AML model risk management and validation

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Building a better working world

Who we are

EY's Anti-Money Laundering (AML) and Regulatory Compliance Technology practice is a global team of client-serving, financial services professionals.

Our team members come from a variety of financial services, regulatory and technology backgrounds. Together, we leverage years of experience and deep content knowledge to help our clients solve challenging problems in a demanding regulatory environment.

What we do

We help our clients as they work to fulfill their regulatory and compliance requirements by providing services to meet their immediate needs and their long-term goals.

Specifically, we develop technology architecture and program road maps, gather business requirements, assist with vendor selections, develop functionality specifications, and assist in system implementation, testing and quality assurance.

Our AML technology service offerings cover a broad range of regulation and products, including:

▸ Technology strategy

▸ Know your customer (KYC)/enhanced due diligence (EDD)

▸ Watch list/sanctions

▸ Transaction monitoring

▸ Optimization and model validation

▸ Case management

Using a highly sophisticated and customizable tool set specially developed by EY to address our clients' needs and challenges, we help clients meet key objectives:

▸ Brand and reputation protection by preventing disciplinary action and fines

▸ Sustainable frameworks that can adapt to dynamic corporate policies and regulatory requirements

▸ Loss prevention against unauthorized financial transactions

▸ Elimination of redundancy in activities performed to manage risk and comply with multiple regulations and standards

AML model risk management and validation

Today's Bank Secrecy Act/Anti-Money Laundering (BSA/AML) programs are becoming increasingly reliant on quantitative models in detecting suspicious activity, measuring risk and supporting key business decisions that drive operational efficiencies. A contributing factor to this trend is a regulatory environment that has a greater focus than ever before on managing the risks associated with quantitative models. Over the past few years, regulatory examination teams have added quantitative specialists, released supervisory guidance and issued regulatory enforcement actions related to sound and effective management of model risk specific to AML.

In 2011, the Office of the Comptroller of the Currency (OCC) jointly with the Board of Governors of the Federal Reserve released a bulletin entitled "Supervisory Guidance on Model Risk Management." The guidance, commonly referred to as OCC 2011-12 or FRB 11-7, describes the elements of a sound program to effectively manage model risk. 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.

In addition to OCC 2011-12, the OCC added a team of financial economists to more effectively address issues related to the use of quantitative methods and models for bank compliance activities, including anti-money laundering. A primary role of

the financial economists, among several other functions, is to perform reviews of quantitative methods and provide advice to national bank examiners and to bankers on model validation and model control processes. The team, whose official name is Compliance Risk Analysis Division, also known as CRAD, recruits PhD economists and statisticians with expertise in quantitative statistical and mathematical modeling within the financial services sector.

With the inclusion of CRAD in AML examinations and the release of OCC 2011-12, regulators are placing a much greater emphasis on statistically valid processes and methods. Enforcement actions issued over the past two years include language challenging whether banks are using statistically valid processes, controls and validation techniques.

As a result, financial institutions under the supervision of the OCC and Federal Reserve are investing in their AML model risk management and model validation programs, by incorporating them into their enterprise model risk management functions, and enhancing AML programs to be better aligned with regulatory expectations. While at many institutions the driving force behind these investments may be a shift in regulatory expectations and focus, the outcome can be better decision-making, continual improvement in operational efficiency and reduced risk of costly remediation.

What are models and where are they in AML?

The first step in understanding the benefits of model risk management and validation is to understand what models are and where they exist in an AML program. A simplified interpretation of the definition of a model found in "Supervisory Guidance on Model Risk Management" is the use of mathematical techniques to provide an output that is quantitative in nature.

The guidance goes on to state that a model consists of three components:

‣ An information input component, which may consist of quantitative data, qualitative data, expert judgment and assumptions

‣ A processing component, which applies the mathematical technique to transform the inputs into a quantitative estimate

‣ A reporting component that translates the quantitative estimate into useful business information that drives decision-making and downstream processes

While this is the broad definition, institutions with established enterprise model risk management programs will have more specific definitions that have been accepted by regulators and are used to drive their model risk management and validation processes and controls.
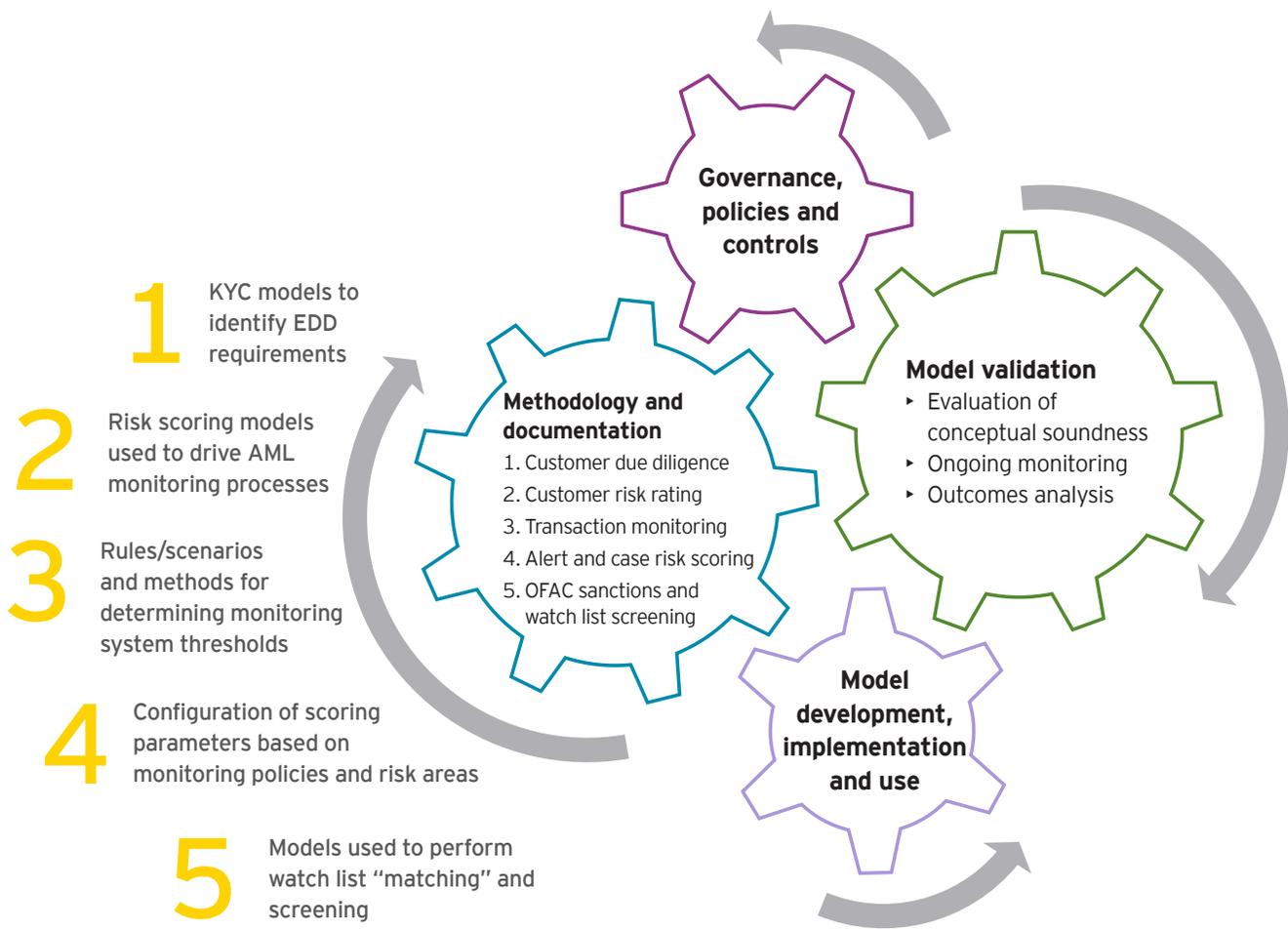
Where models exist within an AML program is in part driven by the exact definition of a model within your institution. However, the broad definition of a model and elements of a sound model risk program will apply across most areas of an AML program, including:

‣ Customer due diligence

‣ Customer risk rating

‣ Transaction monitoring

‣ Alert and case risk scoring

‣ OFAC sanctions and watch list screening

‣ Money laundering risk assessment

What is a model?

(1) A simplified definition of a model is the application of mathematical techniques to provide an output that is quantitative in nature

(2) "Supervisory Guidance on Model Risk Management" refers to a model as a quantitative method, system or approach that applies statistical, economic, financial or mathematical theories, techniques and assumptions to process input data into quantitative estimates.

Figure 1: AML model risk management framework

1 KYC models to identify EDD requirements

2 Risk scoring models used to drive AML monitoring processes

3 Rules/scenarios and methods for determining monitoring system thresholds

4 Configuration of scoring parameters based on monitoring policies and risk areas

5 Models used to perform watch list "matching" and screening

Governance, policies and controls

Methodology and documentation
1. Customer due diligence
2. Customer risk rating
3. Transaction monitoring
4. Alert and case risk scoring
5. OFAC sanctions and watch list screening

Model validation
‣ Evaluation of conceptual soundness
‣ Ongoing monitoring
‣ Outcomes analysis

Model development, implementation and use

The added benefits of model risk management and validations

While the evolving regulatory environment may be the driving force behind many banks instituting improved risk management and validation around models, additional benefits beyond regulatory compliance can be achieved:

‣ Improved decision-making and confidence in models

‣ Continuous improvement and enhancement

‣ Reduced risk of remediation projects and look-backs

Improved decision-making and confidence
With the vast amounts of information available to decision makers, "gut feel" business decisions are not sufficient to satisfy

internal auditors, or examiners. Decisions must be supported with well-documented rationale and evidence, and tracked to evaluate whether assumptions hold true initially and over time. Managing decisions according to sound risk management practices, and validating those decisions over time, builds confidence not only in examinations and audits but across business lines and functions within the bank. For instance, a single business line's well-documented processes based on sound models, quantifiable benefits and ongoing validation procedures is likely to be adopted by other business lines, jurisdictions or legal entities, as well as other key stakeholders, such as AML investigation teams and AML compliance.

In addition, the results of validations may be used as key factors in identifying and prioritizing projects. The validations will not only examine whether known limitations and

assumptions are aligned with risk tolerances; they may also identify trends as to where future risks lie. Validation results also provide increased awareness of the impact of business decisions, both past and present.

Continuous improvement and enhancement

Model building techniques are inherently designed to maximize effectiveness while reducing operational inefficiencies. For example, case risk scoring models are designed to distinguish between the highest- and lowest-risk cases, which may support downstream activities such as automated escalation of high-quality cases that bypasses the initial triage stage. However, these downstream efficiencies can only be realized if all stakeholders, including audit and regulators, are confident in the model's ability to accurately rate the quality of a case. Sound risk management and validation is aimed at providing the evidence required to build that confidence and evaluate whether a model's performance is improving or deteriorating over time.

Models do not exist in a silo. They are integrated into an institution's broader AML program. Models depend on data from systems of record and data warehouses, and feed business reports and processes that are used for a range of decisions, from how to allocate investigative, technical and analytics resources to how to prioritize programs competing for limited resources.

Reduced risk of remediation projects and look-backs

A main objective of a sound model risk management and validation program is to better understand the risk and implications of a model producing inaccurate output with respect to the intended business use, or of a model being misused. Inaccurate model results or misuse can lead to costly remediation projects and look-backs, impacting reputation, budgets, availability of resources and time, and the potential to grow or become more efficient. Ideally, model errors are detected prior to deployment, and models are sufficiently robust to adapt to changing business, technology and operational environments. A sound model risk management and validation program reduces the risk of model errors and misuse and provides a framework to detect them in a timely fashion. If an issue is detected, it is much better to remediate it after a few weeks or months than a few years.

Figure 2: Benefits of AML model risk management and validation

Bottom line

Over the last few years, changes in the regulatory environment have spurred an evolution toward greater use of quantitative models. Model risk management and validation is becoming a standard practice in the BSA/AML compliance space. Despite these exercises stemming from regulatory pressures, risk management and validation of models do not have to be viewed as "check-the-box" compliance activities. A robust model risk management program represents an opportunity for realizing tangible benefits that go beyond compliance with regulations. With support from senior management and key stakeholders, banks may be able to realize the benefits of improved business decisions, a continuous increase in operational efficiency and a reduction in the financial and non-financial costs of remediating errors that go unnoticed.

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