The Challenge of AML Models Validation

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Executive Summary

AML violation and enforcement actions have hit the headlines for the past two decades so often that the attention of senior managements and board members on AML/compliance risk management has definitely been triggered. Still, businesses do struggle to satisfy regulatory requirements and face fines, penalties and enforcement actions.

Regulators and international standards agencies like FATF provide the requirements and guidelines with respect to AML/compliance risks, including that of AML/Compliance risk management models. One of the most important principles that many firms have failed to satisfy the regulator on, is the Validation of AML models. Many questions were raised whether FIs are managing their AML risks adequately and efficiently and how the risk mitigation was verified and validated.

Many firms, including Citibank, N.A which is part of Citigroup, have failed to satisfy the OCC regarding managing BSA/AML compliance requirements. Important topics raised were the management of AML model's risk and insufficient validation of AML systems.

This whitepaper has as objective to help BSA/AML personnel to address the most common challenges faced with examiners regarding the validation of AML models.

The white paper starts with a background on the need for technology and systems to help in addressing AML risks. Following that the AML model's definition and benefits are discussed, next step is to provide an overview of the identification of different sources of AML risks and risk assessment to design an AML model. The next section provides solutions to resolve AML deficiencies that were introduced earlier in 'Models Validation'. Notice is made how to address the risk questions and what, when, where and how to validate AML Models. After the questions are raised, guidance is given how to address the top challenges of AML models validation and provide recommendation on how to overcome the challenges. As concluding part of the paper we discuss the benefits of the validation process throughout the life cycle of the AML system in scope.

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Background

In the global marketplace, money laundering represents one of the most pressing issues facing regulatory authorities. Most regulators across the globe, including OCC, would expect financial institutions to conduct business with responsibility towards their clients and protect the national security from ML/TF risks. Regulators also do encourage the business to benefit from technology to manage various relevant risks including ML/TF. At the same time, regulators demand that FIs do manage the risks associated with using new technology and dependency on the output of automated systems (including AML systems/models). As a result, many firms failed regulatory examination as the expectations were high on the regulator's side.

The fierce competition in the products and services by financial institutions to provide the fastest, easiest and customized products and services to the consumer market had made it more difficult to track the flow of funds through the global financial systems. The shortened financial transaction execution time has made it much more difficult to timely identify the source for ML/FT risks. Technology developments like the introduction of mobile banking have added to the time issue significantly. FIs are finding it more challenging, day by day, to manage and mitigate their AML risks.

Most of the enforcement actions are related to AML models and the ineffective validation of the same. Most banks struggle to bring their AML models up to the expectation of the regulators. The factors that come into play are: competition is getting higher, the products are more complex, and the regulatory environment keeps developing day by day, in addition to complexity of AML models themselves. All these factors add to the difficulty and challenge faced by the banks to advocate for their systems and processes and to prove that they are adequate and effective in managing AML risks.

For example, several sections of Citibank NA OCC Consent Order refer to model risk management failure, weaknesses in the scope and documentation of the validation and optimization process and ineffective independent testing of AML models. This has trigged the author for producing this white paper to guide compliance officers and AML analysts to keep their systems under control in order to minimize the risks of AML fines, penalties, enforcement actions, and mandated look-backs.

Chapter 1: AML Models

Definition

As per OCC 2011-12 Supervisory Guidance on Model Risk Management, the term model refers to a quantitative method, system, or approach that applies statistical, economic, financial, or mathematical theories, techniques, and assumptions to process input data into quantitative estimates. Models are simplified representations of real-world relationships among observed characteristics, values, and events. The guidance has a broad scope that includes multiple aspects of model risk management, expanding on existing guidance and industry experience. A key element of this and previous guidance is the need for independent review and model validations.

Benefits

A well designed AML model can benefit the business in more than one way, most of the common well-known benefits are:

- Models improve risk management by minimizing and mitigating risk within the AML program.

- Satisfying regulatory expectations and requirements for the soundness of models in use within the AML program.

- A well designed model will likely increase productivity and efficiency which in turn will improve the quality of AML audits.

- A well-defined organization structure with clear definition of accountability and responsibility among the different lines of business.

- Effective customer due diligence processes.

- Improve business decisions as models enable banks to predict and identify risk more accurately.

- Cost effective on the long run and by avoiding fines and penalties imposed by regulators.

- Automated solutions which will reduce staffing cost.

- The confidence of a well tracked AML risks across all products, services and line of business.

- Being proactive in identifying and addressing elevated risks in AML to the business.

Risk Assessment & Model Designing

Similar to other areas of setting up a business, with a plan needs to be made to design an AML Model. In order to have an effective and adequate model to manage ML risks, we need first to identify all possible and potential AML risks that our firm is likely to be exposed to. There are mainly 4 sources of risks; namely: customer, products/services, geography/locations and regulatory risks (refer to table 1 for examples of each risk category). Once all potential risks had been identified and understood by the business, a plan of controls and procedures to be designed in a way to manage and mitigate those risks. Controls are to be imbedded through the three lines of defense; front end, compliance and internal audit. The model should take into consideration all other factors that will affect the business exposures to ML risks, like known ML trends in business location and CM's location.

An AML model must be designed based on the documented objectives of the model and various functional and technical requirements. Any limitations of the model must be documented and considered as the model is developed. Model limitations will be an important consideration when model risk is assessed. Examples of model limitations are a lack of key data elements needed to identify AML risk; limited functionality of a system to produce model results; or an absence of reporting metrics needed to analyze the effectiveness of a model.

Table 1

Type of risks	Example of high risks in each type
Customer	Sanction risk (customer on sanction list), Publicly exposed persons, correspondent banks, Identifications Ultimate beneficial owners and Bearer Shares.
Products/Services	Improper design of products and services that leave it vulnerable for misuse by criminals for ML activities, Private banks, Wire transfer, High risk products
Geography	Sanctioned countries, Countries known for high rate of corruption and ML, Neighboring countries to sanctioned countries.
Regulatory	Sanction risk, legal, fine, penalty, enforcement, loss of license and imprisonment for individuals involved in the ML offence.

Top AML models deficiencies spotted by examiners

AML risk continues to increase. Technological developments in enhanced delivery channels for bank products are creating new risks to money laundering and terrorism finance activities. Over the past five years, the number of OCC formal enforcement actions related to AML has remained relatively consistent (see table 2).

Table 2: Trends in OCC BSA/AML-Related Enforcement Actions[1]

Fiscal year	2010	2011	2012	2013	2014	2015	Total
Formal enforcement actions	14	10	15	16	16	6	77

Note: Data for 2015 include enforcement actions issued through Feb 27. All other data as of year-end.

The top common criticisms by regulators were related to: [2]

- A conceptual framework that is inconsistent with regulatory expectations;
- Applying a logic or methodology not commensurate with the unique AML risks of an organization;
- Failing to identify elevated risks associated with certain customers or transactions;
- Reliance on unidentified models for aspects of AML compliance;
- The absence of risk-based model controls consistent with the level of dependence, business assumptions, and regulatory impact of each system;
- Unclear lines of authority and accountability;
- A lack of appropriate resources and expertise to effectively manage model risk management activities;
- Fundamental logic errors, which produce inaccurate output;
- An inconsistent approach and a lack of detailed documentation and quantitative analysis to support model risk management activities; and
- Failure to identify changes in an organization's activities that have an impact on AML models.

The above mentioned criticisms are mainly related to deficiencies in AML models. The issues above and regulatory risks can be mitigated by having an effective and well-designed AML model. The best control to have in place is through testing and ongoing validation of AML model.

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[1] Source: FinCEN Consolidated Quarterly Reports

2 A White Paper by John A. Epperson, Arjun Kalra, and Brookton N. Behm (Aug 2012)

Chapter 2: AML Models Validation

When starting with AML Models Validation make sure to build a case for the senior management that maintaining the model requires time and effort. The validation process should begin early, i.e., during design and development planning and system implementation. A critical point to consider, and should be documented as well (in the validation plan/procedures), is the frequency of model validation. Most firms are undertaking this validation on an annual basis; however the same is not sufficient anymore. The frequency and triggers for validation timings came up many times in many different audits. Changes in products/services offered, regulatory environment, business expansion, emerging of news risks in the market and many other factors could be affecting AML risk factors. Ongoing validation activities help to ensure that changes in markets, products, exposures, activities, clients, or business practices do not create new model limitations. A firm can have a fixed cycle for validation process, like semi-annual or annual basis, however the same must be flexible and take into consideration any need for re validation due to changes to the model, to the data, or to the theory of model logic.

All model components and phases, including input, processing, and reporting, should be subject to validation; this applies equally to models developed in-house and to those purchased from outsourced vendors. Refer to Appendix A for a summary chart.

I.   *Components of Validation*

- **Conceptual Design** – evaluate the logic and design of the model: this is a critical validation point. The model had been designed in a way to achieve a certain objective, i.e. mitigate certain AML risk(s), now the question here: is the model designed in a way to do exactly that? Is there anything missing? Are all risks that our firm is exposed to taken into consideration? All products and services? Client types? Market risks? Is the system flexible in a way that can accommodate changes due to adding of new products/services/client's types and any other factors? The list of red flags and risks, that our firm is exposed to, can be a starting point for this part of validation process. You can start from scratch and build on it. How your model is addressing these risks? What was the logic used? Were guidelines and recommendation, from global agencies and

standard setting bodies, taken into consideration? Are there any gaps in process or products or clients? How was the logic for the model documented? Was the documentation detailed in a way that can be updated or modified in future if needed? Don't forget that not the same team who designed the model would be doing the updating, if required, in future. The documentation should be detailed and comprehensive for any third party to understand the logic of the model.

- **System Validation** – validate the system is properly designed to execute: the technical part should be validated as well. After ensuring that the conceptual design is adequate in mitigating AML risks, the system itself should be tested to ensure that it reflect the same (technically). It can happen that the design was good enough as on paper and theoretically; however the system itself was not producing the same result as it was designed to. For example, testing the output and effectiveness of the generated alerts to drive further tuning of the thresholds and scenarios.

- **Data Validation** – validate that accurate and complete information is captured by a system to execute an AML model: the system can be designed and implemented so professionally to achieve its objective however ending failing badly due to the data integrity issue. As model, in its core functionality is processing input data to produce quantitative estimates. So if the input data is not reliable, the output would not be in a position to give any value nor would be accurate. This part will require identifying source systems and transaction codes; ensuring accurate data feeds; selecting scenarios aligned with firm's risks.

- **Process Validation** – ensure the adequate design and ongoing sustainability of the processes and administration of the AML system and model: Review the process documented for AML model and ensure no gaps identified. It includes an evaluation of controls, the reconciliation of source data systems with model inputs, and the usefulness and accuracy of model outputs and reporting. For example, for the case of validating AML transaction monitoring, the process of any unusual or suspicious event had been identified, what are the procedures documented? Are the same aligned with regulatory requirements? What are the alert and time frames for

review? Is escalation process adequate and well defined? Reporting requirements of SAR/STR documented clearly?

II. *AML systems validation:*

Most banks are using AML models for customer risk scoring and customer due diligence risk. Most banks also are relying on automated transaction monitoring systems, CM risk Rating and due diligence, and watch-list filtering systems, all of which are considered models under the guidance. AML system breaks are considered a leading reason for fines, penalties, enforcement actions, and mandated look-backs.

Transaction Monitoring:

This is a vital control mechanism that an entity could ever have. The setup of scenarios/parameters/threshold limits should be in line with overall risk profile of the firm, taking into consideration the various products, services, client types and geographies covered. The objective is to focus AML resource on the true/positive alerts rather than waste time to find the true hits. Failure in this leads to the greater risk of not generating the accurate alerts to review timely in order to fulfil regulatory reporting requirements.

Customer risk Rating:

This is a critical system in order to evaluate the risk exposure by the client. Hence a failure or inaccuracy in this will lead to handling customer's risk inappropriately which might lead to ineffective monitoring and detection of suspicious activity. The criteria for each risk factor should be evaluated and flexible for any future addition or modification required.

Screening System:

This is crucial to comply with embargos and sanctions requirements. A failure, delay, or any inaccuracy of such process will leave the firm exposed to the risk of regulatory enforcement. The input, timing, accuracy of output, escalation process and responsibilities allocation across the lines of business should be validated to ensure complying with regulatory requirements.

Risk Assessment Systems:

This system can render the firm helpless and destroy it if not designed and implemented effectively. Risk Assessment is the foundation of any AML compliance system. Critical Business decisions will be determined based on the output of this system. A proper documented validation will ensure that the relevant risks are managed and mitigated with proper controls impeded into the risk assessment system.

A failure in any of the above control systems means a failure in whole AML program. An effective AML system must: Satisfy regulatory requirements, Span the entire enterprise, Detect all suspicious behavior rapidly, Reflect industry best practices, Be easy to use and change, Provide long-term effectiveness.

III.   *General Recommendations on Model's Validation*

Validation should not be thought of as a purely mathematical exercise performed by quantitative specialists. It encompasses any activity that assesses how effectively a model is operating. Validation procedures focus not only on confirming the appropriateness of model theory, but also test the integrity of model inputs, outputs, and reporting.[3]

> ➢ Involving bank senior managements in AML compliance program (by regular meetings and calls to track remediation efforts to strengthen the Bank's BSA/AML compliance program).
> ➢ Effective Validation of AML models including the adequacy of internal controls designed to ensure compliance with the BSA and its implementing regulations
> ➢ Risk Based approach to be a utilized in designing and implementing AML models in order to focus resources and efforts adequately commensurate to the level of risk posed.

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[3] FDIC Senior Examiner Robert Burns on Model Validation (Banks Examination- Supervisory Insight 2005): https://www.fdic.gov/regulations/examinations/supervisory/insights/siwin05/article01_model_governance.html

- Sufficient experienced and independent personnel to conduct the validation timely and efficiently.

- Identify frequent/common deficiencies to accelerate your validation projects. Make use of regulators findings/comments on banks with reference to models validation subject. This will help in predicting the examiners expectation with regard to the same and the new trends/expectation.

- Validation Procedure: To have a plan documented for Validation process: defines "what" is to be accomplished through the model validation effort. Validation plans specify areas such as scope, approach, resources, schedules and the types and extent of activities, tasks, and work items. These procedures establish "how" to conduct the model validation effort. The procedures should identify the specific actions or sequence of actions that must be taken to complete individual validation activities, tasks, and work items.

- Validation is an independent task. The team who is responsible or undertaking the validation process should not have been involved in designing or implementing the model itself. This is necessary in order to have a clear thought process and can challenge the designers and implementers of the systems. If they were the same team, it would be hard for the same team to highlight any shortcomings in the model itself.

- Validation documentation should be sufficient to demonstrate that all model validation plans and procedures have been completed successfully.

Conclusion

AML Models Validation is viewed with high scrutiny given recent big AML models failure. Bank's board and senior management are giving the due attention, assigning responsibilities and allocating more resources to model's validation. The spending on AML compliance programs and systems are steadily increasing as the regulators are not satisfied and enforce penalties on the banks.

The core of regulators' concerns regarding the banks' efforts in managing their AML risks is that these efforts were not commensurate with the overall risk to the banks (across different lines of business, products, services, clients..etc). Or more precise, that the banks did not validate their systems with risk assessment or risk based approach concept in mind. The systems, controls and models that were in use were outdated or did not capture the full risk posed by added features to the products or new emerging risks in the market. The model's limitation and inability to take more enhancements was a challenge for most banks.

The banks are left with two options: Either to compete and move on; or to get lashes by the regulators (And, if lucky, survive afterwards). Being in the news headlines will add business difficulties as well as reputational ones. So, the advice is to apply ongoing validation of all business models including AML/TF models. Validation starts at an early stage and continues throughout the life cycle of the model. Validate starting from the identification of the risks to the output results and action workflow after that. Ensure that the work in validation is supported by records and documents. Make it detailed in a way that any third party/examiner would be able to understand the workflow. Do **NOT** leave any question or loop-hole unanswered or not addressed. Make a validation Plan and assign responsibilities and accountability across different parties involved. Ensure that questions like change in products features, new market trend, new payment channel, and new AML risk identified have a place to be addressed in your model's validation. Always think like an auditor and try to think what will attract the examiner's interest and curiosity. Employ risk assessment to assess your models and the risk taken with regards to the dependency on model's output for business decision. Risk-Based concept in the validation can be useful and effective as well.

An effective validation would be to ensure that the outputs are accurate, consistent and reliable. Not only at the current time. We need to ensure that we are ready to meet not just today's challenges, but the evolving risks that will confront us tomorrow. The challenge is to continue to build on the improvements we have made, so that the system continues to adapt to meet the challenge of evolving risks.

Appendix A

Validation Life Cycle
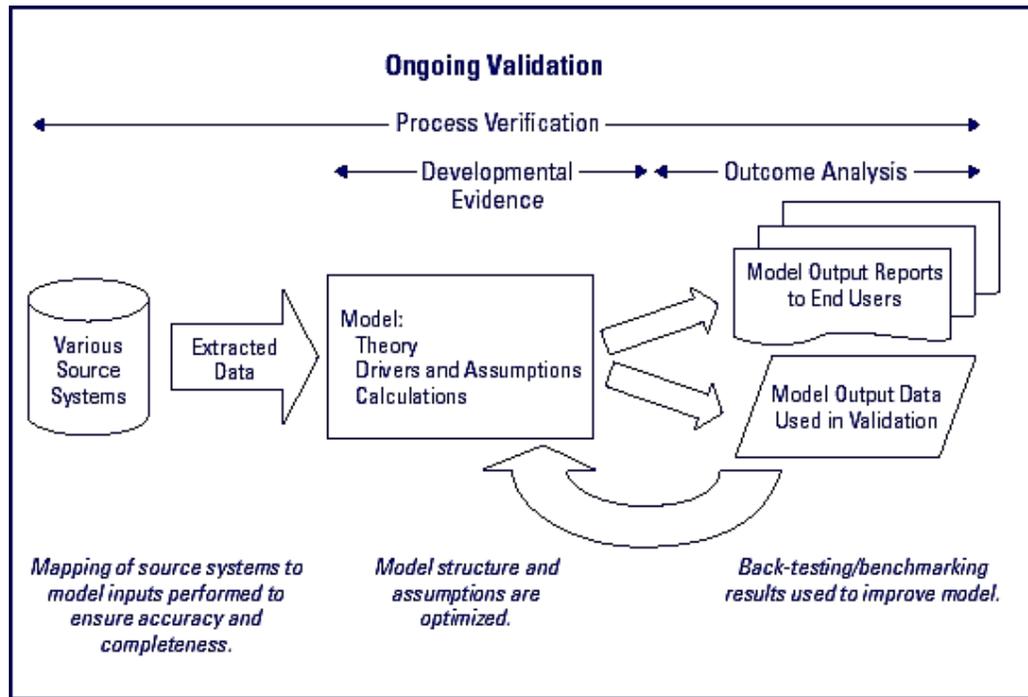
Source: Model's Validation (Banks Examination- Supervisory Insight 2005)

https://www.fdic.gov/regulations/examinations/supervisory/insights/siwin05/article01_model_governance.html

Glossary

AML: A set of procedures, laws or regulations designed to stop the practice of generating income through illegal actions.

BSA: 'Bank Secrecy Act'- USA Government legislation that was created in 1970 to prevent financial institutions from being used as tools by criminals to hide or launder their ill-gotten gains.

CM: CUSTOMER: An individual or business that purchases the goods or services produced by a business. The customer is the end goal of businesses, since it is the customer who pays for supply and creates demand.

Consumer's risk or Consumer risk is a potential risk found in all consumer-oriented products, that a product not meeting quality standards will pass undetected though the manufacturer's quality control system and enter the consumer marketplace.

Customer's risk rating: The process of assigning a risk rate to the client based on Client acceptance criteria, CM's profile and KYC-CIPP, Country risk rating, Public Figure identification.

FIs: Financial Institutions

Geography risk: is the risk associated with the location/country of business operation or customers or services/products provided.

ML/TF: Money Laundering/Terrorism Finance.

OCC: 'Office Of The Comptroller Of The Currency - OCC'. A U.S. federal agency that serves to charter, regulate and supervise the national banks and the federal branches and agencies of foreign banks.

Products Risk: Product risk is the risk associated with the software or system, the possibility that software or system may fail to satisfy end user/customers' expectations

Regulatory Risk: the risk of having the 'license to operate' withdrawn by a regulator, or having conditions applied (retrospectively or prospectively) that adversely impact the economic value of an enterprise.

Risk assessment system: This system is used for identifying and evaluating events (i.e., possible risks and opportunities) that could affect the achievement of objectives, positively or negatively. The risk assessment of products, services, clients, employees, vendors..etc, assigning red flags and benchmarks for the firms.

Screening System: Real-Time payment screening is the screening or filtering of relevant payment instructions prior to execution. Screening activity will also include screening of client details both at onboarding and ongoing update of CM's profile.

Transaction Monitoring : The automated or manual process of monitoring transactions after execution in order to identify unusual transactions, including monitoring single transactions as well as transaction flows, for subsequent review and, if warranted, reporting to the relevant authorities.

Validation is a process of establishing documentary evidence demonstrating that a procedure, process, or activity carried out maintains the desired level of compliance at all stages.

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