



Risks and Controls for PBA and PBR

Actuaries Club of the Southwest Fall Meeting – Houston, TX

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Acronyms

- PBA = Principle-Based Approach
- PBR = Principle-Based Reserves

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Risks and Controls for PBA and PBR

TOPICS COVERED:

- VM-G
- Controls
- Documentation
- Actuarial Models
- Spreadsheets, Use and Documentation
- Other Risks / Observations / Recommendations

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VM-G

VM-G

- Last section of the recently adopted Valuation Manual
- G is for Governance
- Why the need for governance? – due to flexibility in assumptions, methods, models
- Requires PBR assumptions, methods, models to be consistent with other company risk assessment processes

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VM-G

- Board Responsibilities
 - Oversight
 - Confirm that material weaknesses are addressed
 - Infrastructure in place: policies, procedures, controls and resources

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VM-G

- Senior Management's Responsibilities
 - Confirm infrastructure is adequate
 - Review PBR assumptions, methods and models
 - Review PBR results for consistency with established risk tolerances
 - Review/address significant and unusual issues and/or findings
 - Adopt internal controls with respect to PBR
 - Report to board at least once per year addressing the following elements:
 - Infrastructure
 - Critical risk elements
 - Summary results of PBR
 - Knowledge/experience of senior management involved
 - Governance including evaluation of internal controls

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VM-G

- Qualified Actuaries' Responsibilities
 - Review assumptions, methods, models
 - Adequate resources for modeling
 - Models/procedures produce appropriate results for PBR
 - Confirm there is a process to validate data
 - Confirm there is a process to establish model input is appropriate
 - Confirm there is a process to find and limit material errors/weaknesses
 - Review procedures and basis for reliance has been established
 - Review & approve internal standards, internal controls and documentation
 - Provide summary report to senior management & Board

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Controls

Note:

- Required Controls are MINIMUM Standards, not Leading Practice

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Controls (continued)

Required Framework for Controls

- SOX – all financial reports must include an internal control report
- Address pronouncements from the PCAOB
- Model Audit Rule – certain insurance companies must file a report with the state insurance department regarding its assessment of internal controls over financial reports
- Compliance with Actuarial Standards of Practice

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Controls (continued)

As a leading practice, controls over Significant Items should be:

- Customized to the item (i.e., reserve or DAC)
- Take into account risks particular to your company
- Take into account risks particular to the product
- Vary based on source of item (spreadsheet, vendor software)
- Vary based on volatility of item

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Documentation

Documentation

Example of Bad Documentation

The image shows a financial table with columns for 'Description', 'Amount', 'Balance', and 'Total'. A handwritten note 'Increase 50%' is written vertically across the middle of the table, obscuring several rows of data.

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Documentation (continued)

Example of Better Documentation

The 12/31/2011 statutory reserve for plan L1 was increased from 128,915 to 193,372 due to the correction of statutory interest rates from 5% to 3.5% for 2011 issues in Legacy system.

Corrected by: _____

Date: _____

Approved by: _____

Date: _____

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Documentation (continued)

Some Principles of Good Documentation:

- Appropriate to the circumstances
- Takes intended users into account
- States purpose
- Is clear
- Explains what data was used
- Methods and procedures explained
- Includes assumptions and sources
- Evidence of review and sign-off
- Conclusion

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Documentation (continued)

Do

- Include simple numeric examples
- Put details in appendix
- State the original number, the change, and the revised number
- Define acronyms

Don't

- Revise an earlier document by only stating the change
- Leave the reader wondering if a change was implemented or merely noted
- Leave a draft watermark on the final document
- State that a number is changing by x% without including what the starting and ending numbers are
- Leave sticky notes in files

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Documentation (continued)

- Automate documentation where possible
- Good version control is important

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Actuarial models

Actuarial models

Actuarial Models

- Back of an Envelope
- Spreadsheets
- Vendor Software on Desktop
- IT Actuarial Model

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Actuarial models (continued)

Model Risk Factors

- Access
- Model Inputs
- Timeliness vs. Precision
- Model Fit
- Systemic Error
- Appropriateness
- Frequency
- Platform
- Dependencies

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Actuarial models (continued)

Objectives:

- Limited Actuarial Involvement to Run Q-End
- Strong Controls
- Auditable
- More Time Reviewing & Less Time Doing
- Easier Access to Mainframe Computing Power
- Reduce Model Risk

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Actuarial models (continued)

Examples of Leading Practices for model development:

- Change Process
- Roles and Responsibilities
- Guiding Principles
- Commitments on Due Dates
- Separate Coding from Testing
- Coding Standards and Naming Conventions
- Output

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Actuarial models (continued)

Development Leading Practices (but wait, there's more)

- The Golden Copy of Production
- Documentation
- Testing
- Review and Sign-off Processes

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Actuarial models (continued)

Production

- Actuaries Set Assumptions & Review Results
- IT Does Everything In Between
- Post Quarter Meetings – How Did We Do?

Actuarial models (continued)

- Models & Modeling Are Dynamic Processes – For Most Models You Cannot “Set & Forget.”
- There Should Be Some Sort of Feedback/Improvement Loop For Model Improvements.
- Complex Products Imply Complex Models. The Cost of Complex Models Needs to Be Incorporated in Pricing Complex Products.



Spreadsheets

Examples of spreadsheet Poor Practices

- Hidden Fields
- Multiple Copies/Versions
- Extraneous Tabs
- Lack of Documentation

Spreadsheets (continued)

Leading Practices – Spreadsheets

- Consistent scheme for Formatting Files
 - Clearly Designated Input Area
 - Clearly Designated Output Area
 - Calc Button if Recalc is Manual
 - Macro buttons to Run Macros
 - Headers and Footers
 - Documentation Tab

Spreadsheets (continued)

Leading Practices – Spreadsheets

- Consistent approach for naming files
- Consistent approach for storing files
 - Limited Access
 - Regular Backups
 - Version Control
- Test and Peer Review

Spreadsheets (continued)

Spreadsheet Documentation

- Purpose of Spreadsheet
- How to Use
- Sources of Input Data
- Owner/Designer
- List of Changes – what and when
- Assumptions
- Map of linkages

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Spreadsheets (continued)

When is a spreadsheet potentially a bad idea?

- Mystery Macros
- Too Many Tabs
- Too Many Links to Other Spreadsheets
- Too Big to Email
- Lots of Database Functions
- Tries to do too much
- Ad hoc solution to a material/key process

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Other Risks/Observations

Other Risks

Key Person Risk

- Good Documentation
- Training

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Other Observations / Recommendations

- Independent model validations
- Actuarial transformations
- Breaking down the silos
- Right-sizing analytics
- Delegating preparation & review of analytics
- Job swap
- Involve external auditors
- How did we do?
- FAS97 DAC Unlocking memo
- Use PMO
- Anticipate external auditor request/questions
- Highlights package

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