Bank of Jamaica Whitepaper

THE ROLE OF SUPERVISORY TECHNOLOGY
AND THEMATIC REVIEWS IN ENHANCING
RISK-BASED SUPERVISION

AMLA®
AML ANALYTICS

Table of contents

Executive summary

Since the entry into force of the *Banking Services Act* in 2015, which introduced a significantly enhanced consolidated supervision framework in Jamaica, the Bank of Jamaica (BOJ) has continued to work to foster a supervisory culture and build the tools needed to effectively implement a risk-based supervisory approach.

Through this whitepaper, the BOJ seeks to share with its partners and stakeholders its experience in transitioning to a risk-based approach and, in particular, how the BOJ has deployed Thematic Reviews that leverage supervisory technology (SupTech) tools to enhance its efficiency and effectiveness as a supervisor.

The full build-out and implementation of a risk-based supervisory framework is a critical success factor for the BOJ in ensuring the continued positive performance and long-term sustainability of the deposit-taking institution (DTI) sector, which plays a central role in the facilitation of cross-border activities and in maintaining the correspondent banking relationships that are essential to the provision of transnational payments in the Jamaican context. However, like many other supervisors globally, the BOJ has confronted significant challenges in implementing a risk-based approach, including the limited availability of skilled AML/CFT supervisory resources.

The Caribbean Financial Action Task Force (CFATF) fourth round mutual evaluation report (MER) of Jamaica, which was published in January 2017, was critical of Jamaica's overall understanding of its ML/TF risks and the lack of a comprehensive national risk assessment (NRA) process to identify, assess and mitigate those risks. The report also included a recommendation that the BOJ and other competent authorities undertake thematic AML/CFT studies by sector and types of institutions to improve their understanding of sectoral risks.

Since the MER, the BOJ has completed several Thematic Reviews to deepen its understanding of sectoral risks, including in relation to bank fraud, cross-border financial flows, and the remittances sector. Building on the success of these reviews, the BOJ determined that a review of the internal controls of the DTIs would be an important corollary exercise from a supervisory perspective. The BOJ appointed AML Analytics, a leading AML technology company, to conduct sanctions screening and transaction monitoring system Thematic Reviews of the DTI sector – the BOJ's first foray into the use of SupTech tools to support its supervisory and examination activities.

The recently completed Thematic Reviews have helped the BOJ gain a better understanding of the way that specific ML/TF risks are being managed by the DTI sector and have provided new supervisory insights into the strengths and weaknesses of each DTI's processes and use of technology. Supervisory outcomes for the DTI sector are expected to continue to improve over time and the DTIs are already demonstrating a clearer understanding of the BOJ's sanctions screening requirements. Outputs from the Thematic Reviews have been directly incorporated into the DTI risk matrix, which will assist the BOJ in identifying at-risk DTIs for enhanced supervisory scrutiny and determine the scope of future on-site examinations.

Deploying SupTech tools in these Thematic Reviews has shown considerable promise in scaling and automating routine elements of the BOJ's supervisory work, thereby helping the BOJ to focus resources on tasks that require greater supervisory judgement and experience. It has also been validated for the BOJ that SupTech tools can permit elements of supervisory examinations to be effectively carried out off-site, which has been instrumental in allowing the BOJ to maintain supervisory intensity during the COVID pandemic when on-site examinations were not possible.

Although increasing digitisation in the financial sector that allows for the end-to-end digital delivery of financial services carries with it new risks from an ML/TF perspective, it also provides opportunities for supervisors to leverage powerful and innovative SupTech tools to support their risk-based supervisory efforts. The BOJ is pursuing a number of workstreams that will further integrate SupTech solutions into its risk-based supervisory approach, including increasing integration of big data analytics, and to share its experiences and lessons learned in this regard with competent authorities and other stakeholders in Jamaica as well as its CFATF partners.

Introduction

The transition from a compliance-based to a risk-based approach to AML/CFT supervision is a significant undertaking that requires a substantial investment in enhancing the skills and capacity of supervisory staff, a deep understanding of inherent and residual ML/TF risks, and the development and integration of a comprehensive supervisory toolkit. Supervisors around the world face similar challenges in building a sufficient understanding of ML/TF risks that ensures limited supervisory resources are directed at the highest ML/TF risks.

Since the entry into force of the *Banking Services Act* in 2015, which introduced a significantly enhanced consolidated supervision framework in Jamaica, the Bank of Jamaica (BOJ) has continued to work to foster a supervisory culture and build the tools needed to effectively implement the risk-based approach. Through this whitepaper, the BOJ seeks to share its experience in transitioning to a risk-based approach with its AML/CFT partners and stakeholders and, in particular, how the BOJ has deployed Thematic Reviews that leverage supervisory technology (SupTech) tools to enhance its efficiency and effectiveness as a supervisor.

Context

FINANCIAL SECTOR OVERVEW

Jamaica has a well-developed financial services sector that is composed of participants across a range of services and that vary from very small operations to large multinational entities, including deposit-taking institutions (DTIs), credit unions, money services businesses, securities companies, insurance companies, money lenders, pension funds, collective investment schemes and retail payment services. The financial sector's contribution to Jamaica's GDP is significant and relatively constant, moving from 11.1 percent in 2014 to 11.3 percent in 2019.

The DTI sector accounts for over 38 percent of Jamaica's total financial sector assets (as at 2020). Commercial banks are the most important DTI sub-sector accounting for 35 percent of total assets (91.5 percent of DTI assets) followed by building societies (8.2 percent of DTI assets) and merchant banks (0.3 percent of DTI assets).

Importantly, in the Jamaican context, DTIs are central to the facilitation of cross-border financial activities and to gaining and maintaining correspondent banking relationships, which are essential to the provision of transnational payments. These activities are of particular importance since the Jamaica economy is open; highly dependent on tourism, remittances and trade, predominantly in primary goods. Access to international payments services such as wire transfers, credit card settlements, and hard foreign currency are critical to the everyday functioning of the economy.

INTRODUCTION OF THE BANKING SERVICES ACT

The *Banking Services Act* (BSA) is the cornerstone financial sector legislation in Jamaica. It took effect on September 30, 2015, repealing and replacing the former Banking Act, Financial Institutions Act and Bank of Jamaica (Building Societies) Regulations, which previously governed the regulation and supervision of DTIs. The BSA substantially improved the architecture of Jamaica's supervisory framework and contributed to a significantly increased level of observance with the Basel Core Principles for Effective Banking Supervision (BCPs), including through a new legal framework to enhance supervisory autonomy, a more robust consolidated supervision framework, as well as new and strengthened powers to undertake corrective actions.

The BSA introduced a number of provisions consistent with recommendations from the IMF and the BCPs to address supervisory autonomy in Jamaica. In particular, the BSA transferred certain critical supervisory powers from the Minister of Finance to the Supervisor (the Governor of the BOJ acting in their supervisory capacity) and a new Supervisory Committee. The Supervisor acts as Chair of the Supervisory Committee and is responsible for implementing its determinations, including on the issuance and revocation of licenses, the fitness and probity of directors, and on taking enforcement measures prescribed under the BSA.

Jamaica's existing consolidated supervision framework was enhanced under the BSA through new requirements directing the establishment of a financial holding company (FHC) for each financial group to which a DTI belongs. The BSA requires an FHC to be licensed and supervised by the BOJ and establishes FHC responsibility for ensuring that the financial group is adequately capitalised on a consolidated basis and subject to effective governance and risk management.

The BSA also introduced a strengthened corrective and sanctioning framework in Jamaica through the addition of binding enforcement measures to the supervisory toolkit. These new supervisory tools, including the issuance of warnings, issuance of cease-and-desist orders, requirements for board undertakings, and powers to remove directors and managers, were introduced to bring about timely corrective actions by licensed DTIs and FHCs.

BANK OF JAMAICA'S SUPERVISORY APPROACH

The BOJ has broad supervisory and regulatory oversight of DTIs, money service businesses (cambios and money remitters), payment systems providers and credit unions in Jamaica. It undertakes DTI supervision pursuant to section 34A of the *Bank of Jamaica Act* and its standing in relation to AML/CFT supervision for the entities it regulates is derived from its designation as competent authority for AML purposes by the Minister of National Security pursuant the *Proceeds of Crime Act* and for CFT purposes by the Minister of Finance and Planning pursuant to the *Terrorism Prevention Act.*

The principal aims of the BOJ's supervisory approach are to promote the safety and soundness of banks and banking groups, as well as the stability of the financial system. The Financial Institutions Supervisory Division (FISD) discharges the BOJ's supervisory responsibilities for DTIs (including credit unions) while the Financial Market Infrastructures Division (FMID) has supervisory oversight over money service businesses and payment systems providers.

The introduction of the BSA was instrumental to support the BOJ's move from a compliance-based to a riskbased approach to prudential and AML/CFT supervision. The BOJ's supervisory methodology combines riskfocused on-site examinations with off-site monitoring facilitated by prudential reporting requirements. Processes have been established that allow the BOJ to provide feedback to DTIs from on- and off-site assessments through formal meetings and written reports on examination findings, which highlight issues of concern and set out remedial actions as required. The BOJ may apply sanctions pursuant to the BSA where there is evidence of unsafe and unsound practices, including in relation to AML/CFT breaches.

Under the BOJ's risk-based supervision framework, the risk profile of a DTI determines the frequency, intensity and specificity of on- and off-site supervision. A thorough analysis of the risk profiles is conducted by off-site examiners and comprehensive risk modules have been developed with the support of the IMF to better differentiate between high- and low-risk DTIs based on institutional and structural factors, lines of business risk, and their internal control environments. A DTI's inherent risk is calculated by aggregating the risk emanating from the institutional/structural factors and business line activities. The strength of the internal control environment is then added to arrive at the DTI's residual or net risk.

Prior to the implementation of the risk-based approach, DTI supervision was carried out by a single examination team responsible for both prudential and AML/CFT oversight. While this approach allowed for more frequent interaction between the examination team and the DTI, it had limitations in terms of the consistency and efficiency of supervisory efforts across DTIs. In 2015, the BOJ elected to formally decouple prudential and AML/CFT oversight. From an AML/CFT perspective, this change permitted the frequency and intensity of supervisory engagement to be fully aligned with the DTIs' ML/TF risk profiles.

CFATF MUTUAL EVALUATION RESULTS

In January 2017, the Caribbean Financial Action Task Force (CFATF) published the fourth round Mutual Evaluation report (MER) of Jamaica. The report provided a review of the AML/CFT measures in place in Jamaica as at the date of the on-site visit of the assessment team (June 2015). It found a significant number of deficiencies in Jamaica's technical compliance with the FATF 40 Recommendations with 17 out of 40 Recommendations rated as compliant or largely compliant. The MER also concluded that Jamaica's AML/CFT regime largely demonstrated a low-to-moderate level of effectiveness.

The MER was critical of Jamaica's overall understanding of its ML/TF risks and the lack of a comprehensive process to identify, assess and mitigate those risks. The National Risk Assessment (NRA) had not been completed at the time of the on-site visit and the assessment team raised concerns with the lack of private sector involvement in its development. Earlier work to identify risks, including through the National Security Policy, were found to be lacking in terms of identifying TF, PF and other risks. These and other shortcomings resulted in Jamaica receiving a moderate rating for Immediate Outcome 1 (risk, policy and coordination) and a partially compliant rating for Recommendation 1 (assessing risks and applying a risk-based approach).

In the analysis of Immediate Outcome 3 (Supervision), Jamaica's overall AML/CFT supervisory regime for financial institutions was found to be adequate with a relatively robust licensing regime in place. In particular, the assessment acknowledged the BOJ's efforts to implement a risk-based approach to AML/CFT supervision but noted that its approach did not yet fully permit supervisory attention to be focused on areas that posed a higher ML/TF risk or to allocate resources accordingly. The MER also noted that more work was needed to ensure DTIs deepen their understanding and implementation of AML/CFT risk management.

While the on-site visit took place just prior to the entry into force of the BSA and, as such, the MER did not, at the time of publication, fully reflect the current situation in Jamaica, it nonetheless contained a number of important findings that have served to inform the BOJ's implementation of an effective risk-based AML/CFT supervisory framework, including that:

- The BOJ should undertake thematic AML/CFT studies by sector and types of institutions to improve its understanding of sectoral risks
- Compliance with targeted financial sanctions obligations had not been reviewed or discussed as part of on-site visits nor included as part of supervisory work; and
- Supervisory resources and the tools available to supervisors to conduct surveillance and oversight need to be augmented to deepen the implementation of the risk-based approach

On the basis of its technical compliance ratings and level of effectiveness, Jamaica was placed in the CFATF enhanced follow-up process after the adoption of its MER. Jamaica has subsequently reported back to the CFATF on three occasions and, as part of its third follow-up report of December 2020, submitted its first formal re-rating request. CFATF ultimately granted twelve technical compliance rating upgrades, demonstrating Jamaica's significant progress in its implementation of AML/CFT measures.

Jamaica's MER results also met the referral criteria for the FATF International Cooperation Review Group (ICRG) process, and, in February 2020, Jamaica made a high-level political commitment to work with the FATF and CFATF to strengthen the effectiveness of its AML/CFT regime. Since that time, Jamaica has continued to work towards improving its AML/CFT regime, including by developing a more comprehensive understanding of its ML/TF risks through the completion of the NRA, which was approved by Cabinet in August 2021[2]. The successful conclusion of the NRA process was a critical precursor to the finalisation of several aspects of the risk-based frameworks being adopted by the BOJ and other competent authorities.

2 Available at: https://boj.org.jm/national-risk-assessment-final-report-august-2021/

Challenges in risk-based supervision

For the BOJ, the full build-out and implementation of its risk-based supervision framework is a critical success factor in ensuring the continued positive performance and long-term sustainability of the DTI sector. However, Jamaica's experience with the MER and subsequent engagement through the CFATF follow-up process and FATF ICRG process have reaffirmed some of the significant challenges in transitioning from a compliancebased to a risk-based approach to AML/CFT supervision.

Jamaica's experience in this regard is not unique. The *FATF Guidance on Risk-Based Supervision* found through a review of 102 countries evaluated against the 2013 FATF Methodology that only a minority were able to demonstrate success in applying a risk-based approach to supervision and that in three out of four evaluations major and fundamental improvements were required. The majority of countries reviewed were rated "moderate" for Immediate Outcome 3 and one of the most important gaps to achieving a "substantial" rating identified was the implementation of the risk-based approach (Core Issue 3.2).

In practical terms, the most significant challenge confronting the BOJ in implementing the risk-based approach, like many other supervisors globally, has been the limited availability of skilled AML/CFT supervisory resources relative to number of entities for which it has supervisory responsibility. At the time of the MER, the FISD had a staff complement of five individuals with extensive AML/CFT training and experience with responsibility for the monitoring of 11 DTIs and 25 credit unions. Due to these limited resources, the BOJ had not been able to increase the frequency of its AML/CFT examinations of high-risk DTIs to the level required and new strategies were being considered to help build the BOJ's understanding of ML/TF risks in the DTI sector.

Understanding of risk and Thematic Reviews

The CFATF MER was largely critical of Jamaica's understanding of its ML/TF risks and included a recommendation that the BOJ and other competent authorities undertake thematic AML/CFT studies by sector and types of institutions to improve their understanding of sectoral risks. The BOJ has since completed a number of Thematic Reviews to deepen its ML/TF risk understanding, including in relation to bank fraud, cross-border financial flows and the remittances sector.

A Thematic Review of banking fraud, which represents a significant aspect of ML risk exposure in the Jamaican financial sector was undertaken by the BOJ in 2018-2019. The study was largely informed by data on fraudulent activities provided to the BOJ by licensees pursuant to the BSA. A follow-up survey was conducted to obtain qualitative and quantitative data on banking fraud from DTIs and also included information on measures employed by banks to tackle internal and external fraud threats (see *Box 1*).

BOX 1: BANKING FRAUD

The banking fraud Thematic Review found that commercial banks accounted for 95.4 percent of reported fraud incidents, or an average of 330 monthly incidents from January 2018 to April 2019, amounting to $680.7 million in losses over the review period. Building societies reported an average of 28 monthly incidents of fraud over the same period ($7.3 million in losses) while credit unions reported an average of 8 monthly incidents ($1.9 million in losses).

Debit card and credit card fraud were found to be the most significant sources of ML risk amongst reporting institutions and recommendations were made to prioritise ML risk management regarding debit and credit card usage in the short term. Recommended measures included upgrading technology driven anti-fraud solutions, targeted training of staff, and improved education as it relates to safe habits in the usage of debit and credit cards by customers. Reporting institutions were also advised to closely monitor ML threats that could emanate from internet banking as a result of fraud displacement stemming from the implementation of measures to deter card-related fraud.

The findings of the Thematic Review were disseminated to industry as part of the BOJ's support to licensees in cultivating a deeper understanding of the specific inherent risks of conducting business in the sector. The assessment was also aimed at informing how banking fraud risks and consequently ML risks are identified, controlled, and mitigated. Licenses were allowed time to conduct self-assessments and thereafter indicate measures they had instituted in response to the findings from the Thematic Review. A key measure taken in this regard was the adoption of EMV chip technology in debit and credit cards issued by licensees.

A follow-up banking fraud study conducted by the BOJ in 2021 revealed general declines in annual bank fraudrelated losses by the DTIs. Reduced dollar-value losses were largely attributable to the remediation measures applied by the DTIs, including the implementation of EMV technology in 2019, following the BOJ's initial Thematic Review. Bank fraud losses associated with both debit cards ($594 million to $215 million) and credit cards ($502 million to $277 million) and credit cards ($502 million to $277 million) dropped significantly over the review period (2018 to 2021-CYTD).

A subsequent BOJ Thematic Review examined the role of cross-border financials flows in the Jamaican financial sector and their potential as a source of ML risk exposure. The review utilised DTI transaction data covering a period of April 2018 to March 2019 and information from Transparency International's Corruption Perceptions Index (CPI) between 2014 and 2018. The review was premised on the presumption that the Jamaican financial sector is susceptible to ML/TF risks emanating from other jurisdictions and, as such, the study included identifying the level of exposure to ML/TF risks among DTIs in Jamaica (*see Box 2*).

BOX 2: CROSS-BORDER FINANCIAL FLOWS

The Thematic Review examined cross-border wire transfer data from the DTIs over the review period and found that the United States, Great Britain and Canada accounted for the majority of transaction flows (72.5 percent of total transaction volume and 75 percent of total transaction value). The high concentration of wire transfers from the United States, Great Britain and Canada was found to be consistent with the significant presence of the Jamaican diaspora and strong bilateral economic relations with the countries. Jamaica's susceptibility to ML/TF risks from wire transfers was thus considered to be fairly low based on the low CPI of the three countries. However, DTIs were informed of the need to continue coordination, monitoring and deploying effective management strategies to mitigate against ML risk exposures.

Despite the identification of some flows of funds from higher-risk countries, these were found to be conducted via correspondent banks in the United States and Great Britain, which were assessed as having strong AML/CFT regimes in place. Accordingly, Jamaica's ML/TF risk exposures were deemed moderate, as flows from high-risk jurisdictions were low and channeled primarily through jurisdictions with mature AML/CFT systems. However, DTIs will need to conduct further investigations, driven by the risk-based review of their internal control environment, in order to ascertain the nature of these transactions and the implied ML/TL risk.

2020 Financial Stability Report: https://boj.org.jm/wp-content/uploads/2021/04/finstab_2020.pdf

The BOJ's initial experiences conducting sectoral ML/TF Thematic Reviews helped to not only improve its understanding of key ML/TF risks in the financial sector, but also to increase DTIs' ML/TF risk awareness and assist them in implementing appropriate measures to effectively mitigate these risks. From a supervisory perspective, the BOJ determined that a review of the internal control environments of the DTIs would be a logical corollary exercise to build on the success of these thematic reviews. The insights gained from these reviews would also inform the calibration of the risk matrix developed with the support of the IMF, which in turn would support the frequency, intensity and specificity of further on-site examinations.

The BOJ appointed AML Analytics, a leading AML technology company, to conduct a Sanctions Screening Thematic Review in 2020 and a Transaction Monitoring System Thematic Review in 2021. AML Analytics was chosen as the BOJ's partner for these reviews given its specialized focus on the testing and validation of automated sanction screening and transaction monitoring technologies used by regulated financial institutions.

Overview and objectives

In line with the MER finding that compliance with sanctions obligations had not been reviewed nor included as part of the BOJ's supervisory work, a sanctions screening thematic review was undertaken in partnership with AML Analytics to evaluate the PEPs and sanctions screening systems of the DTIs in Jamaica. The entire DTI population was asked to participate in the review. This decision was based on earlier examination findings for some DTIs that revealed customer profiles were not being updated frequently, which had impacted their ability to adequately identify unusual and reportable transactions. Also, PEP screening across the DTI industry was found to be less robust than required given the absence of a centralised database of domestic PEPs against which DTIs could screen customers.

The aim of the sanctions screening Thematic Review was to understand the effectiveness and efficiency of DTI customer and transaction screening systems with particular attention placed on four key considerations:

- Did the system generate an alert when an 'un-manipulated' sanctioned name is screened;
- Were the 'fuzzy matching' rules, configuration and threshold settings effective, such that a 'manipulated' sanction name generates an alert;
- Were the levels of 'false positive' positive alerts generated by the screening system within operable levels; and
- Was system performance in accordance with the BOJ's expectations.

Testing process

The sanctions screening Thematic Review was based on tests created using publicly available records from sanctions and PEPs lists specified by the BOJ. The BOJ elected to test the DTIs' systems against a range of sanctions lists from major global sources, including the UN Security Council Sanctions Committee, U.S. Office of Foreign Asset Control (OFAC) and FINCEN Patriot Act lists, as well as the HM Treasury consolidated list and EU CFSP list. PEPs data for the tests was supplied by the BOJ and Bank Identification Codes (BIC) were also included as part of the transaction screening testing process.

Two separate tests were performed on the DTIs' customer screening and transaction screening systems to ascertain their effectiveness: a control test (unmanipulated data) and a manipulated data test (algorithmically manipulated data). The control test evaluated the pure name matching capability of each system to ascertain a fundamental matching process, ensuring that all sanction lists were current and maintained. Algorithmic manipulations were also applied to test data in order to comprehensively test the fuzzy logic matching capabilities of each system.

Once the testing parameters were finalised by the BOJ, data representing over 5,000 entities and individuals on the relevant sanctions lists was sent to the DTIs formatted to suit each entity's required format. Included in the data set were a number of "Clean IDs" with no sanctions nexus intended to help ensure the integrity of the testing results (Table 1). The DTIs were then required to use the data sets provided to test against their screening systems, and record and report back their list of hits and alerts via an online portal. The test results were processed by AML Analytics and disseminated to the BOJ as concise data reports that were shared with the individual DTIs via one-on-one feedback sessions.

CS test file composition - automated

Control

LIST NAME	ENTITY	INDIVIDUALS	TOTAL
EU - European Union - CFSP	0	1,100	1,100
UK - HM Treasury - Consolidated List	0	1,320	1,320
UN - United Nations Security Council	250	700	950
US - OFAC SDN List	0	1,575	1,575
US - FINCEN - PAS311	5	0	5
US - OFAC CNSDNL List	50	0	50
BOJ - PEP List	0	158	158
Total	305	4,853	5,158

Manipulated

LIST NAME	ENTITY	INDIVIDUALS	TOTAL
The same records above that have been algorithmically manipulated	305	4,853	5,158

Clean IDs

LIST NAME	ENTITY	INDIVIDUALS	TOTAL
Non sanction records.	-	100	100

TS test file composition - automated

Control

LIST NAME	ENT	BIC	IND	TOTAL
EU - European Union - CFSP	0	0	1,095	1,095
UK - HM Treasury - Consolidated List	0	0	1,325	1,325
UN - United Nations Security Council	250	0	700	950
US - OFAC SDN List	0	20	1,525	1,545
US - FINCEN - PAS311	5	0	0	5
US - OFAC CNSDNL List	50	30	0	80
Total	305	50	4,645	5,000

Manipulated

LIST NAME	ENT	BIC	IND	TOTAL
The same records above that have been algorithmically manipulated	305	50*	4,645	5,000

Clean IDs

LIST NAME	ENT	BIC	IND	TOTAL
Non sanction records.	-	-	100	100

** BICs are not manipulated*

Table 1: Customer screening (CS) and transaction screening (TS) file composition

As part of the feedback sessions, the BOJ provided the DTIs with scores measuring the effectiveness of their respective sanction screening systems, based on the testing results, as well as metrics that measured how much "noise" was being generated by the screening systems in terms of false positive alerts. DTIs were also able to review their performance against the rest of the DTI population in Jamaica and in the context of AML Analytics Global Benchmark. A follow-up review was conducted in 2021, which entailed running the same test and same modules with all the DTIs. The results shared in the context of follow-up review allowed the DTIs not only to review their performance against the other DTIs, but also see how the adjustments made to their systems following the first review have resulted in improved results (Table 2).

CS - consolidated score comparison

Metrics

METRIC	AVG. 2020	AVG. 2021	CHANGES
Control score	92.25%	92.07%	-0.18%
Manipulated score	73.68%	87.53%	+13.85%
Control: Avg. returns per hit	12.73	8.00	-4.73
Manipulated: Avg. returns per hit	12.88	6.07	-6.81
Clean IDs Hit	15.12%	26.27%	+11.15%

Most recent AML Analytics Global Benchmark customer screening score

METRIC	NOV 2021
Control score	97.09
Manipulated score	87.53
Control: Avg. returns per hit	4.35
Manipulated: Avg. returns per hit	3.6

Average scores only include systems who have performed automated batch testing in the calculation. CIBC scores are not included as CIBC did not run the sanctions portion of the test that was meant for their FCRM system. Only PEP scores were tested.

A direct comparison of the scores of the Bank of Jamaica 2020 review can not be made to that of the AML Analytics Global Benchmark as the number of records, sources, and specific algorithms applied are not exactly the same. This is a representation of the most recent Global Benchmark individuals score (April 2020).

TS - consolidated score comparison

Metrics

METRIC	AVG. 2020	AVG. 2021	CHANGES
Control score	70.88%	96.12%	+25.24%
Manipulated score	60.41%	92.86%	+32.45%
Control: Avg. returns per hit	38.84	43.15	+4.31
Manipulated: Avg. returns per hit	25.95	28.97	+3.02
Clean IDs hit (%)	8.78%	27.10%	+18.32%

Most recent AML Analytics Global Benchmark customer screening score

METRIC	NOV 2021
Control score	95.87%
Manipulated score	90.38%
Control: Avg. returns per hit	5.63
Manipulated: Avg. returns per hit	4.98

Average scores only include systems who have performed automated batch testing in the calculation.

A direct comparison of the scores of the Bank of Jamaica 2020 review can not be made to that of the Global Benchmark as the number of records, sources, and specific algorithms applied are not exactly the same. This is a representation of the most recent transaction screening Global Benchmark individuals score (April 2020).

Table 2: CS and TS consolidated sanctions score comparison

Key outcomes

The Sanctions Screening Thematic Review found deficiencies in the sanction screening frameworks of several of the DTIs. It also revealed that all DTIs had a screening program that enabled customer on-boarding and transaction screening. Approximately 90 percent of DTIs used automated screening solutions that can be calibrated to identify low-quality matches (e.g., aliases, incorrect spelling) and an equal percentage of DTIs were found to screen against up-to-date and/or comprehensive sanctions lists. Only one small DTI used a manual screening process.

At the conclusion of the thematic review process, the BOJ asked all DTIs to conduct reviews to identify the causes of their deficiencies. Most DTIs subsequently contacted their AML screening tool service providers to conduct root-cause analyses. In most instances, DTIs opted to update their screening solutions either by upgrading to a later model of their current screening solution or by acquiring and implementing a new screening solution. The DTI that conducted screening on a manual basis indicated an intention to move to an automated screening process. A significant portion of the DTIs are now testing their systems in some capacity to ensure they are functioning effectively and appropriately flagging transactions for further review.

Leveraging a SupTech solution for the sanction screening thematic review allowed the BOJ to test the entire DTI population's customer and transaction screening systems against a statistically significant data set comprised of 5,000 designated individuals and entities that would not have been possible using its traditional manual testing process.

Through a binary analysis of the test results, the BOJ was able to demonstrate unequivocally to the DTIs whether they were meeting their regulatory requirements. The follow-up review conducted in 2021 clearly demonstrated that the DTIs took the necessary steps to adjust their systems and have effectively implemented their remediation plans to a significant extent. Several DTIs plan to conduct further tuning of their transaction screening systems, including to address the average number of returns being generated per sanctions hit (i.e. false positives).

Based on the utility of the findings generated through the thematic review, the BOJ is currently considering integrating this solution into its supervisory process on an on-going basis, informing both an updated DTI risk matrix and the BOJ's on-site supervision program going forward.

Transaction Monitoring System Thematic Review

OVERVIEW AND OBJECTIVES

As part of its ongoing efforts to enhance it supervisory methodology, the BOJ launched an initiative, in partnership with AML Analytics, to conduct a Red Flag[2] testing review of the transaction monitoring systems implemented by the DTIs. The aim of the project was to understand the effectiveness and efficiency of the DTIs' primary transaction monitoring systems, with particular attention placed on three primary considerations:

- Were the rule's configuration and threshold settings effective, such that a Red Flag transaction would generate an alert
- Were the levels of alerts within operable levels
- Was system performance in line with the BOJ's expectations

The transaction Monitoring System Thematic Review involved the participation of the five highest-risk DTIs identified based on the BOJ's risk matrix.

TESTING PROCESS

The Red Flag testing review began with an onboarding process to determine the formats in which Red Flag transaction sequences could be uploaded as a batch of transactions into the testing environment of the DTIs' transaction monitoring systems. Following the completion of the onboarding process, the full test was provided to the DTIs to run through their systems. Each of the five DTIs was tested simultaneously, but separately in a format compatible with their screening system.

2. Red Flags are individual regulatory-referenced indicators or typologies that highlight potential suspicious activity occurring in an account. Red Flag rules are created by using knowledge garnered from the patterns that emerge from the analysis of historical illegal activity.

Red Flag indicators from regulatory publications in scope were consolidated into Smart Scenarios to appropriately test typology coverage. The sources of Red Flags for the testing review included publications from the BOJ4 and Financial Investigation Division (FID) in Jamaica, FATF, CFATF, UNODC and the Egmont Group (Table 3).

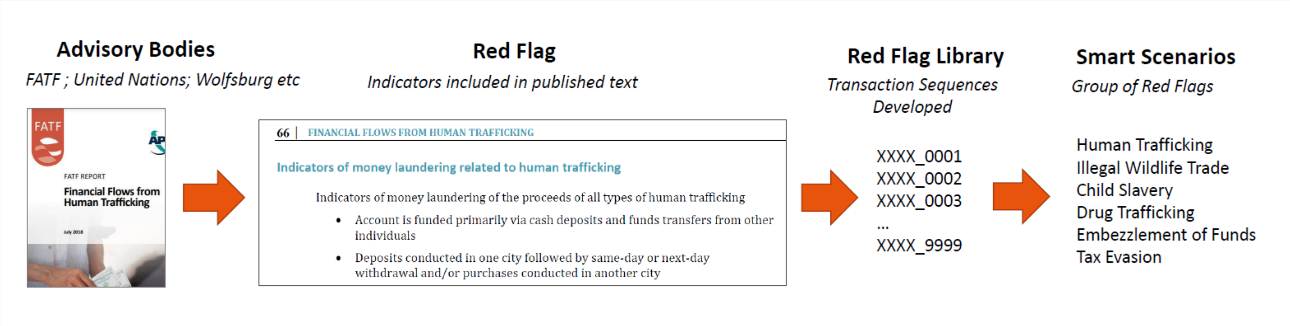

Table 3: Red flag development

The tests contained synthetic transaction sequences to mimic the exact transactional patterns of defined ML typologies with the intention to trigger one or more of the DTI's internal rules. Multiple Red Flag configurations were used to stress test the transaction monitoring systems with the use of test files consisting of transaction sequences of varying levels of value, volume and time bound parameters. Red Flags were not just challenged once, but multiple times with variation in the transaction sequences, which were created in such a way that each sequence was isolated from every other sequence (Table 4).

1 Transaction

GUID	DATE	VALUE	CURRENCY	TRANSACTION TYPE	DIRECTION
abcd1234	01-Jan-21	10,000	USD	CASH DEPOSIT - ATM	IN
bcda1235	02-Jan-21	5,000	USD	DOMESTIC FUNDS TRANSFER	IN
cdab1236	02-Jan-21	10,000	USD	CASH WITHDRAWAL	OUT
dabc1237	03-Jan-21	5,000	USD	CASH DEPOSIT - ATM	IN
abcd1238	04-Jan-21	5,000	USD	CASH DEPOSIT - ATM	IN
bcda1239	05-Jan-21	5,000	USD	CASH DEPOSIT - BRANCH	IN
cdab1240	06-Jan-21	20,000	USD	INTERATIONAL FUNDS TRANSFER	OUT
dabc1241	07-Jan-21	10,000	USD	CASH DEPOSIT - ATM	IN

1 Transaction Sequence

Table 4: Example of a red flag transaction sequence

Once the tests were completed, the DTIs were required to return the system output/result file containing all of the alerts generated by the system, including the Globally Unique Identifiers (GUIs) that enable the tracking of transactions that were sent and matched against, the account number alerted against, detection values, and the internal rule alerted against.

The test results were then processed, analysed and uploaded to the Red Flag reporting platform for further detailed analysis and peer comparison. In interpreting the test results, where a DTI's transaction monitoring system generated an alert by the provided Red Flag transaction sequence, then that would contribute to the Red Flags alerted percentage level displayed in grey (Table 5).

If the transaction monitoring system generated an alert by the provided red flag transaction sequence, at any level per segment, then that will contribute to the red flags alerted percentage level.

For example, if 79 red flags are used:

Red Flags alerted (%)		Number of Red Flags alerted		Number of Red Flags tested
100.00%	=	79	÷	79

AMLA 001 (from FATF)
AMLA 002 (from FATF)
AMLA 003 (from UN)
....
AMLA 080 (from Egmont)

Table 5: Red flags alerted

The orange value in Table 6 shows the percentage of Red Flag transaction sequences that have generated alerts against any of the transactions within that sequence across all key range values (e.g., the amount of a transaction or frequency of transactions) and all segments (e.g., individuals, small, medium and large businesses).

If 79 red flags with 2 variations are tested across 5 segments, with an average of 50 transaction sequences with different key range values per segment and 10 types of sequences, then 395,000 transaction sequences are provided in testing.

Red Flags tested		Red Flag variations		Segments tested		Key range value sequences		Sequences per key range value		Transaction sequences tested
79	×	≈2	×	5	×	≈ 50	×	≈10	=	395,000

Transaction sequences alerted alerted (%)		Number of transaction sequences generating internal rule alerts		Number of transaction sequences tested
29.57%	=	116,802	÷	395,000

Table 6: Transaction sequences alerted

Given the nature of the Red Flag tests, intentionally wide ranges of values for the transaction sequences were sent to the DTIs representing approximately 17.5 million transactions that needed to be tested. These ranges were intended to show where the DTIs started to return alerts and whether they would stop alerting after a certain point. It was therefore expected that a DTI would not return a 100 percent score for all synthetic transaction sequences as this would demonstrate a filter with either very wide thresholds or no thresholds at all. Conversely, a 100 percent score for the Red Flags Alerted would be considered ideal as this would demonstrate the DTI's ability to alert on all the known Red Flags within the scope of this test. The DTI should be able to show that it can successfully generate alerts whenever the combination of Red Flags comprising the Smart Scenario was ingested into its filter.

KEY OUTCOMES

The Transaction Monitoring System Thematic Review was designed to assist with determining the effectiveness of DTI transaction monitoring systems to alert against a wide array of Red Flag indicators as identified in publications from globally recognised advisory bodies. The results of the review were not intended to be interpreted as positive or negative outcomes as each DTI has its own distinct risk appetite. However, by making comparisons between peer entities in the same jurisdiction, the results provide a holistic overview of the transaction monitoring systems' configuration to alert against the Red Flag typologies.

Of the five DTIs tested, 40 percent returned what could be considered as a reasonable level and range of alerts. One DTI returned a 99.8% score for the synthetically produced transaction sequences, which suggested that they would need to resolve an insurmountable volume of alert clearing and false positive administration.

Another DTI failed to return a single alert on 70 percent of the Red Flags and of those that were alerted, only 7 percent of the transaction sequences sent within those Red Flags generated an alert. Further results revealed that one DTI only generated alerts against 0.11 percent of the 'Drug Trafficking' Smart Scenario transaction sequences. This may have indicated an overly tight threshold settings which may need further investigation.

At the conclusion of the Thematic Review, the BOJ requested that the DTIs provide a formal written response to the test results and, if appropriate, outline any system improvement or remediation steps that will be required to enhance the systems alerting effectiveness, in terms of alerting capabilities with reference to match rates as well as the BOJ's expectations. While the Thematic Review was initially conducted on a project basis, testing on the remaining DTIs is being planned for Q1 2022. Re-testing of the DTIs that did not score as well as the rest of their peer group will also be carried out to confirm that remediation plans are leading to improved performance.

Improving risk-based supervision outcomes

Since the entry into force of the BSA in 2015, the BOJ has continued to advance its implementation of riskbased AML/CFT supervision. Supervisory effectiveness continues to improve and the conclusion of the NRA has allowed the BOJ to develop a more comprehensive understanding of ML/TF risks. A sophisticated risk-based off-site monitoring tool has been developed by the BOJ, but challenges remain in terms of the availability of skilled AML/CFT supervisory resources, which contributes to low levels of on-site examinations.

The significant population of supervised entities under the BOJ's purview means that supervisory demands cannot be satisfied by increasing resources alone. However, the use of off-site examination tools, particularly Thematic Reviews, has allowed the BOJ to monitor and better understand risks within the DTI sector and positively influence their behaviour based on the review findings.

The recently completed sanctions screening and transaction monitoring system Thematic Reviews have helped the BOJ gain a better understanding of the way that specific ML/TF risks are being managed by the DTI sector and have provided new supervisory insights into the strengths and weaknesses of each DTI's processes and use of technology.

Supervisory outcomes for the DTIs are expected to continue to improve over time. The DTIs are already demonstrating a clearer understanding of the BOJ's sanctions screening requirements and outputs from the Thematic Reviews have been directly incorporated into the DTI risk matrix, which will assist the BOJ in identifying at-risk DTIs for enhanced supervisory scrutiny and determine the scope of future on-site examinations.

These Thematic Reviews were also the BOJ's first foray into the use of SupTech tools to support its supervisory and examination activities. This approach has shown considerable promise in scaling and automating routine elements of the BOJ's supervisory work, thereby helping the BOJ to focus resources on tasks that require greater supervisory judgement and experience.

It has also validated for the BOJ that the deployment of SupTech tools can permit elements of supervisory examinations to be effectively carried out off-site, which has been instrumental in allowing the BOJ to maintain supervisory intensity during the COVID pandemic when on-site examinations were not possible.

Way forward

Increasing digitisation in the financial sector that allows for the end-to-end digital delivery of financial services carries with it new risks from an ML/TF perspective, but also provides opportunities for supervisors to leverage powerful and innovative SupTech tools to support their supervisory efforts. Going forward, the BOJ has identified three priority workstreams to further integrate SupTech solutions into its risk-based supervisory approach and to share its experiences and lessons learned in this regard with other competent authorities in Jamaica:

- Increasing integration of big data analytics into supervisory work- The BOJ has established a new department with responsibility for undertaking big data analytics in support its prudential and AML/CFT supervisory mandates. To date, it has concluded a number of Thematic Reviews focused on specific areas of risk, including in relation to bank fraud, cross-border financial flows, and the Jamaican housing market. The Thematic Reviews relied on advanced analytics conducted using large data sets drawn from supervisory returns, SWIFT data and other sources. The Thematic Reviews have resulted in improved supervisory outcomes, which are discussed in detail in Box 1 (Bank Fraud) and Box 2 (Cross-Border Financial Flows) above.

The BOJ has also recently concluded a Thematic Review of the remittance sector, which in 2020 accounted for approximately 17 of Jamaica's DP. The review was introduced with the aim of identifying the ML risk exposure of the remittance sector using network, trend and pattern analysis of supervisory returns and transaction-level data to highlight areas of inherent ML vulnerability. Transparency International's CPI was also incorporated in the analysis and used as a proxy for highrisk countries. Leveraging this expanded data set allowed the BOJ to interpret remittance flows in new ways (e.g., data perspectives on source jurisdictions at the sub-national level) and evaluate a range of typologies (e.g., high risk jurisdictions). The results AMLC is a division of AML Analytics Ltd Page 18 of 19 of this Thematic Review have been disseminated to FMID to further inform its risk-based supervision of the sector and to the FID given the identification of five high risk typologies in the dataset.

The Thematic Reviews conducted to date have allowed the BOJ to examine large data sets related to identified areas of risk and apply unique supervisory insights that could not otherwise have been drawn. The BOJ continues to build out its data analytics capacity in support of its risk-based supervisory approach and future work will remain focused on specific areas of ML/TF risk. One area currently under consideration as the topic of a future Thematic Review is the shift by retail customers to internet banking platforms, a trend that has accelerated during the COVID pandemic, and the implications that this trend has for DTIs given that it represents one of their most significant fraud exposures.

- Expanding the use of SupTech tools to support supervisory efficiency- The lessons learned and insights gathered from recent Thematic Reviews have shown the value of SupTech tools in helping the BOJ improve its effectiveness as a supervisor and in enhancing supervisory outcomes. These tools are expected to become an increasingly important feature of the BOJ's supervisory framework moving forward and follow-up testing is allowing the BOJ to track DTI performance over time and validate whether remediation actions are having the desired effect. The BOJ also continues to engage with third party providers of SupTech tools to identify solutions that could help the BOJ automate its internal work processes to support its ongoing supervisory work. The BOJ sees considerable potential in the role of SupTech tools not only in terms of enhancing its understanding of risks and enhancing supervisory outcomes, but also in improving its efficiency as a supervisor.

- Further enhancing domestic cooperation and coordination- Jamaica's most recent NRA process covering the period of January 2016 to December 2019 provided significant lessons learned in terms of the importance of enhancing domestic cooperation and coordination among policymakers, law enforcement officials, competent authorities, designated authorities and the private sector. The collaboration spurred by the NRA has served as a foundation for further engagement among authorities with AML/CFT responsibilities and has helped to build a common and enhanced understanding of the ML/TF threats and vulnerabilities in Jamaica.

The multi-agency National Anti-Money Laundering Committee (NAMLC) is primarily responsible for coordinating and directing Jamaica's response to AML/CFT activities, including undertaking measures to ensure the ongoing understanding of the country's risks and circumstances to inform appropriate policy, supervisory and operational responses. NAMLC is chaired by the BOJ at the Deputy Government level and provides a forum for competent authorities to share information and disseminate best practices for AML/CFT supervision. The BOJ plans to use NAMLC to share its experiences and lessons learned from the conduct of Thematic Reviews and its use of other SupTech tools with other competent authorities in Jamaica. Such collaboration holds particular potential in relation to DNFBPs as the risk-based supervisory frameworks for those sectors are being developed and implemented.

References

1. Annual Report, Bank of Jamaica, 2015 https://boj.org.jm/wp-content/uploads/2019/10/boj_annual_2015.pdf

2. Annual Report, Bank of Jamaica, 2018 https://boj.org.jm/wp-content/uploads/2020/07/boj_annual_2018.pdf

3. Annual Report, Bank of Jamaica, 2020 https://boj.org.jm/wp-content/uploads/2021/03/2020_boj_annual_report.pdf

4. Bank of Jamaica Balance Sheet, Bank of Jamaica, September 2021 https://boj.org.jm/wp-content/uploads/2021/10/Balance-Sheet-Post-As-at-22-September-2021.pdf

5. Comprehensive Action Plan Addendum to Jamaica's National Risk Assessment, August 2021

6. Finance and Insurance Services, Economic and Social Survey Jamaica, Planning Institute of Jamaica, 2019 https://www.pioj.gov.jm/product/economic-and-social-survey-jamaica-2019-overview/

7. Financial Sector Stability Assessment of Jamaica, International Monetary Fund, December 2018 https://www.imf.org/en/Publications/CR/Issues/2018/12/03/Jamaica-Financial-System-Stability-Assessment-46427

8. Financial Stability Report, Bank of Jamaica, 2019 https://boj.org.jm/wp-content/uploads/2020/03/BOJ-Financial-Stability-Report2019.pdf

9. Financial Stability Report, Bank of Jamaica, 2020 https://boj.org.jm/wp-content/uploads/2021/04/finstab_2020.pdf

10. Guidance on Risk-Based Supervision, Financial Action Task Force (FATF), March 2021 https://www.fatf-gafi.org/media/fatf/documents/Guidance-Risk-Based-Supervision.pdf

11. Jamaica 3rd Enhanced Follow-Up Report and Technical Compliance Re-Rating, Caribbean Financial Action Task Force, January 2021 https://www.cfatf-gafic.org/documents/4th-round-follow-up-reports/jamaica-2/14968-jamaica-3rd-enhanced-follow-upreport-and-technical-compliance-re-rating/file

12. Mutual Evaluation Report of Jamaica, Caribbean Financial Action Task Force, January 2017 https://www.cfatfgafic.org/documents/4th-round-meval-reports/7418-jamaica-4th-round-mer/file

13. National Risk Assessment, August 2021 https://e2gobqetsqs.exactdn.com/wp-content/uploads/2021/08/Public_NRA_Final_31_August_2021.pdf

14. Opportunities and Challenges of New Technologies for AML/CFT, FATF, July 2021 https://www.fatf-gafi.org/publications/fatfrecommendations/

© **AML Analytics Ltd**
Thruxton Down House, Thruxton Down,
Andover, Hampshire, SP11 8PR, UK

T +44 (0) 1264 889 339
E info@aml-analytics.com
W www.aml-analytics.com

linkedin.com/company/aml-analytics
instagram.com/aml.analytics
x.com/aml_analytics

QSL ISO 9001 Quality Management Certification

QSL ISO 27001 Information Security Management Certification

AMLA®
AML ANALYTICS