

Remarks by  
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before a

**Workshop on Validation of Credit Rating and Scoring Models**

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It is a pleasure to be with you today. If I may, I'd like to begin with an observation, followed by a question. The observation is that I'm sure anyone would be impressed by the depth and breadth of the expertise gathered in this room today. I can only marvel at the sophisticated, quantitative analytical power represented here. And that observation leads me to the question: how in the world did an English major turned banking lawyer like me end up as your luncheon speaker? Well, believe it or not, I hope my remarks today will, among other things, help answer that question.

When I came to the OCC in July of last year, there were a lot of things I already knew about the agency. I knew it was a bureau of the Treasury, with a long and proud history as the primary supervisor of national banks in the United States, which of course are some of the largest and most complex in the world. I knew the OCC had a strong reputation as an effective regulator, serving the American people as it helps ensure a sound, competitive banking system that treats customers fairly, while delivering products and services that meet their financial needs.

And I knew the OCC had good people. In my various jobs over the years – on Capitol Hill, at Treasury, or in private practice as a banking lawyer – I have had the

opportunity to work with the OCC many times. I had always been impressed with the quality of its staff. But as I have gone deeper into the details of the agency and its work, I have been pleasantly surprised at how deep that quality runs. Nowhere is that more true than the agency's economics staff.

I've been impressed not only by the quality of that staff, but also at how effectively the OCC is able to integrate serious economic analysis into the day-to-day work of bank supervision. Whether it's sifting through economic and industry trends to spot emerging issues that the OCC needs to stay on top of, or evaluating the economic impact of policy proposals, or – as with this conference – addressing issues raised by banks' use of quantitative models, the OCC's economists bring a dimension to our supervisory work that's irreplaceable. I've become increasingly proud of their capabilities and the contributions they make to our supervision of banks, which with nearly \$6 trillion in assets engage increasingly in the kind of complex activities that require more sophisticated supervision.

Reasonable people might wonder how the OCC – a government agency, after all – can attract and retain good economists with the kind of skills that are in high demand and command hefty salaries in the private sector. Part of the answer is that we're able to offer them satisfying and stimulating work that lines up well with their professional interests. They appreciate the way we recognize and support their desire to further develop their skills and knowledge, through training, conferences, and research. We offer economists a unique opportunity to see and evaluate the broad range of industry practice in risk modeling, and expect them –and pay them – to keep abreast of the latest developments

and applications. If you've had a chance to talk with any of the OCC economists during the breaks here, I'm confident you've found that they like what they do.

But part of the reason they're such a happy bunch, I believe, is the satisfaction they get out of seeing their expertise have a tangible, positive, real-world impact through the contribution they make to the supervision of national banks. And that impact, that contribution, stems from the effective way we use quantitative experts at the OCC. That's a topic I want to return to in a moment.

### **Themes of the workshop**

But first, let's talk about model validation. You are now halfway through the second day of this workshop, and I suspect that a few common themes are crystallizing in your minds. One theme is the value of a broad view of what it means to "validate" models. It is tempting and easy to think of validation as a purely statistical, fairly mechanical exercise. But I trust the various sessions of this workshop have made clear that we at the OCC view it as much more than that, and that we expect the banks we supervise to take a broader view as well. A second theme is that, although validation in this broad sense may have many parts, the various parts are most effective if they fit together within a coherent framework. That coherent framework should be shaped by some overarching principles, principles like those embedded in the various sessions so far.

But I want to emphasize a third theme is one that is often misunderstood. It centers around the answer to the question, "Whose job is it to validate the models banks use?" In our view, the answer is clear: validation is first and foremost the responsibility

of any organization using these models as part of its business. Of course, we regulators have a related job to do: it is our responsibility to establish clear expectations around model validation for the institutions we supervise, and then to ensure through the supervisory process that banks are meeting those expectations. But we are not the ones doing the validating – it's the banks and other users of these models.

This view – that banks validate, and supervisors supervise – is the OCC view of model validation, one we express consistently through our guidance and our supervisory processes. But it is also a view shared by many other regulators, and a view that is becoming ever more prevalent as we share practices with our colleagues around the world.

### **The role of banks in validation**

Why should banks bear this responsibility? The short answer is it makes good business sense. Let me give an analogy. You wouldn't hire somebody to work in some important role in your organization without a thorough interview process, checking their references, and so on. And once they started work, you would probably closely monitor what they were doing at least for a while, making adjustments as needed, ensuring that they effectively perform the job you hired them to do. And finally, you would do regular performance evaluations. That's just good, sensible management. Doing it well is mission-critical for any organization where people are vital to success.

If a business operates in a way that makes models similarly vital to success, managing those models well requires all the elements of good people-management I've just mentioned. The parallels to developmental evidence, process verification,

benchmarking, and outcomes analysis should be obvious if you've been absorbing the message of the workshop sessions. Just as good management requires this kind of attention to one critical component of your success – your people – model validation takes on the same importance as part of sound management, as models become more central to the success of your organizations.

Let's think for a minute about why these models are so critical to success. This workshop focuses on credit risk, and models used for credit rating and scoring. Consider how such models are used in the day-to-day business of banking: evaluating credit; pricing loans; managing portfolios of exposures; evaluating performance; assessing capital adequacy; doing strategic planning. Do those sound important to anybody else? You could probably add to this list, but I'm sure you get the idea. These things lie at the heart of the credit business, and by extension at the heart of the business of banking.

Any process, or aspect of a process, that is so integral to the basic business has to become a primary focus of an organization and its management. Organizations using these models need to be as sure as they can that models work as intended – that is, that the models are valid – much as they need to know that key people are doing their jobs. They cannot and should not look to someone else to make that assessment.

Another lesson that no doubt has emerged during the course of this workshop is that model users are the ones best positioned to carry out the bundle of activities that combine to create effective validation. The nature of these validation activities is such that banks are better able to do them than are regulators – and frankly, such a central element of the business process is too important to be left to regulators!

Validation also is too important to be just left to quants. I don't mean to sound naive; obviously many of the specifics of models and validation will have to remain the province of people with high levels of quantitative expertise. But managers are kidding themselves if they think that lets them off the hook. For those of you here today that may be responsible for groups that develop or use models, I would encourage you to be sure that you know enough about the modeling to be able to exercise the right oversight over the staff, the models, and validation. Although I guess upon reflection I might be preaching to the choir, since if you're here today it's likely that you already recognize that truth.

### **The role of bank supervisors in validation**

But of course there is a role in all of this for bank supervisors too, and since I'm one of them, I'd like to turn now to that role. We have a responsibility, one established by statute and practice, to ensure that the country has a sound, competitive banking system that meets the needs of customers, complies with applicable laws, and treats customers fairly. When banks use models to measure and manage credit risk it touches all areas of our responsibility, so we have to pay attention.

I'm sure it is obvious to all of you how banks' use of models and validation intersects with our charge to ensure a sound banking system. If a bank relies on models in ways that are integral to its business processes, then the soundness of the organization is likely to depend on the validity of those models. Models and validation become integral to the way we supervise the bank, making model validation very much our

concern. The more central the uses of models are to a bank's business, the more central this aspect becomes to our assessment of that bank's soundness.

But also consider for a moment our responsibilities around fair access to credit and fair lending. This aspect of our statutory role is one we take very seriously, and one we feel we execute very effectively. Our experience as a regulatory agency has been that as credit scoring models come into increasing use in various types of retail credit, questions about whether certain people or groups of people are being treated fairly depend more and more on how those models work, on how they are built and how they are used. This leads to a natural convergence between validation questions and fair access questions. A valid model is much less likely to lead to results that are contrary to law and regulation. It is no accident that the OCC has organized itself so that quantitative experts in these two areas – credit risk modeling and financial access modeling – reside in the same organizational unit, our Risk Analysis Division, the group responsible for this workshop. This helps us reap the benefits of synergies in these areas.

Is our interest in validation the same as that of the banks? In the best-case scenario, our interests do coincide with, or at least are aligned with, those of the banks we supervise. We want models to work well, they want models to work well. Often we find ourselves in this best case. Indeed, during reviews of bank models our OCC staff often are able to contribute valuable observations and ideas that improve bank practice, and both sides benefit. But since our ultimate objectives and legal responsibilities are necessarily different from the private interests of the banks we supervise, we may end up with conflicting views about what should be done on modeling and validation. When that happens – when the occasional but inevitable conflicts arise – we work very hard

with our banks to reach an appropriate solution that works, consistent with our statutory responsibility to the public.

### **The OCC approach to supervision of banks and their models**

What actually happens, on the ground, in supervisory practice? How do we meet our responsibilities to review banks' models and validation? The OCC has developed an approach to regulation and supervision – a business model – that we believe is particularly effective for dealing with the complex and diverse national banking system we have in the United States. One element of this is a diversity of approaches, since we are keenly aware that banks are different and require different supervisory approaches to meet the same objectives; supervision can't be "one size fits all." A smaller, less complex bank needs a different supervisory approach than a diversified, multi-billion dollar organization.

When it comes to supervision of banks' use of models, at the OCC we believe that success requires recognition of the priority, and then seamless integration into the mainstream of bank supervision. Recognition of the priority begins at the top, and that includes me. Senior executives responsible for bank supervision at the OCC understand that model risk is an issue of growing priority in the increasingly complex world of banking.

Our OCC examiners also are well aware that evaluation of model risk is a necessary component of their reviews of bank risks. And that's important, because in every case, regardless of the bank, the first line of supervision rests with bank examiners who assess the condition and risks of the banks and develop and execute supervisory

strategies. They are the ones who determine the need for reviews of bank modeling activities. Examiners are in the best position to do this, since it's impossible to truly evaluate a model out of context, without knowing how it is being used and the controls – including validation – that surround it and govern its use in practice. Our examiners make sure that our supervisory activities related to modeling and validation aren't driven simply by the existence of models; they are driven by how those models are used.

### **The role of quantitative experts in the OCC supervisory context**

As our examiners assess how a bank uses any quantitative model, the importance of that model within the business process, and the controls that surround and govern its use, they can and do draw on the advice of the quantitative experts you've heard from in this workshop. Then, if needed, they get on-site support from those same OCC experts as they review model use and validation. But the modeling experts from our Risk Analysis Division rely on the examiners to provide the all-important context, the detailed knowledge of how the bank operates; that is what makes any technical evaluation of a model meaningful. It's a partnership, and one that works well.

As a result, the evaluation of model risk is incorporated into our overall supervisory process as part of the examination of lines of business and their risks. When our modeling experts participate in examinations, they are not there as part of a special visit to take an isolated look at a model. The modeling experts at the OCC do not go to banks to study models; they go to banks to contribute to supervisory judgments about the bank. Ultimately, the bottom-line judgment regarding the use of models and how they affect the condition and soundness of the bank rests where we firmly believe it should –

in the hands of the examiners – but that judgment will have been the result of close collaboration between the examiners and the OCC’s quantitative modeling experts.

This is an approach to bank supervision that the OCC has refined over the last decade or so, and it has been highly effective. There is no question that our ability to integrate quants and their expertise into supervision is part of the reason for our success as an agency.

### **Validation for Basel II**

Let me turn briefly to a topic that is not really the focus of this conference, but that clearly looms in the background as part of the motivation. The new capital framework known as Basel II, developed by the Basel Committee on Banking Supervision, has some elements that may expand the use of quantitative models of credit risk or may cause models to be used in new ways. As banking regulators in the U.S. prepare our own proposal based on Basel II, we are keenly aware of the added importance this will give to sound practice in validation. Validation is likely to be an essential factor ensuring that models and other parts of banks’ internal processes used for Basel II meet the requirements for regulatory capital calculations. This will place added emphasis on validation – and probably slightly different emphasis. I know this is the subject of the final session today in this workshop. Supervisors and banks will need to work together to promote appropriate validation under a capital framework based on Basel II.

## **Art and science in modeling and validation**

Of course, there will continue to be much more to capital adequacy than just quantitative methods and models. That's an observation that is important to keep in mind more generally when we think about models in banking. Every modeler I've ever talked to readily confesses that no model is perfect. Even if a model is very, very good at doing what it is designed to do – and I'm sure that applies to all of the models designed and used by people in this room – every model relies on some key assumptions, reflecting a simplified view of the real world, a real world that never matches those assumptions perfectly. That's why model results can't be blindly accepted as “the answer” on capital adequacy or anything else for that matter.

Some people see the increasing use of credit-risk models as a trend that removes judgment from banking. But it seems to me that it doesn't remove judgment so much as it changes the way judgment is exercised and who exercises it. Clearly there is a fair amount of science involved in modeling, but I suspect you would all admit that there is also a large amount of art. I'm trained as a lawyer not a quant, but it's obvious that models don't build themselves. Modelers make judgments about the design of models, about the variables included, and about the techniques applied. I'm told that some of the choices along the way are guided as much by intuition and hunches as by strict quantitative rules. The quality of models depends to a very great extent on the quality of the judgment that goes into them.

Models don't build themselves, and they also don't validate themselves. Validation is done by people, people who exercise judgment, judgment that can be good

or can be bad. This is a part of the process, and will always be a part of the process. The quality of model validation depends heavily on the quality of the thinking of those doing the validation. Quants are good at what they do, but ultimately anybody who cares about the condition of an institution – whether management or bank supervisor – cannot afford to leave validation entirely in the hands of the quants without forming an assessment of the quality of their work. That’s why this workshop has emphasized a view of validation as a process rather than a set of tests or tools, and why the sessions have been targeted at those who manage modeling staff as much as at those who do the modeling.

## **Conclusion**

As I look around this room at the size and composition of an audience willing to gather in Washington in the middle of winter, it is clear how important and relevant the topic of this workshop is. The roughly 400 of you gathered here today reflect a mix of bankers and regulators, quants and non-quants, from the U.S and around the world. A few of you are from non-financial firms, which is yet more convincing evidence of the broad current relevance of credit-risk modeling. These quantitative credit-risk models are here to stay as an integral aspect of financial management.

If I can leave you with one primary thought, it’s that when your business depends on these models, good validation has to be viewed as part of sound management and good corporate governance. And without good governance and management, we don’t have a prayer of having sound banks. That’s the main reason we at the OCC are pleased to put on an event like this one. I trust that you’ll take away ideas from this workshop

that ultimately will make you more effective in whatever role you play within your institution when it comes to models and validation. If so, we all win.

I'm told that we don't have time for Q&A, which probably is a good thing, since the questions this audience is likely to ask might not be ones that an English-major-turned-lawyer should be answering. But I do thank you for your attention, and I wish all of you a good and productive conclusion to the workshop this afternoon. Thank you.