Results of the AMA Benchmarking Exercise

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Presentation Objectives

- Provide an overview of the observed range of practices.

- Highlight areas where industry practice is not in line with proposed supervisory guidance.

- Review outstanding issues and implementation challenges.

Benchmarking Project Overview

- Project Objective: Understand industry practice in the management and measurement of operational risk.

  - Draft Supervisory Guidance on Operational Risk Advanced Measurement Approaches was used as basis of review.

- Project was conducted throughout 2004

  - 9 domestic mandatory institutions were reviewed.

  - Information gathered at earlier reviews is dated, so results may not reflect current practices at all institutions.

Benchmarking Project Overview

- **Individual reviews were not examinations.**
  - Results are observations based on discussions with management and review of provided documentation.
    - No testing was performed.
    - ***These were not prequalification exercises.***
- **Aggregate results will be used to:**
  - Inform revisions to the Draft Supervisory Guidance.
  - Develop examiner training programs.
  - Provide feedback to institutions on range of operational risk management and measurement practices.

Range of Practice Results

Governance

Governance – Range of Practice
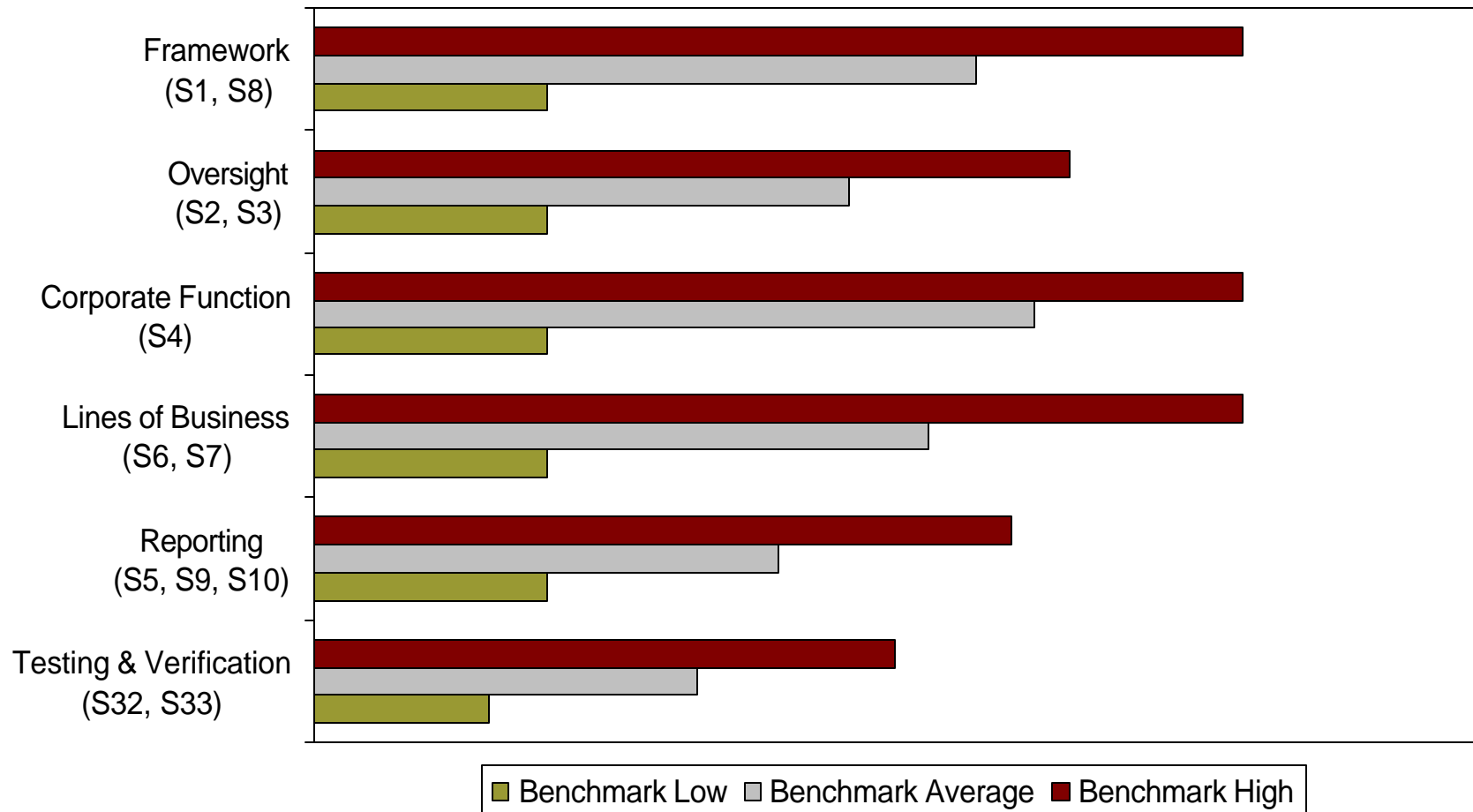
This chart is intended to provide a sense of progress made against the proposed AMA standards. An institution's progress which equals the "benchmark high" in no way constitutes AMA qualification. Industry practice is expected to continue to evolve to achieve compliance with the standards.

Governance - Framework

- **All but one of the firms had the three independent components.**

  - ❑ Emphasis differed by philosophy and activities.

- **Firms' operational risk definitions were close to Basel.**

  - ❑ Two firms include expanded definitions.

- **Corporate policies had been developed.**

S1. Framework of firm-wide risk management, LOB oversight, and testing and verification functions
S8. Policies and procedures describe major framework elements

7

Governance - Oversight

- Board committees were responsible for oversight at all institutions.

  - Regular reporting packages were in development.

- Only one institution had done a formal resource needs assessment.

  - Resource models vary by institution complexity.

S2. Board oversees framework development and changes and management roles / accountability
S3. Board and management ensure appropriate resources are allocated to support the framework

8

Governance - Corporate Function

- **Eight institutions had a firm-wide function.**
  - Seven firm-wide functions oversee consistent application of the operational risk framework.

- **Responsibility for model development varied:**
  - Six institutions used in-house expertise.
  - One institution used a vendor solution.
  - Two institutions were undecided.

- **Oversight of loss data was the responsibility of the corporate function in six institutions.**
  - Treasury was responsible in one institution.
  - Two institutions were undecided.

Governance - Lines of Business

- **Lines of business were responsible for risk management.**
  - Reporting lines for operational risk managers were nearly evenly split between lines of business, firm wide functions and matrix structures.

- **Lines of business management implement corporate policies in the six institutions that had developed a framework.**

S6. LOB management is responsible for day-to-day risk management
S7. LOB management ensures LOB activities are consistent with firm-wide policies and procedures

10

Governance - Reporting

- Only one institution had full and regular board reporting that meets Standard 5 requirements.

  - All institutions reported some information to management and the board.

- Six institutions had firm-wide and LOB reporting that meet the requirements of Standards 9 and 10.

  - All institutions had legacy reporting from which AMA reporting was being developed.

  - Report content varied across institutions, particularly in reporting loss data and control self assessments.

S5. Firm-wide function ensures exposure and loss reporting to senior management and the board
S9. Quarterly firm-wide and LOB reports summarize exposures, losses, controls, and environment
S10. Summary reports of relevant information are provided to senior management and the board

11

Governance - Testing & Verification

- Only two institutions had begun framework testing and verification.

  - ❑ Two institutions were testing legacy functions.

  - ❑ Five institutions were only in the planning stage.

- All institutions planned to have their independent internal audit function test the framework.

  - ❑ Seven institutions planned independent model reviews.

  - ❑ Two institutions (one using a vendor model) had not finalized model review plans.

S32. Accuracy and appropriateness of the framework and results must be tested and verified
S33. Testing and verification must be independent of the firm-wide function and lines of business
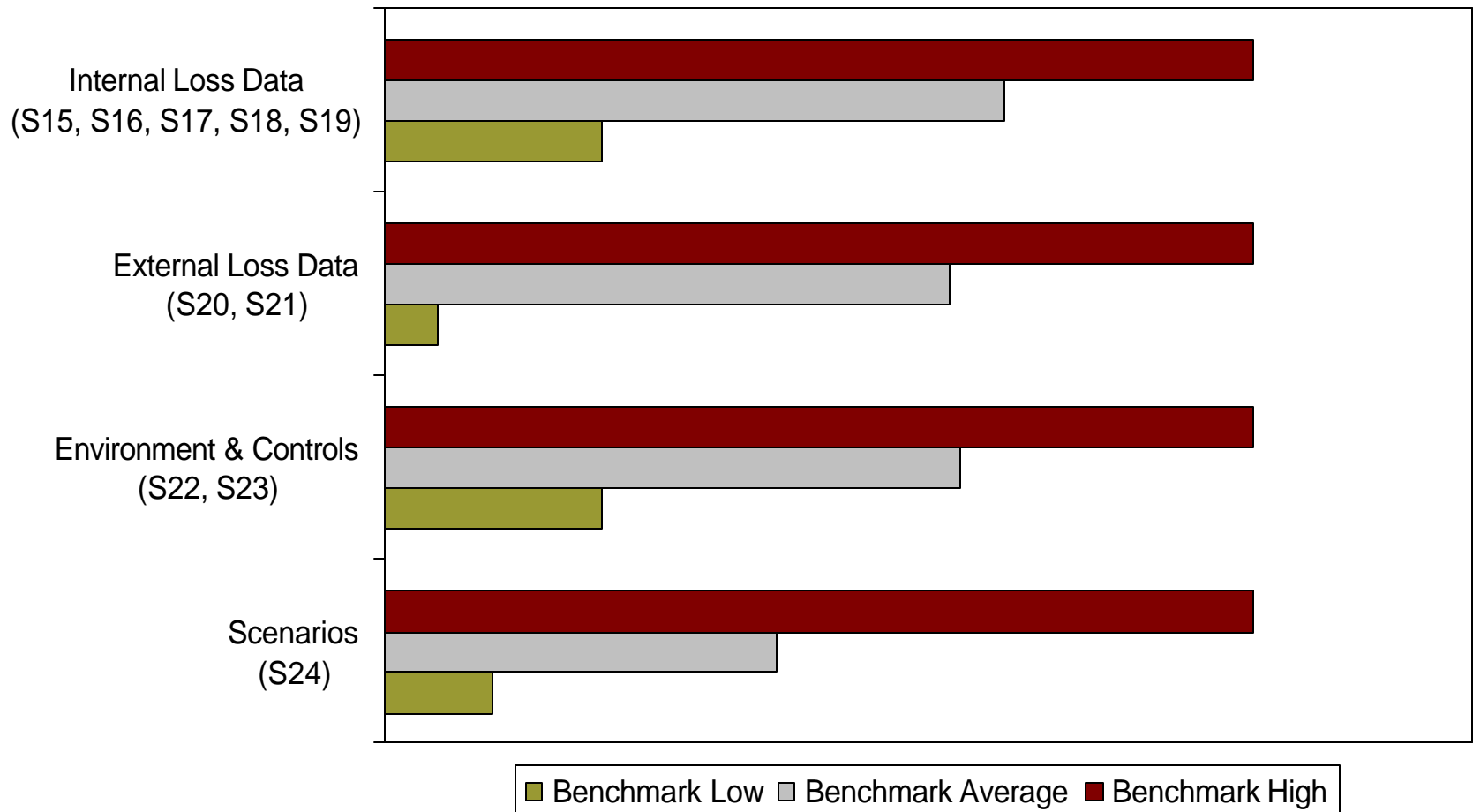
12

Governance – Observations

- Governance framework implementation varied, but good progress was noted in most institutions.

- No detailed resource need analyses had been performed.

- Reporting processes at all organizational levels were still in development or maturing.

- Testing and verification of the overall operational risk framework was the least developed function and work plans need to be completed and implemented.

- Scarce quantification skills hamper the ability to perform independent model validation and review.

Range of Practice Results

Elements of an AMA Framework

Elements – Range of Practice

Internal Loss Data (S15, S16, S17, S18, S19)

External Loss Data (S20, S21)

Environment & Controls (S22, S23)

Scenarios (S24)

■ Benchmark Low ☐ Benchmark Average ■ Benchmark High

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15

Elements - Framework

- Institutions had made progress incorporating the four elements in their operational risk frameworks.

  - All had established internal loss data collection procedures.

  - Six had established external loss data procedures

  - All were using some form of tools to assess BE&ICF.

    - Three were in the development stage.

    - The most popular form was the control self assessment.

  - Four had begun using scenario analysis, but significant work remains in this area.

- One institution had formal standards for modifying the data elements; three others had mechanisms to ensure maintenance of data integrity.

S12. Institutions must have the four elements to support risk management and measurement framework
S13. Institutions must include the regulatory definition of operational risk
S14. Institutions must have clear standards for the collection and modification of the elements

16

Elements - Internal Loss Event Data

- All institutions used, or mapped to, the seven Basel event types.

  - This includes the two institutions with extended definitions.

- All institutions had, or were establishing, formal processes to identify loss events and database inclusion policies.

- Institutions had various thresholds for collecting, quantifying, and enriching internal loss event data.

  - $10,000 was the most common threshold for quantification, but thresholds sometimes varied by activity.

  - No institution had prepared an analysis to support the appropriateness of its loss thresholds.

- No institution had addressed "materiality" of business lines.

Elements - External Loss Event Data

- Seven institutions had vendor-supplied external loss event data.
- One institution was a member of a consortium; three were evaluating membership.
- One institution independently collected external data.
- Selection and review criteria were less developed.
  - Only one institution had a formal process.
- Methods to translate external data varied.
- Use of external loss data varied significantly.
  - Four institutions identified losses that represent their risks and circulated them to increase understanding of their exposures.
    - One institution had formalized this into their scenario analysis; the other three had less formal processes.
  - Three institutions used external data in loss distribution quantification. One institution planned to begin doing so.

S20. Institutions must have policies and procedures for the use of external data
S21. Management must systematically review external data

Elements - Scenario Analysis

- Two institutions had existing processes and two others were in the planning and development stage.

- Wide variation in the construction and granularity of the scenario-building process.

Elements - Environment & Controls

- Six institutions used "risk and control self assessments" to identify and assess business environment and internal control factors.

    - Two of the six linked their assessments and key risk indicator processes.

    - Two of the six had compared the results of their assessments with actual loss experience.

- One institution used a scorecard process.

- Three institutions were in development stages of employing business environment and internal control factor tools.

S22. Institution must have systems to identify and assess business environment and internal control factors
S23. Management must periodically compare assessment results against operational risk loss experience

20

Elements - Data Management

- **All institutions used definitions that conform to the supervisory definition.**

  - Seven institutions used the supervisory definition and the seven event types as the baseline for the elements. Two added reputation, strategic, franchise and public policy risks. Institutions had various platforms for collecting and using data ranging from:

    - Internal intranet-based data collection systems,

    - Applications developed using commercial databases, and

    - Vendor-provided data-collection solutions.

- **Most databases were incomplete, but some MIS were being developed.**

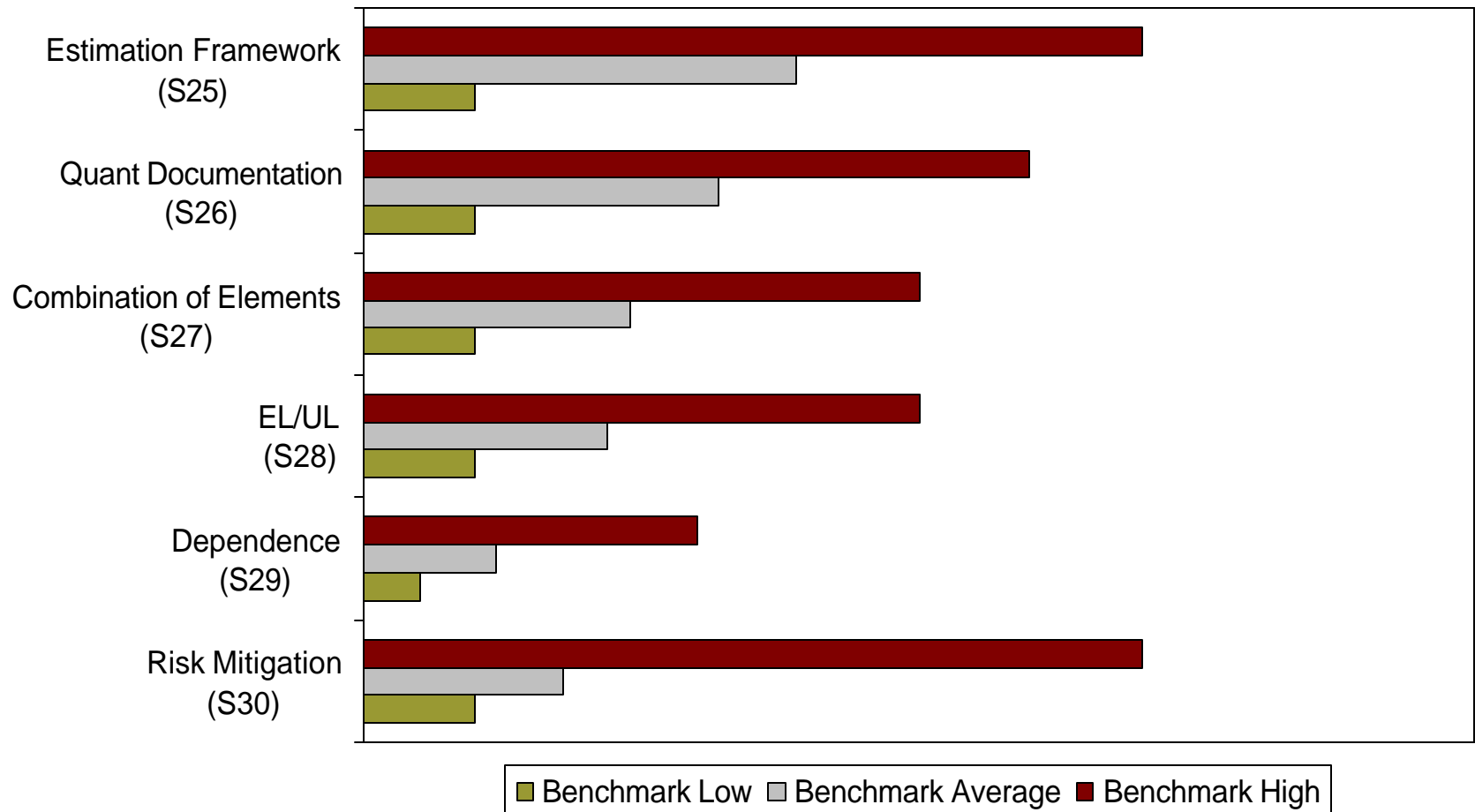S31. Institutions using the AMA approach must use advanced data management practices

Elements - Observations

- Institutions had made considerable progress in developing their internal loss data collection systems.

- Most institutions had acquired external databases.

  - Use of external data varies considerably and lags behind internal data.

- Approaches to measuring business environment and internal control factors (BE&ICs) varied across and within institutions

  - Efforts were leveraging off of other control assessments (SOX, FDICIA, etc.).

- Some institutions had begun scenario analysis, but techniques were in infancy stages.

  - Policies, procedures and documentation were minimal.

- Industry and Basel treatment of retail credit fraud differed.

Range of Practice Results

Quantification

Quantification – Range of Practice

Estimation Framework (S25)
Quant Documentation (S26)
Combination of Elements (S27)
EL/UL (S28)
Dependence (S29)
Risk Mitigation (S30)

■ Benchmark Low   □ Benchmark Average   ■ Benchmark High

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Quantification - Analytical Framework

- Four of nine institutions had existing LDA-type frameworks, one had a transitional process and was moving, along with three others, towards LDA approaches. There was considerable variation in:

  - The quantitative techniques underlying each element.

  - How the four elements were weighted and combined.

  - How diversification benefits were calculated.

- Documentation was at an early stage.

- Model validation was only in the planning stages.

Quantification - Analytical Framework

- The four institutions with a framework were taking a variety of approaches to incorporating the four elements.

  - Internal data: all four were using internal loss data.

  - External data: three were using it as a direct input into the quantitative process; two used it as input into scenario analysis.

  - Scenarios: two institutions had existing processes.

  - Business environment and internal control factors: two were using as actual inputs into the analytical process.

- Institutions indicated that they prefer a UL-only approach, but:

  - Only one attempted to show that EL included small losses.

  - Institutions were not yet able to demonstrate how EL is covered.

S27. The institution's analytical framework must include all four elements.
S28. Capital for operational risk is the sum of EL + UL unless the institution can demonstrate the EL offset.

Quantification - Analytical Framework

- Institutions were taking varying approaches to estimating diversification effects. All were rudimentary.
  - Correlation levels relied on judgment rather than data.
    - No institution demonstrated the appropriateness of their assumptions, either empirically or by logical argument.
  - Methods vary. Institutions were using, or planned to use:
    - "Normal" formula approximation,
    - Correlations built into Monte Carlo simulations,
    - Copulas.

- Only one institution had explicitly modeled insurance effects.
  - Other institutions were at various stages of evaluating insurance.

S29. Management must document how it accounts for dependence across & within business lines.
S30. Institutions may reduce their operational risk exposure results by no more than 20% to reflect the impact of risk mitigants, but risk mitigants must be sufficiently capital-like to warrant the adjustment

Quantification – Documentation

■ Most institutions had not developed model documentation.

Number of Institutions with Model Documentation		
Documentation Type		
Philosophy/ Assumptions	"How to" Manual	Audit Trail
2 complete 1 partial	1 complete 1 partial	1 partial

Quantification - Observations

- Significant progress had been made, with some institutions beginning to have credible, risk-sensitive measures of operational risk exposure.

- Institutions appear to be converging toward LDA-type approaches with considerable variation in model specifics across institutions.

- Work remained to estimate EL and demonstrate its offset.

- Institutions were using third parties for a variety of issues.

    - Third party involvement in any element of the analytical framework does not change expectations.

- Significant work remained in all areas.

Range of Practice Summary

Policy Issues & Implementation Challenges

Policy Issues & Implementation Challenges

Board Responsibility

- What level of involvement is expected by the Board?

Independence

- Prior to the development of the Basel II operational risk proposal, most institutions did not have an independent operational risk function. Audit or individual business lines often performed analogous functions and activities.

Risk Control Self Assessment

- What level of granularity should institutions perform qualitative assessments?

Policy Issues & Implementation Challenges

Testing and Verification

- Should audit be able to complete an entire audit cycle prior to qualification?

Documentation

- Significant work remains in documenting governance structures, data policies, and quantification systems.

Reporting

- Reports and reporting processes are still in development.

Data thresholds

- No institution had analysis to support the appropriateness of its loss thresholds.

Policy Issues & Implementation Challenges

AMA by legal entity
- No institution has developed separate AMA systems by legal entity.

Unit of analysis
- At what level of granularity (by line of business and loss type) should institutions measure loss distributions?

Combination of the four elements
- What is the permissible range of practice for how the four elements may be combined?

Modification of the four elements
- Adjusting internal data for changes in scale, inflation, etc.
- Scaling external data.
- Quantifying business environment and internal control measures.

Policy Issues & Implementation Challenges

EL/UL

- Institutions prefer UL-only, but must develop support for their EL estimates and demonstrate how they cover EL.

Modeling dependence

- Institutions used varying approaches; all were rudimentary.
- Lack of data limits ability to support correlation assumptions.

Risk mitigation

- Only one institution had modeled the effects of insurance.

Credit risk-Operational risk boundary

- Industry and Basel treatment of retail credit fraud differ.