Risks of Re-Purposed Models

Bob Crompton, FSA, MAAA
Vice President
ARC Ga

SR 11-7 Framework

BOARD OF GOVERNORS
OF THE
FEDERAL RESERVE SYSTEM
WASHINGTON, D.C. 20551

DIVISION OF BANKING
SUPERVISION AND REGULATION

SR 11-7
April 4, 2011

TO THE OFFICER IN CHARGE OF SUPERVISION
AT EACH FEDERAL RESERVE BANK

SUBJECT: Guidance on Model Risk Management

The Federal Reserve and Office of the Comptroller of the Currency (OCC) are issuing the attached *Supervisory Guidance on Model Risk Management*, which is intended for use by banking organizations and supervisors as they assess organizations' management of model risk. This guidance should be applied as appropriate to all banking organizations supervised by the Federal Reserve, taking into account each organization's size, nature, and complexity, as well as the extent and sophistication of its use of models (as defined and discussed below).

Model Risk Management

Banking organizations should be attentive to the possible adverse consequences (including financial loss) of decisions based on models that are incorrect or misused, and should address those consequences through active model risk management. The attachment to this SR letter describes in more detail the key aspects of an effective model risk management framework, including robust model development, implementation, and use; effective validation; and sound governance, policies, and controls.

Previous publications issued by the Federal Reserve and OCC have addressed the use of models, with particular focus on model validation.[1] Based on supervisory and industry experience over the past several years, this document expands upon existing guidance—most importantly by broadening the scope to include other key aspects of model risk management.

SR 11 – 7 Addresses These Areas:

- Model Development
- Model Implementation
- Model Validation
- Model Governance, Policies & Controls

SR 11-7 Framework

“Material changes to models should also be subjected to validation.”

SR 11-7 Framework
Model Definition

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Input
- Data
- Assumptions

Calculation Engine
- Includes any professional judgments

Reporting Process
- Includes consideration of intended users

Risks In Input

- Data or assumptions are not sufficiently detailed for new purpose

- Data transformations or groupings in the original model are not appropriate for the new purpose

Risks In Calculation Engine

- Approximations or simplifications in the original model are not appropriate for the new purpose

- Poorly documented changes in the original model result in inappropriate calculations

- Judgmental items in the original model are not appropriate for the new purpose

Risks In Reporting Process

- Incorrect items are either requested or supplied for the new purpose
- Output is not sufficiently detailed for the new purpose

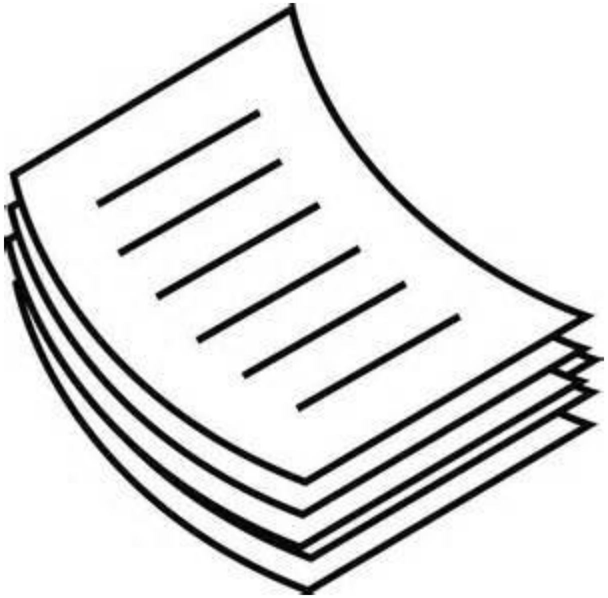
Top 5 Reasons For Risks in Re-purposed Models

1. Lack of effective model documentation
2. Ambiguous communication of new model requirements
3. Data is not sufficient or appropriate to new model requirements
4. Approximations & simplifications are not appropriate to the new model
5. Expert judgments in original model are not appropriate to the new model

Effective Documentation

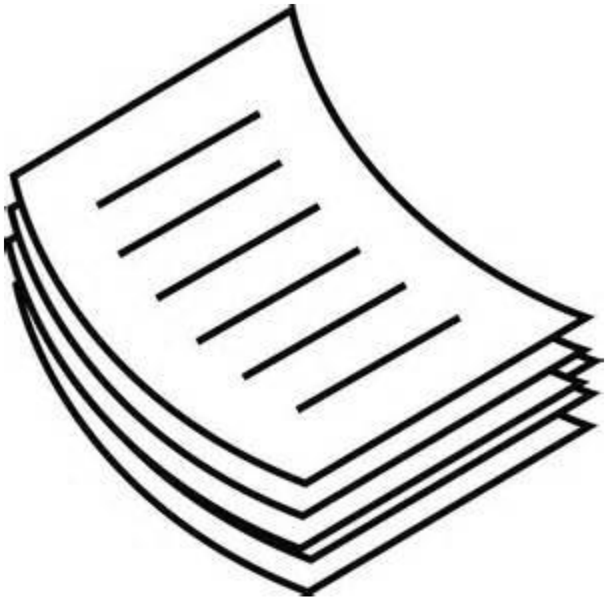
Without adequate documentation, model risk assessment and management will be ineffective.

SR 11-7 Attachment



- Effective documentation is hard work. It requires nearly as much planning as the model
- Effective documentation rarely exists
- Effective documentation is required for models covered by SR 11-7

Effective Documentation



Some Items That Have Been Found to Be Effective

- Process Map
- Model History / Change Log
- Manual Items
- Data Sources
- Assumption Summary
- Model Performance Metrics
- Controls

Controls – A Final Word

Controls for the original model might no longer be effective:

- The items under control might no longer be significant in the new model
- Any updates to the model could cause existing controls to be ineffective
  - Inputs
  - Calculations
  - Reporting