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Request for Information Response: Standard Setting and Voluntary Certification for Models and Third-Party Providers of Technology and Other Services

Prepared for



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Table of Contents

1. Summary	3
2. Responses	3
General	3
Scope	5
SSO	6
Certification Organizations (COs)	8
3. Appendix	9

1. Summary

We at Moody's Analytics are pleased to offer our view on *Standard Setting and Voluntary Certification for Models and Third-Party Providers of Technology and Other Services*. Moody's Analytics provides financial intelligence and analytical tools supporting our clients' growth, efficiency and risk management objectives. The combination of our unparalleled expertise in risk, expansive information resources, and innovative application of technology helps today's business leader confidently navigate an evolving marketplace. We are recognized for our industry-leading solutions, comprising research, data, software and professional services, assembled to deliver a seamless customer experience. Thousands of organizations worldwide have made us their trusted partner because of our uncompromising commitment to quality, client service, and integrity.

The responses provided within this document are as a technology service provider to many of the IDI's.

2. Responses

General

Question 1: Are there currently operational, economic, marketplace, technological, regulatory, supervisory, or other factors that inhibit the adoption of technological innovations, or on-boarding of third parties that provide technology and other services, by insured depository institutions (IDIs), particularly by community banks?

There are some factors that inhibit the on-boarding of vended models, and in that sense indirectly inhibit the adoption of technical innovations. Depending on which process the solution is to become a part of, these factors are typically easy to overcome however. Examples of tasks that are repeatable, and are therefore straightforward to provide, are non-disclosure agreements (NDAs) and compliance certificates (SOC). For statistical models, additional activities such as model validation and implementation are idiosyncratic to the financial institution and so typically result in greater costs and effort to complete.

Question 2: What are the advantages and disadvantages of establishing standard-setting and voluntary certification processes for either models or third-party providers?

A voluntary certification process as described in Request for Information will have benefits and some aspects that should be carefully managed. The list of potential benefits are as below:

1. A voluntary certification process can enable IDI's to identify and work with a third-party provider that has experience, depth and value.
2. From a technology service providers perspective, it can also reduce the redundancy of vetting at individual IDI and help streamline the on-boarding process.
3. A consistency of framework and a level playing field can ensure everyone works from the same playbook for model development, validation and governance.

Some potential considerations for the certification process to be efficient and effective will be:

1. Standards can help setup the framework for development of models and documentation. Validation and applicability at an individual IDI will need to be managed based on the specific risk profile.
2. It should be consistent with key best practices that have been laid out in previous rules and procedure documents such as SR 11-7 and *SUPERVISORY GUIDANCE ON MODEL RISK MANAGEMENT (FIL-12-22)*

Question 3: What are the advantages and disadvantages to providers of models of participating in the standard-setting and voluntary certification process? What are the advantages and disadvantages to providers of technology and other services that support the IDI's financial and banking activities of participating in the standard-setting and voluntary certification process?

Moody's Analytics follows the current regulatory guidance in model development and model validation process. A detailed view on our validation practices can be found here: <https://www.moodyanalytics.com/-/media/article/2019/effective-model-validation.pdf>

The benefits as we see them are as below:

1. Efficient model development & validation to the standard, reduces in-effective practices.
2. Improved, consistent documentation that aligns across the industry.
3. Streamlined on-boarding for new IDI's as they begin using the models.

The potential challenges and considerations are as follows:

1. A stringent guideline can make it hard to quickly adapt the model to changing market dynamics, this can be remedied by keeping the certification standard high-level and allowing for timely adjustments to the models.
2. Innovation in data science and modeling is evolving quickly and the standard should allow for new technologies to be adopted as they become available as long as they accomplish the task of providing a sound model.

Question 4: What are the advantages and disadvantages to an IDI, particularly a community bank, of participating in the standard-setting and voluntary certification process?

No Response

Question 5: Are there specific challenges related to an IDI's relationships with third-party providers of models or providers of technology and other services that could be addressed through standard-setting and voluntary certification processes for such third parties?

1. Are there specific challenges related to due diligence and ongoing monitoring of such third-party providers?
2. Are there specific challenges related to the review and validation of models provided by such third parties?
3. Are there specific challenges related to information sharing or data protection?

We at Moody's Analytics as a third-party technology provider to many IDI's have experience of working with several model validation and governance teams. From our experience we can extract following potential challenges that may be addressed with a certification process:

1. Streamlined model validation process can help align documentation needs across many IDI's that take on the process.
2. Standardized & timely monitoring can support all IDI's to ensure they use a model that continue to perform as the market landscape and economic drivers shift.
3. There is significant cost & time benefit to all parties that participate in model development, validation and governance.

Questions 6: Would a voluntary certification process for certain model technologies or third-party providers of technology and other services meaningfully reduce the cost of due diligence and on-boarding for:

1. the certified third-party provider?
2. the certified technology?
3. potential IDI technology users, particularly community banks?

The voluntary certification process will certainly reduce the cost of due-diligence by an IDI as it looks to adopt a model. Depending on the components that the model certification process decides to review and approve, it can also potentially help understand the applicability of the model to individual IDI.

The third-party provider will initially take on cost of model certification but can benefit in the long-term with consistent documentation and the amount of support that each additional IDI that adopts the model may need.

From an IDI's perspective, due-diligence may in-part be cheaper to compare and contract the models available in the market. The applicability to the risk profile and the model validation process will still need to be carried out to complete the model vetting at an individual IDI.

Question 7: What are the challenges, costs, and benefits of a voluntary certification program or other standardized approach to due diligence for third-party providers of technology and other services? How should the costs of operating the SSO and any associated COs be allocated (e.g., member fees for SSO participation, certification fees)?

For activities that are common across financial institutions (e.g. allowance calculations and stress testing) there is typically a good amount of similarity between the solution employed, in terms of form and function. This might vary by factors such as the size of the institution, the portfolio in question, or the geographic footprint, but these factors have little impact on the activities required to implement the solution, particularly vended solutions. For example, a statistical model will go through a similar battery of tests and analysis no matter the portfolio or institution. What will change is the specifics of this analysis and the results of the testing, given different data and acceptable thresholds. Another example is onboarding activities such as implementation, which will differ to the extent that the system the solution is required to interact with differs. Connecting two pieces of software from different vendors will require the same effort no matter the institution that is doing the implementation.

So the challenge of a certification program or standardized approach is to identify which activities are common across institutions, and which of these should allow some amount of variation, against those that should be specific to each vendor-customer relationship. A validation standard might set out a list of tests and analysis that should be performed, but allow the specifics to be determined on a case-by-case basis. Implementation certifications might certify that software X is compatible with software Y for some set of tasks or processes.

The cost of such a program will include the time and effort of the vendor to achieve the certification. It should be noted, however, that many of these activities would likely have been performed anyway, and so the total cost across all implementations within the certification period might be lower. These savings would be shared between the vendor and the customer as prices will adjust to reflect the new effort required by the vendor.

Question 8: Would a voluntary certification process undermine innovation by effectively limiting an IDI's discretion regarding models or third-party providers of technology and other services, even if the use of certified third parties or models was not required? Would IDIs feel constrained to enter into relationships for the provision of models or services with only those third parties that are certified, even if the IDIs retained the flexibility to use third parties or models that were not certified?

No response

Question 9: What supervisory changes in the process of examining IDIs for safety and soundness or consumer protection would be necessary to encourage or facilitate the development of a certification program for models or third-party providers and an IDI's use of such a program? Are there alternative approaches that would encourage or facilitate IDIs to use such programs?

No response

Question 10: What other supervisory, regulatory, or outreach efforts could the FDIC undertake to support the financial services industry's development and usage of a standardized approach to the assessment of models or the due diligence of third-party providers of technology and other services?

No response

Scope

Question 11: For which types of models, if any, should standards be established and a voluntary certification process be developed? For example, is the greatest interest or need with respect to:

1. traditional quantitative models?
2. anti-money laundering (AML) transaction monitoring models?
3. customer service models?

4. business development models?
5. underwriting models?
6. fraud models?
7. other models?

As discussed in our response to Question 7, there is a need to strike a balance between a set of standards that, if applied, affect real change in the effectiveness of the model and allowing for some flexibility to account for the differences in materiality, data availability, and noise (to name a few considerations) that might impact the realistic limit of model performance. With dilemma in mind, standards for each of the above model might differ in both nature and severity, but for each the standards should focus on results.

Question 12: Which technical and operational aspects of a model would be most appropriate for evaluation in a voluntary certification program?

Technical aspects of the voluntary certification program should be limited to measures of how well the models performs. A model that utilizes the latest technology or state-of-the-art theory is useless if the data used to develop it does not support sufficient accuracy in the parameter estimates, resulting in model predictions that are either noisy or wildly inaccurate.

Question 13: What are the potential challenges or benefits to a voluntary certification program with respect to models that rely on artificial intelligence, machine learning, or big data processing?

As data becomes more abundant, the effort associated with organizing and utilizing this data increases commensurately. So, to unlock the benefits of new data, it is sometimes necessary to use modern techniques based on machine learning or artificial intelligence principles. These techniques are more able to process large amounts of information quickly, reducing time and money costs.

The challenge with using these techniques is that they are complicated (and therefore more difficult to learn, validate and audit) and are sometimes a "black box," meaning that you don't gain any insight into why the model is the way that it is. There are some exercises for which this information is important, such as stress testing models that include macroeconomic effects, and others where a black box solution is more satisfactory, such as fraud models. Any voluntary certification standards that ease the time it takes to "learn" these techniques at a financial institution would prove greatly beneficial, increasing the options available to smaller institutions and promoting innovation. No standards would diminish the challenges associated with the opaqueness of these solutions however.

Question 14: How can the FDIC identify those types of technology or other services, or those aspects of the third-party provider's condition, that are best suited for a voluntary certification program or other standardized approach to due diligence? For example, should such a certification program include an assessment of financial condition, cyber security, operational resilience, or some other aspect of a third-party provider?

No response

SSO

Question 15: If the FDIC partnered with an SSO to set standards for due diligence and assessments of models or third-party providers of technology and other services, what considerations should be made in choosing the SSO? What benefits or challenges would the introduction of an SSO into the standard-setting process provide to IDIs, third-party providers, or consumers?

The FDIC should rely on an organization that has broad and deep expertise. This is necessary to leverage their know-how, to attain perspective and to take advantage of the lessons learned by the SSO from dealing with different types of models, different types of data and different types of clients.

Objectivity could be initially perceived as a challenge, but as second line of defense provider, respectable SSOs build their reputation on providing independent opinions that may be uncomfortable to the client and yet necessary to provide effective model risk management.

Outsourcing all aspects of model validation is not a straightforward task, because of the proprietary nature of the financial institution's models and their use of third-party tools. Nevertheless, as regulation, attitudes and approaches to model validation continue to shift, financial institutions are looking for more support and specialist skills from increasingly sophisticated vendors.

Moody's Analytics validation practice specializes in credit and market risk validation, with solutions tailored to meet multiple regulatory demands. We are also a source of macroeconomic data, which powers stress testing, scenario generation and benchmarking.

Moody's Analytics offers tailored approaches that can adapt to institution type and regulatory requirements. Our validation process is a mix of qualitative and quantitative techniques with a reporting and disclosure function. Model ratings are given to different parts of the validation process and remedial actions recommended, with results presented as customized interactive reports. We view the validation and remedial process as a continuous activity. To facilitate that, our cloud-based modeling platform automates aspects of validation for real-time monitoring. The development of proxy models as a validation technique to highlight inaccuracies in native models helps to illustrate the sophistication of our solution.

Question 16: To what extent would a standards-based approach for models or third-party providers of technology and other services be effective in an environment with rapidly developing technology systems, products, and platforms, especially given the potential need to reassess and reevaluate such systems, products, and platforms as technologies or circumstances change?

A principles based approach that focuses on data, development framework, results and effectiveness of the model rather than technology, platforms or techniques (Statistical, ML or AI) can be an efficient way to approach the challenge. In contrast, an approach that provides specific guidance for the technology or platforms will need frequent appendage as the technologies evolves.

Question 17: What current or draft industry standards or frameworks could serve as a basis for a standard-setting and voluntary certification program? What are the advantages and disadvantages of such standards or frameworks? Do standards and voluntary certifications already exist for use as described herein?

In light of CECL, SSAE 18 or SOC 1 standards do account for part of the challenge posed. SOC 1 Type 2 reports ensure the third-party models that will be used for CECL operate in a controlled environment and have checks in place for accurate reporting.

As we understand it though, the SSO standard being proposed by FDIC will likely act as a preface to SOC 1, by ensuring the model is developed and validated with checks in place. Operational aspects of the model can continue to be managed by the SOC framework as it stands today.

Question 18: Given that adherence to SSO standards would be voluntary for third parties and for IDIs, what is the likelihood that third-party providers of models or services would acknowledge, support, and cooperate with an SSO in developing the standards necessary for the program? What challenges would hinder participation in that process? What method or approaches could be used to address those challenges?

Given the potential benefits of such a program to both sides, vendors and customers, there is a strong likelihood that support and adherence would be robust. A well-designed standard would increase the efficiency of these relationships, reducing total costs and thus resulting in savings on both sides. Standards that are either too loose to be beneficial to IDIs or too stringent to be beneficial to third parties would result in little benefits to either party. As both groups have much to gain from a well-designed program, participation in the development of such a program should be enthusiastic on both sides.

Question 19: What is the best way to structure an SSO (e.g., board, management, membership)? Alternatively, are there currently established SSOs with the expertise to set standards for models and third parties as described herein?

As the standard seeks to cover a wide variety of models across a number of different functions, there will be many vendors that could potentially fall under its purview. Therefore, it will be important to ensure that all parties are represented well. This means that membership should be inclusive. That being said, there are large vendors that are able to cover many of the functions within the coverage of the standard. It may be beneficial to give these vendors an organizational or oversight role within the SSO as their perspective could prove beneficial, resulting in strong stewardship.

Question 20: To what extent should the FDIC and other federal/state regulators play a role, if any, in an SSO? Should the FDIC and other federal/state regulators provide recommendations to an SSO? Should the FDIC and other federal/state regulators provide oversight of an SSO, or should another entity provide such oversight?

No response

Certification Organizations (COs)

Question 21: What benefits and risks would COs provide to IDIs, third parties, and consumers?

CO's as neutral third-parties can bring following benefits to each party involved:

- To IDI's, they provide a view that is not biased by the technology or model provider. A standardized document that maybe made available by the CO, can be easily compared across providers enabling IDI to make an informed decision on model or vendor selection.
- To third-parties, the CO's provide the benefit or certificate & approval on internal practices and standardizing documentation that can be readily shared with the IDI client base.
- To Consumers, an experienced and well-known CO can provide confidence in the system that IDI's are using a model that has gone through the audit process and is performing or developed with standards that further safeguards their relationships with IDI's.

Question 22: To what extent would COs be effective in assessing compliance with applicable standards in an environment with rapidly developing technology systems, products, and platforms, especially given the potential need to reassess and reevaluate such systems, products, and platforms as technologies or circumstances change?

Depending on the framework that CO's play in, they can be effective partners in principle-based model management process. In our view, CO's can provide critical oversight in arena's such as data management, model development and model validation. Technology systems and on-going operation maybe managed by SOC reports, as they are needed on an annual basis for models impacting financial reports.

CO's can be most effective in providing on-going reporting on model performance or monitoring. The framework should include the remedy path for third-parties that fall short of the standards.

Question 23: For model validation and testing, would COs evaluate a model based solely on reports, testing results, and other data provided by the third-party provider of the model? Or would the COs need to test the model and generate their own test results? What steps would the COs need to take to protect the intellectual property or other sensitive business data of the third party that has submitted its model to the validation process?

Our model validation process consists of three basic parts. First, we conduct a qualitative review; second, we perform a quantitative evaluation; and third, we write a detailed report with findings and recommendations from the first two steps. A fourth element, benchmarking, is optional but very helpful for model risk management.

It is important to be thorough with a purpose—not for the sake of industriousness, but to identify potential weaknesses and provide effective validation. That is why we do not require clients to run a boilerplate list of tests just to tick a long list of boxes. Instead, we take a targeted, deep-dive approach to identify potential problems.

During a typical quantitative review, we dive into the data and code to evaluate modeling choices. In our data analysis, we assess whether the development dataset is complete, whether variables are properly populated, whether segmentation choices are supportable, etc. Then, we evaluate the soundness of the variable selection process. We verify that sampling was done correctly,

whenever applicable. We also evaluate if segmentation is necessary and, when applicable, if it is performed properly. We run tests as needed.

It is very valuable for COs to have an independent expert party review the data, the codes and the models' performance, to make sure that everything is in line and that there are no unnecessary sources of model risk. This is particularly true for complex models and for high-materiality portfolios. COs should sign non-disclosure agreements with their third-party validators to protect the intellectual property or other sensitive business data.

Question 24: If COs receives derogatory information indicating that a certified third party or certified model or technology no longer meets applicable standards, should the COs develop a process for withdrawing a certification or reassessing the certification?

1. If so, what appeal rights should be available to the affected third party?
2. What notification requirements should COs have for financial institutions that have relied on a certification that was subsequently withdrawn?
3. Should the FDIC or federal/state regulators enter information sharing agreements with COs to ensure that any derogatory information related to a certified third party or certified model or technology is appropriately shared with the COs?

No response

Question 25: Are there legal impediments, including issues related to liability or indemnification, to the implementation of a voluntary certification program that the FDIC, other federal/state regulators, third-party providers, and IDIs should consider?

No response

Question 26: To what extent should the FDIC and other federal/state regulators play a role, if any, in the identification and oversight of COs, including assessments of ongoing operations? Should the FDIC and other federal/state regulators provide oversight of COs, or should another entity, such as an SSO, provide such oversight?

No response

3. Appendix

Acronyms

AML: Anti-Money Laundering

CO: Certification Organizations

FDIC: Federal Deposit Insurance Corporation

IDI: Insured Depository Institutions

MA: Moody's Analytics

SSO: Standard Setting Organization

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