	46
Overall risk appetite	55	85	37
Changes to legal, regulatory or supervisory requirements in correspondent's jurisdiction that have implications for maintaining CBRs	48	45	31
Structural changes to correspondent (including merger/acquisition) and/or reorganization of business portfolio	27	30	35
Concerns about money laundering/terrorism financing risks	48	95	19
Sovereign credit risk rating	7	35	15
Inability/cost to undertake CDD	36	65	15
Industry consolidation within jurisdiction of foreign financial institution	None	20	13
Imposition of enforcement actions	9	40	8
High-risk customer base	18	75	8
Imposition of international sanctions on jurisdiction or respondent	7	90	8
Impact of internationally agreed financial regulatory reforms	14	30	8
Compliance with pre-existing legal/ supervisory / regulatory requirement	18	25	9
Concern about, or insufficient information about respondent's CDD procedures	14	80	6
Respondent's jurisdiction subject to countermeasures or identified having strategic AML/CFT deficiencies by FATF	23	75	4

– lack of profitability of certain foreign CBR’s services. This issue is correlated with costs, which banks spend on compliance activities aimed to prevent money-laundering and terrorist-financing. Insufficient attention to this matter may lead the bank to face a multi-billion bill, which may spoil the reputation as well.

Analytical researches show, that banks globally have spent USD 321 billion on fines since 2008 for abundance of regulatory failings from money laundering to market manipulation and terrorist financing, according to the data from Boston

Consulting Group (Grasshoff, 2017). The sample covers the 50 largest European and US banks and data through 2015 includes only penalties, fines and settlements, that surpass USD 50 million (Figure 1).

As far as banks are not willing to become the part of negative statistic, the total volume of expenses on compliance enforcement continues to grow. Money launderers and terrorist financiers capitalize on the inherent complexity of the financial system and differences in national AML laws, and have been particularly active in targeting ju-

Source: Boston Consulting Group (2017).

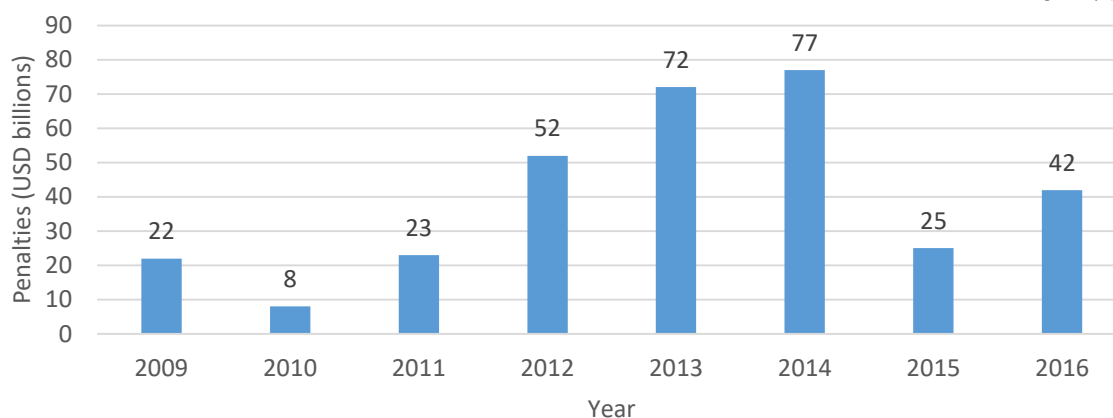


Figure 1. Dynamics of penalties payments by banks during 2009–2016 financial years

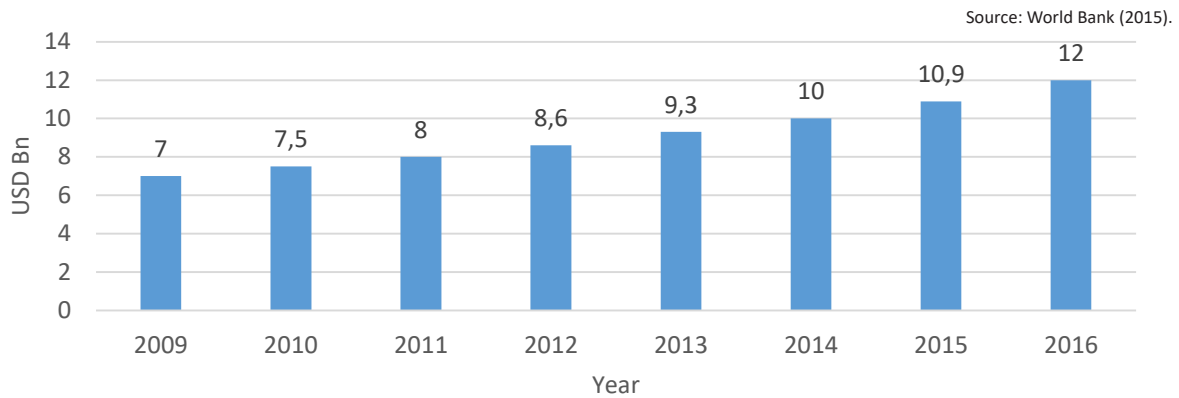


Figure 2. Trends of AML compliance costs in CBRs during 2009-2016 financial years

risdictions where AML controls are the weakest. The problem has become so large that the United Nations estimates that from USD 800 billion to USD 2 trillion is laundered each year, representing 2-5% of the global GDP. However, less than 1% of illicit financial flows globally are seized by authorities (United Nations Office on Drugs and Crime, 2017). Given the importance of AML regulations in enhancing both the stability and integrity of the financial sector, global regulators have developed extensive guidelines for banks' internal AML compliance programs. In order to adhere to these guidelines, banks have made substantial investments in their in-house AML compliance capabilities. In fact, global AML compliance spend was expected to top USD 12 billion by the end of 2016, up by over 70% from USD 7 billion in 2009 (Figure 2).

This information suggests that banks struggle to improve compliance requirements, increasing and shifting regulations will remain a central source of pressure on their costs in CBRs.

Basically, banks have no control over the regulatory onslaught, but they can take a disciplined and strategic approach to implementing compliance requirements. This view is confirming the bankers' position regarding the implementation of new approaches of cost-management in CBRs. As far as banks struggle to maintain their correspondent activities in safe and sound way to earn profit – they took some decisions that mainly refer to a basic strategy, which involves reduction of the headcount and replacement of employees with a digital technology. As an example, Royal Bank of Scotland Group Plc. has about 2,000 staff

running know-your-customer checks, and will be able to eventually automate this function and only keep a few people to handle issues (Partington, 2017). The cuts would represent as much as 2 percent of RBS's total headcount, which stood at about 79,000 at the end of 2016. Deutsche Bank AG Chief Executive Officer John Cryan mentioned that the current boost to his firm's anti-money laundering staff won't be permanent as certain procedures that need to be carried manually will increasingly be replaced by digital processes (Partington, 2017). Zurich-based UBS is using technology to lower headcount at its compliance department, stated a separate person with knowledge of the matter. Meanwhile New York-based JPMorgan Chase & Co. plans to keep its compliance headcount steady in Europe, while hiring selectively, according to a person with knowledge of the matter. At the same time, HSBC Holdings Plc. expects spending on regulatory programs and compliance to peak at about USD 3.3 billion in 2017 after surging in recent years, as improved IT systems help the bank to grow without adding costs (Partington, 2017). As a result, of high level of compliance costs impact, the famous bankers in USA and Europe are seeking to apply digital decisions of cost management in CBRs.

The influence of AML regulation in the US, UK and EU as well as local and regional concerns have led to significant broadening of compliance measures across virtually all Asia regions – China, Hong Kong, Indonesia, Malaysia, Singapore and Thailand. The bars in Figure 3 represent the trends of average annual costs of banks' AML operations by Asia region.

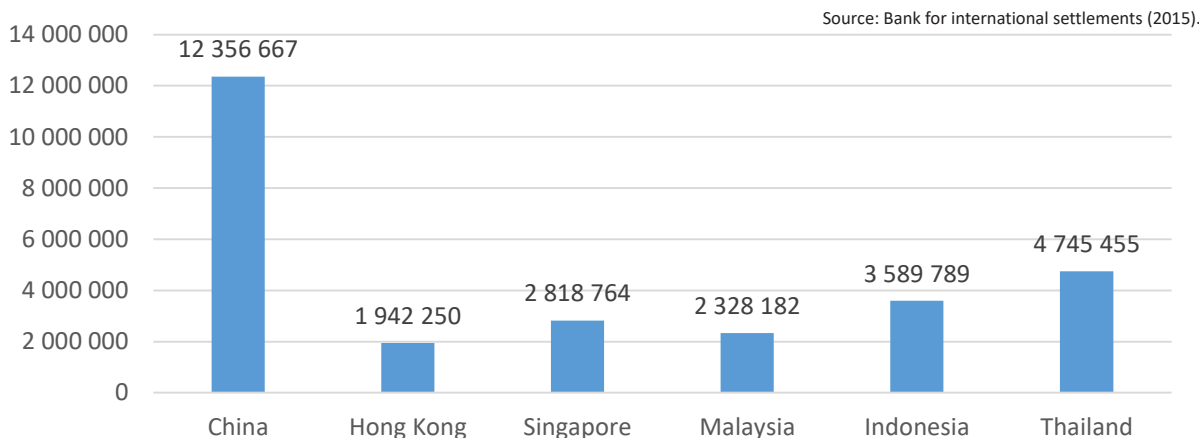


Figure 3. Average annual costs of banks' AML Compliance operations by Asia in 2016 (USD, million)

Regarding the key findings from LexisNexis Risk Solution survey in Asia region, the most of direct and indirect costs to banks of AML compliance related to the productivity, customer attrition, and employee morale issues (LexisNexis, 2016). The essential results from the analyses are the following:

- total sum of AML compliance budgets across the six Asian markets was estimated at USD 1.5 billion annually for banks alone;
- regulation was seen as the primary motivation for AML compliance change and improvement of new approaches to cost-management in correspondent banking;
- high costs of AML compliance have negative economic impact on the financial institutions' productivity and actually threatens their com-

panies' ability to do business;

- the first stages of customer on-boarding – KYC processes, periodic screening and sanctions operations accounted for 33% of compliance costs; by comparison, transaction monitoring analysis comprised only 9% of costs;
- most banks have not achieved fast on-boarding times, because only 15% of respondents complete Customer Due Diligence in less than one hour, even for retail customers;
- processing times for alerts are also substantial, that means that fewer than 10% of firms clear any type of alert in less than one hour.

As a result of the analysis, the compliance decision-makers in CBRs need an information base

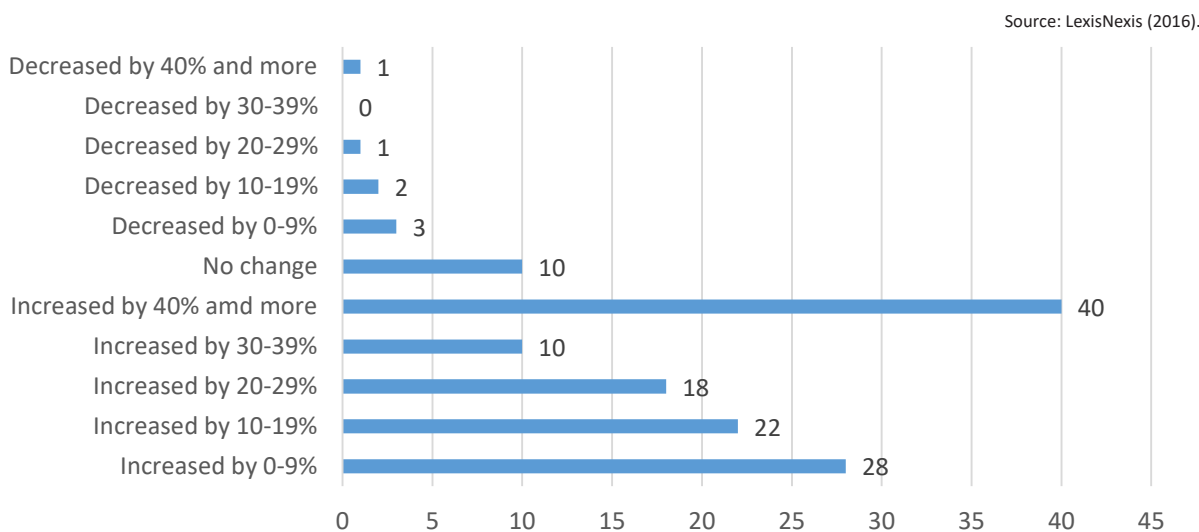


Figure 4. Comparing expected change in banks' AML compliance costs in 2016, %

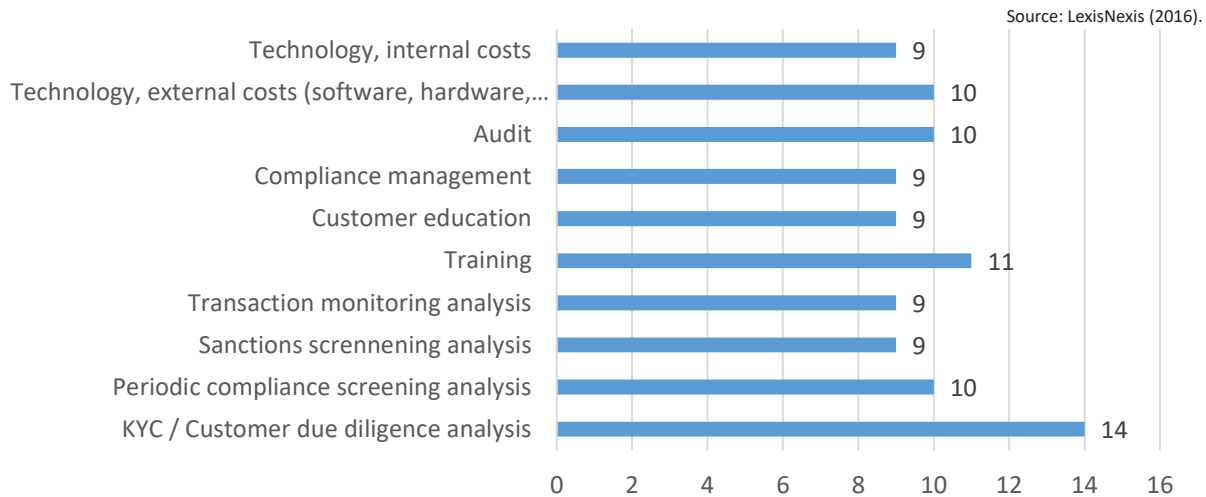


Figure 5. Breakdown of compliance costs by functions (banks in Asia region, %)

about true costs and expenses to initiate and support account opening to their customers including relevant details about drivers and influencers, spending trends in AML compliance operations, costs breakdown, staff sizes, and adoption of digital technologies. According to the respondents the AML compliance costs increased by 40% and more in 2016 (Figure 4).

Focusing on the costs for sanction-related AML Compliance, 73% of respondents see expenses increasing in 2016, with more than one-quarter of banks projecting increases of 20% more. On average, costs are distributed fairly among the various operational components of banks' AML compliance procedures. However, more than 33% of average budget of compliance costs are spent by banks on watch list-related activities, such as KYC and Customer Due Diligence (14%), periodic compliance screening analysis (10%), sanctions screening analysis (9%) and transaction monitoring analyses (9%) of average volume of expenses (Figure 5).

As the result of this, some international banks are seeking to conclude outsourcing agreements with intermediate pay consulting companies on KYC and Customer Due Diligence areas, which are implementing modern cost-cutting methods in compliance procedures. So, in terms of cost management in correspondent banking services it is necessary to reduce costs through industry initiatives. Various other financial industry initiatives have been proposed to reduce compliance costs and to increase the overall efficiency of correspondent

banking as well as to reduce negative externalities (BIS, 2015). These include most relevant methods, such as:

- implementing YC tools created by private sector entities, which include relevant customer due diligence information;
- promoting implementation of the Legal Entity Identifier (LEI) and information sharing agreements for all banks participating in CBRs;
- reviewing the format of payment messages to ensure that they completely meet the customers' needs, internal banking procedures, and law enforcement in a cost-effective method;
- further supporting enhanced due diligence by promoting application of the LEI for identifying corporate customers, including provisions and details on information sharing with correspondent banks according to the agreements with cross-border payment services clients.

However, the innovative activity of other participants of payment industry proposed new cost-cutting methods in CBRs. The majority of successful IT consulting companies, namely SWIFT, Ripple, XRP, Thomson Reuters-org ID I Risk, ATOS IT Global Delivery, Veridu, Oracle, KYC Exchange and others, are creating and developing modern cost-cutting technologies solutions and cases for

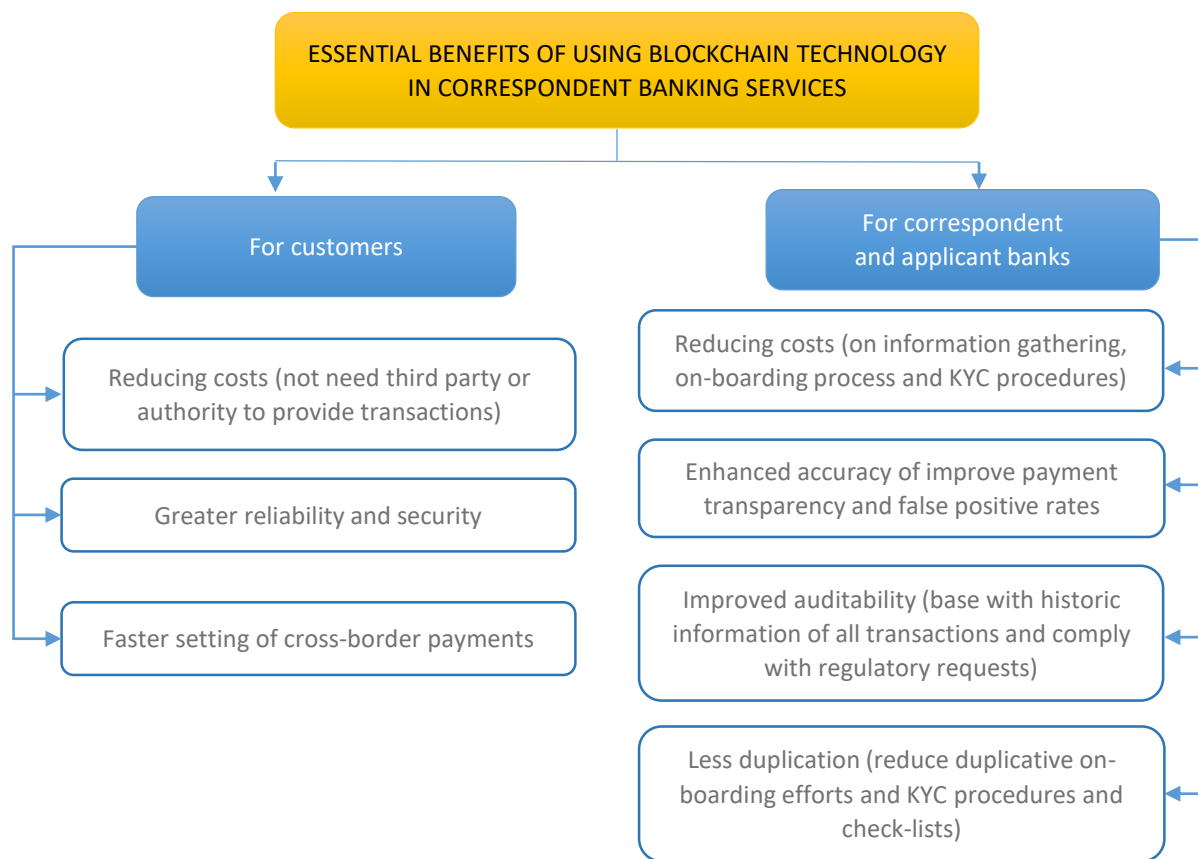


Figure 6. Essential Benefits of using blockchain technology in CBRs

banks. The most attractive solution based on Redtech and Fintech business models, which may significantly reduce the compliance costs and make the correspondent banking services more effective, is implementation of blockchain technology. Basically, the procedure of implementing blockchain technologies in ALM compliance and KYC due diligence consists of several steps. First of all, blockchain is a type of distributed ledger database that records and maintains a constantly growing list of transactions into sequential blocks. Secondly, there is no centralized party, such as a clearinghouse, that validates and executes transactions; instead, a network of computers, which serve as interconnected “nodes” within the network, maintains and verifies a record of consensus of these transactions. The transactions are then encrypted and stored in linked blocks on the nodes, creating a cryptographic audit trail. These blocks are immutable and can’t be changed or deleted. As a result, all nodes in the network have access to a shared, single source of truth (Ripple, 2017). Focusing on these infrastructure technologies,

correspondent banks can reduce on more than 33% the next types of costs: foreign exchange, currency hedging, treasury operations, liquidity, payment operations and Basel III related costs. These platforms encourage a compelling long-term value proposition for all banks seeking global reach.

By contrast with traditional banking methods, blockchain technology can significantly improve the current global payments system through essential benefits from the perspective of both the customers and the institutions that service them (Figure 6).

Especially, correspondent banks, which are going to apply this platform, can reduce costs to get access to servicing cross-border transactions, safe liquidity positions, increase efficiency of individual transactions and speed to serve customers in different time zones, absorb significant costs related to the treasury operations, payment processing, KYC utilities improving, AML compliance provisions.

Table 3. Anticipated annual AML cost savings in CBRs using Fintech models

Source: Quinlan & Associates (2017).

Types of compliance and operational costs	Current AML compliance costs (USD, bn.)	Annual savings using blockchain models		AML expenses (after using blockchain models, USD, bn.)
		Nominal (USD, bn.)	%	
Compliance staff	9.00	2.43	27	6.57
On-boarding	4.05	0.81	20	3.24
Monitoring	3.15	1.26	40	1.89
Reporting	0.9	0.18	20	0.72
Training	0.9	0.18	20	0.72
Technology	3.00	0.9	30	2.1
Penalties from authorities	2.50	1.25	50	1.25
Total	14.50	4.58	32	9.92

Notes: USD 9.0 billion in AML costs on compliance staff represent 75% of total estimated 2016 compliance spend of USD 12.0 billion, with technology costs (monitoring software and KYC software, online training etc.) representing the remaining 25% (i.e. USD 3 billion). AML fines estimated at USD 2.5 billion p.a., based on the average of total fines handed out since 2009.

Blockchain applications in financial industry can help provide significant cost-cutting measures in correspondent banking services on the following stages: customer on-boarding using cryptographic identities to complete database; customer due diligence through automating processes, thus reducing compliance errors and enhancing the quality of customer information checks in real time with results sharing between many correspondent banks; AML Compliance through automating compliance process and applying regulatory requirements, that can reduce the risk of financial penalties for compliance failings; monitoring and reporting, given the ability to verify information more easily and quickly.

Regarding the financial consultant's assessment, blockchain technology has the capacity to save approximately USD 4,6 billion in annual AML to the banking industry in the form of reduced compliance headcount and associated costs, lower technology spends and fewer regulatory penalties (Quinlan & Associates, 2017).

In particular, by applying Fintech models during the on-boarding process banks can save 20% of costs, given the ability to leverage a shared database of customer information to streamline the KYC process and cut duplicative on-boarding efforts for the same customers across different banks. At the same time, during the monitoring

stage banks can reduce 40% of annual costs driven by the ability to capture and monitor customer database, which can be supplemented by unique client identifier and predict suspicious transactions. Also, 20% annual reduction in headcount costs on the reporting stage banks can optimize by reducing the time needed to both source and validate report data. Another 20% annual reduction in costs is tied to an overall reduction in AML compliance, reflecting overall headcount savings across compliance personnel in on boarding, monitoring and reporting. On technology, area banks can save 30% of the annual budget. As a result, correspondent banks reduce their costs on the regulatory penalties by 50% for AML compliance breaches. Thus, successful implementation of blockchain technologies in the cost-management process in correspondent banking services has a significant impact on the global banking profitability. That is why, the world's biggest banks have joined a project to create a new form of digital currency that they hope to launch next year for clearing and settling financial transactions based on the blockchain technology (Barclays, Credit Suisse, Canadian Imperial Bank of Commerce, HSBC, MUFG and State Street, JP Morgan, Royal Bank of Canada (RBC) and Australia and New Zealand Banking Group (ANZ)) (JP Morgan's Quorum, 2017). This impact demonstrates future perspectives of applying new technological and innovative models for cost-management in CBRs around the world.

CONCLUSION

This paper studies the key reasons and essential components of the cost-management approach in CBRs based on the analytical results of cross-border transaction volume, compares drivers of termination or restriction of correspondent banking services, analyses different types of compliance costs. The study defines the main stages of CBRs, the key types of costs and appropriate measures to manage them using innovation technologies.

The modern ways to increase the quality level of management CBRs are identification and estimation of operational and compliance costs in banks. In such a way, they reduce their correspondent relationships with respondent banks in the high risk countries to limit their exposure to potential fines that regulators may enforce as a result of any violations of laws, compliance rules, or sanction programs. Instruments to enhance the quality of CBRs should include:

- identification of operational and compliance costs in cross-border financial transactions;
- development of cost-management methods by using innovative technologies;
- improvement of collaboration with professional consulting companies in customer on-boarding, Due Diligence, KYC and AML area;
- adaptation of the banking operational activity in accordance with any regulations changes.

In terms of implementing CBRs' compliance requirements in domestic banks, Ukraine is far behind the well-developed countries. When it comes to Ukraine, as an equal participant in CBRs with highly-developed countries, appropriate measures should be taken to improve modern models for customers' risk assessment, providing enhanced KYC and Due Diligence procedures, adequate implementation of international compliance requirements to create and maintain CBRs. Furthermore, the main types, size and structure of costs in correspondent banking services, quality and speed of their prediction and effective management are decisive in the process of financial payments regulation, implementation of international compliance and technological innovation practice, which ensure security of the banking sector, capital safety and strategic success of the development of the financial industry as a whole.

REFERENCES

1. Bank for international settlements (2015). Committee on Payments and Market infrastructures. Correspondent banking. Consultative report. Retrieved from: <https://www.bis.org/cpmi/publ/d136.pdf>
2. Cryan, J., & Schenck, M. (2015). Executing Strategy 2020. (37 p.) Deutsche Bank. Retrieved from: https://www.db.com/ir/en/download/Deutsche_Bank_Strategy_2020_29_October_2015.pdf
3. Erbenová, M., Liu, Y., Kyriakos-Saad, N., López-Mejía, A., Gasha, G., Mathias, E., Norat, M., Fernando, F., & Almeida, Y. (2016). The Withdrawal of Correspondent Banking Relationships: A Case for Policy Action. *International Monetary Fund*. Retrieved from: <https://www.imf.org/external/pubs/ft/sdn/2016/sdn1606.pdf>
4. Grasshoff, G., Mogul, Z., Pfuhler, T., Gittfried, N., Wiegang, C., Bohn, A., & Vonhoff, V. (2017). Global Risk 2017: Staying the course in banking. Retrieved from: http://image-src.bcg.com/BCG_COM/BCG-Staying-the-Course-in-Banking-Mar-2017_tcm9-146794.pdf
5. Institute of International Finance & Bankers Association for Finance and Trade (2017). Revised annex for correspondent banking to the BCBS guidelines on the sound management of risks related to money laundering and financing terrorism. Official letter. Retrieved from: https://buckleysandler.com/uploads/1556/doc/Feb_22_2017_BAFT_Comment_Letter_to_BCBS.pdf
6. International Finance Corporation World Bank Group (2009). Correspondent Account KYC Toolkit. A Guide of common documentation requirements. Retrieved from: <http://www.ifc.org/wps/wcm/connect/dfb227004ec4ea109697bf-45b400a808/correspondent+account+kyc+toolkit.pdf?mod=ajperes>

7. Kozmenko, S., Savchenko, T., & Zakutniaia, A. (2016). The impact of monetary policy transparency on inflation: the case of Ukraine. *Banks and Bank Systems*, 11(4), 82-89. Retrieved from: <https://businessperspectives.org/journals/banks-and-bank-systems/issue-191/the-impact-of-monetary-policy-transparency-on-inflation-the-case-of-ukraine>
8. LexisNexis (2016). Uncover the True Costs of Anti-Money Laundering and KYC Compliance. Risk Solution report study on Financial Institutions across six markets in Asia. Retrieved from: <https://www.lexisnexis.com/risk/intl/en/resources/research/true-cost-of-aml-compliance-apac-survey-report.pdf>
9. Money Laundering and Globalization (2017). *United Nations Office on Drugs and Crime*. Retrieved from: <https://www.unodc.org/unodc/en/money-laundering/globalization.html>
10. Myhailiv, Z. V. et al. (2004). Міжнародні кредитно-розрахункові відносини та валютні операції [Mignarodni kredytno-rozrahunkovi vidnosyny ta valiutni operacii] (244 p.). Lviv: Lviv'ska Politehnica.
11. Obstfeld, M., & Taylor, A. M. (2004). Global capital markets: integration, crisis and growth (350 p.). USA: Cambridge University Press.
12. Partington, R. (2017). Banks Trimming Compliance Staff as USD 321 Billion in Fines. Bloomberg. Retrieved from: <https://www.bloomberg.com/news/articles/2017-03-23/banks-trimming-compliance-staff-as-321-billion-in-fines-abate>
13. Peyton, A. (2017). JP Morgan's Quorum blockchain powers new correspondent banking network. *Banking Technology. Fintech Futures*. Retrieved from: <http://www.bankingtech.com/1037032/jp-morgans-quorum-blockchain-powers-new-correspondent-banking-network>
14. Quinlan & Associates (2017). From KYC to KYT: Blockchain's emerging role in the global payments system. Retrieved from: <http://www.quinlanandassociates.com/insights-from-kyc-to-kyt/>
15. Ramakrishna, S. P. (2015). Enterprise Compliance Risk Management: An Essential Toolkit for Banks and Financial Services (315 p.). Singapore: John Wiley & Sons Singapore Pre. Ltd.
16. Ripple (2017). The cost-cutting case for banks. The ROI of using Ripple and XRP for global international settlements. Retrieved from: https://ripple.com/files/xrp_cost_model_paper.pdf
17. Rudenko, V. (2018). Західним банкам знайдуть альтернативу [Zahidnum bankam znaidut alternatyvu]. *Financial club*. Retrieved from: <https://finclub.net/ua/analytics/zakhidnym-bankam-znaidut-alternatyvu.html>
18. Sloboda, L., & Tsiuliko, D. (2017). Перспективи та ризики клірингових платежів фінансових установ: міжнародний досвід для України [Perspectyvy ta ryzyky kliringovyh plateziv finansovyh ustanov: mignarodni dosvid dlya Ukrainy]. *Sotsialno-ekonomichni problemy suchasnogo periodu Ukrainy*, 2(124), 128-132.
19. Soon-Lim, C. (2001). An empirical study of international correspondent banking in Australia. Thesis (18 p.). Department of Marketing, University of Wollongong. Retrieved from: <http://ro.uow.edu.au/cgi/viewcontent.cgi?article=2476&context=theses>
20. Stasinevych, S., & Blagodatny, A. (2016). Удосконалення клірингової та розрахункової діяльності на ринку цінних паперів України [Udoskonalennya kliringovoï ta rozrahunkovoï diyalnosti na rynku tsinnykh paperyv Ukrainy]. *Formuvannia runkovykh vidnosyn v Ukraini*, 2(177), 26-29.
21. Straharchuk, A. Ja., & Straharchuk, V. P. (2010). Інформаційні системи та технології в банках [Informaciyni systemy i tehnologii v bankah] (515 p.). Kyiv: UBS NBU.
22. The World Bank Group. Finance and Markets Global Practice (2015). Withdrawal from Correspondent Banking. Where, Why, and What to Do about It. Retrieved from: <http://documents.worldbank.org/curated/en/113021467990964789/pdf/101098-revised-PUBLIC-CBR-Report-November-2015.pdf>