

An Update on Basel II

A Roundtable Discussion

With

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Agenda

- Updated Timeline/Qualification
- Operational Risk
- Credit Risk
- QIS-4
- Pillar 2 – ICAAP
- Next Steps

Disclaimer

- Comments should *not* be taken as statements of official policy of the Federal Reserve System or other US regulatory bodies.

U.S. Basel II Implementation Targets



* There is an expected 120-day comment period following the NPR and Supervisory Guidance.

Target Implementation Date - January 1, 2008**

**The inter-agency press release issued April 29, 2005 discusses a delay in the publication of the NPR but anticipated maintenance of the implementation target date.

Qualification Process

- Interagency Statement – U.S. Implementation of Basel II Framework (January 27, 2005)
 - Preliminary Information - not binding
 - U.S. implementation subject to final regulations and related policies - after public notice and comment
 - Qualification Process
 - Timeline of Events
 - Implementation Plans
 - Notification Process
 - Parallel Running

Implementation Plans

- Form the basis for regular discussion with supervisors
- All plans to receive board of director endorsement or approval at each institution and include:
 - **Self-assessment** of current status;
 - **Gap analysis** identifying areas where additional work is needed;
 - **Remediation (or action) plans** describing how the institution will address the areas identified in the gap analysis;
 - **Objective measurable milestones**, including delivery dates; and
 - **Realistic resource commitments.**

Operational Risk

- AMA Benchmarking Project
- LDCE/QIS-4
- Open Issues

Operational Risk

- AMA Benchmarking Project
 - Objective: Understand industry practice in the management and measurement of ops risk
 - Draft Supervisory Guidance on Ops Risk AMA was used as basis for reviews
 - Project conducted throughout 2004
 - 9 domestic mandatory institutions reviewed
 - Reviews were not exams
 - Reviews were *not* prequalification exercises
 - Reviews were sequential, so some information is dated and may not reflect current practices at all institutions
 - Nevertheless, it highlighted a number of areas where progress is being made and where additional guidance and/or process maturity is needed.

Operational Risk

- Benchmarking – cont.
 - Aggregate results used for:
 - Informing revisions to Supervisory Guidance and NPR
 - Providing feedback to institutions on range of operational risk management and measurement practices
 - Developing training programs
 - Supervisory Guidance and work program divided along 3 lines:
 - Governance
 - Data
 - Quantification

Operational Risk

- Benchmarking Results - Governance
 - 3 required independent functions - Corporate, Business Line, Audit
 - Most had three independent components
 - Basel definition was core but some included expanded risks
 - Most firms had gap analysis but no resource requirements
 - Legacy risk management philosophy influenced rate of progress
 - Line of business risk management function was generally well developed
 - Challenges with adoption and consistent application of new policies/procedures across large diversified institution
 - Audit was least developed function
 - Can't audit what doesn't exist!
 - Many face challenges due to limited quant skills
 - Model validation and review must be independent of model development
 - Heavy use of vendors and consultants

Operational Risk

- Benchmarking Results – Data
 - 4 required elements – internal/external data, scenarios, BEICF
 - All had internal loss collection procedures
 - Time series of data varied
 - All had some form of external data
 - Vendor databases are most prevalent, followed by data consortium
 - Uses: FYI, augment internal data, inform scenarios, sanity check
 - Only a few had made material progress on scenarios
 - Business Environment and Internal Control Factors
 - Most use some form of risk and control self assessment
 - SOX, FDICIA, COSO form foundation of evaluation

Operational Risk

- Benchmarking – Quantification
 - Area of most dispersion, with some only beginning and some having potentially credible risk sensitive numbers
 - However, no one had fully incorporated all four elements
 - Most are hybrid models with LDA as a foundation/starting point
 - Of those with a working model, all use internal data
 - “Unit of Measure” varied significantly
 - Implications for correlation and diversification
 - No one was calculating by legal entity
 - Few had considered EL
 - And could fully document offsets
 - Very little meaningful work on insurance/risk mitigation

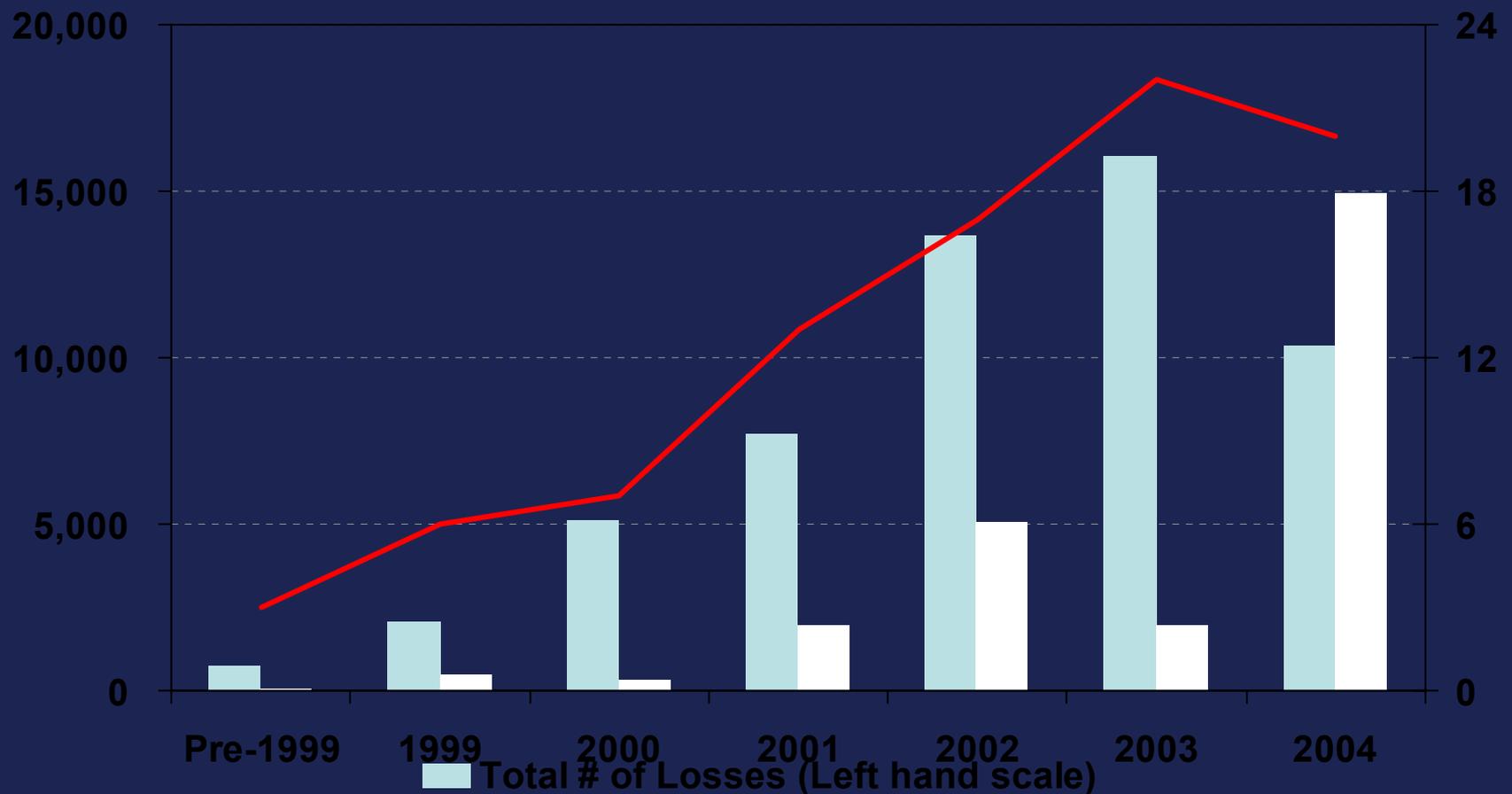
Operational Risk

- Loss Data Collection Exercise (LDCE)
 - Voluntary survey that asked participants to report data on individual operational losses
 - Spreadsheets posted in Fall 2004, submissions received thru 1Q05
 - Main purpose was to aid supervisors in better understanding QIS 4 results
 - Information requested included:
 - Full data underlying QIS4 submission (time series, insurance, entity)
 - Business line and event mapping
 - Thresholds
 - 30 institutions specifically invited, others were welcome
 - 23 institutions responded

Operational Risk

- LDCE – continued
 - Key Questions for LDCE
 - What does LDCE tell us about progress of data collection efforts in general?
 - What about data completeness at specific institutions?
 - What differences do we see across different business lines?
 - How can banks and supervisors use the results?
 - Research, modeling
 - How to use LDCE results to further understand QIS4 results

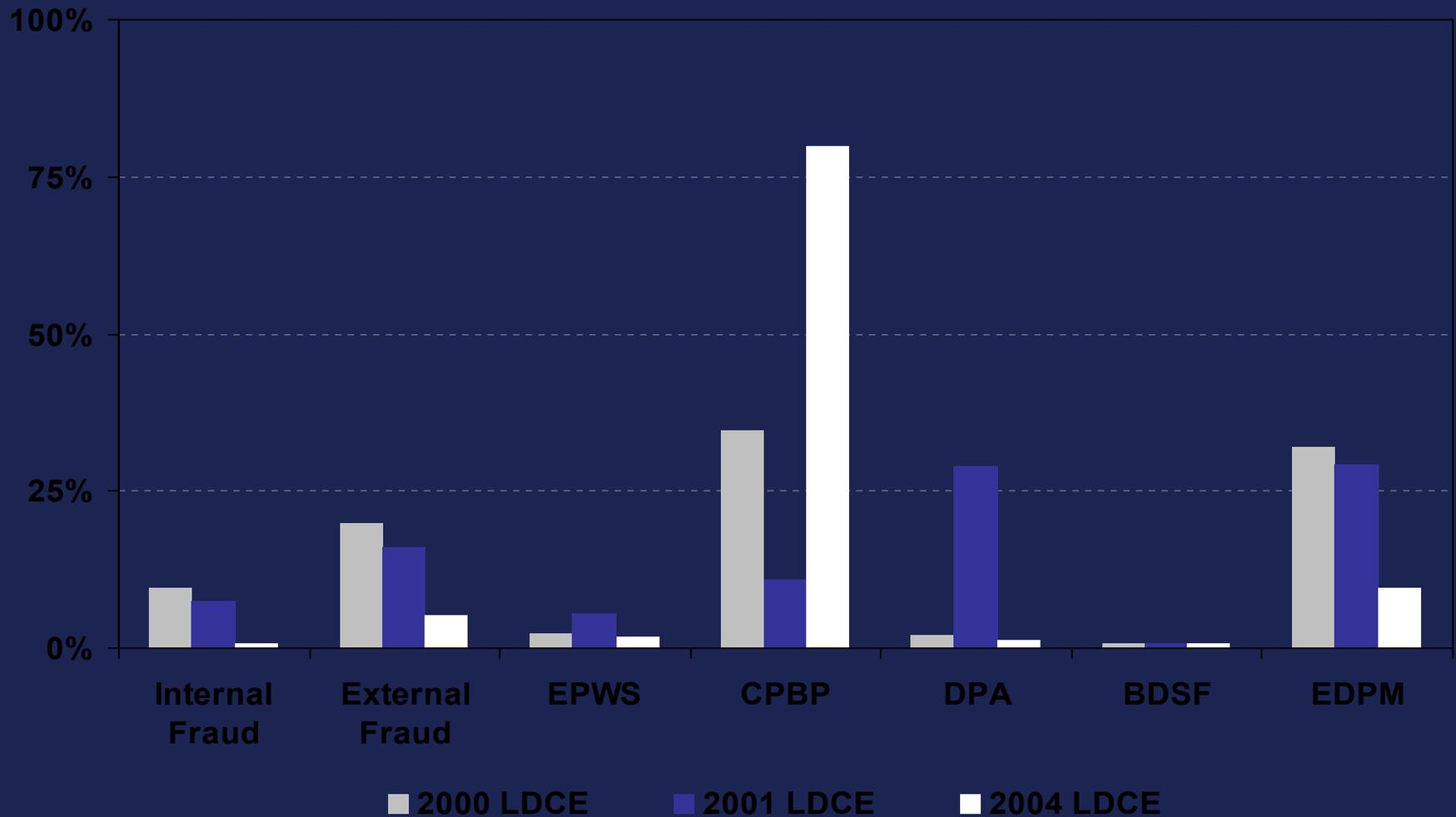
Data collection by year



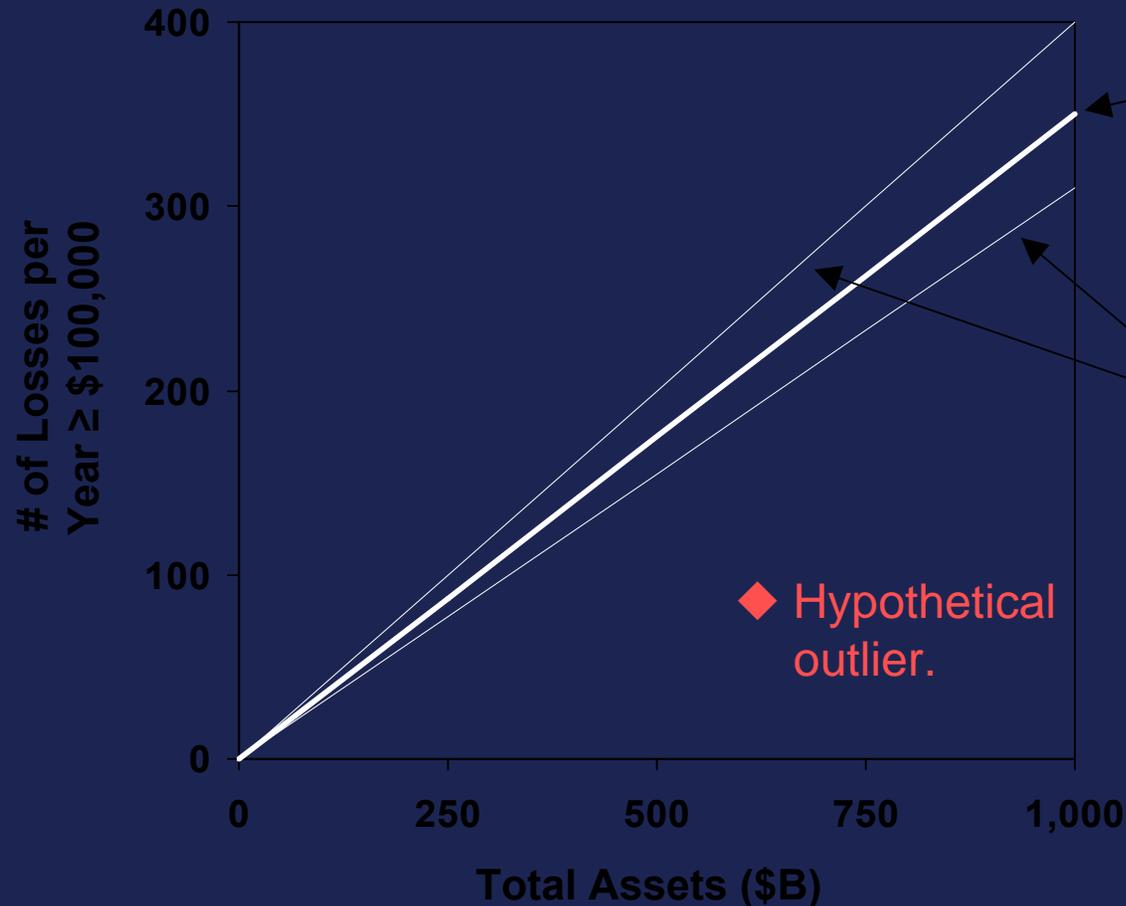
Operational Risk

- LDCE - Distribution of loss frequency
 - Distribution of loss frequency is largely the same as two previous LDCEs.
 - With respect to business line, most losses (60%) occur in Retail Banking.
 - With respect to event type, the highest number of losses occurs (39%) in External Fraud, and the second highest (35%) in EDPM.

Loss severity by event type



Graphical Illustration



● A cross-firm median of 350 losses per year in excess of \$100,000 for each \$Trillion in Total Assets.

● Interquartile range: half of firms had between 310 and 400 losses per year in excess of \$100,000 for each \$Trillion in Total Assets.

Operational Risk

- LDCE – Potential explanations for variation
 - Differences in business mix.
 - Differences in control environment.
 - Economies of scale in risk management.
 - Differences in data quality, completeness.

Operational Risk

- LDCE Conclusions:

- The exercise was clearly a success given the breadth of participation and the amount of data collected.
- Results provide a reasonable basis for characterizing the industry's operational loss experience.
- For example, we found that loss frequency appears to scale well with Total Assets and other exposure indicators.
- Data appear sufficiently rich to support serious analysis of outstanding issues.

Operational Risk

- Open Issues

- For Institutions:

- How involved is Board and Senior Management
 - Significant work remains in documenting policies and systems
 - Analytical support of thresholds, correlation, etc.
 - How to incorporate/modify all four data elements
 - Legal entity issues

- For Regulators:

- How is EL defined and measured and what are acceptable offsets?
 - What is order of quant steps – insurance, EL offset, etc.?
 - What is minimum level of granularity?
 - How to do AMA for small entities?
 - Credit risk/ops risk boundary

Credit Risk

- Corporate Supervisory Guidance
- Selected Industry Practices
- Open Issues

Credit Risk

- AIRB approach requires internal systems to be sufficiently advanced to allow a full and accurate assessment of a bank's risk exposures
- Interdependent components of IRB System
 - Risk Rating System
 - Assigns risk rating to exposures and validates accuracy
 - Quantification
 - Process of deriving IRB risk parameters (PD, LGD, EAD, M)
 - Data Maintenance
 - Robust system that supports the IRB system
 - Oversight and Controls
 - Mechanisms that ensure the system is functioning as intended and producing accurate ratings

Credit Risk – Risk Rating System

- Requirement for two-dimensional systems
 - Obligor default risk \Rightarrow PD
 - Loss severity in the event of default \Rightarrow LGD
- Various rating techniques (e.g. expert judgment, statistical models) are used across banks and for different portfolios within a particular bank
- Nothing inherently better about being on one end of the spectrum
 - Expectation is not for all systems to be pure statistical models
 - All systems present challenges
 - Support, data and documentation are imperative

Credit Risk – Risk Rating System

Ratings philosophy

- Adoption of a ratings philosophy is required
 - References are often made to “through the cycle” and “point in time”
 - Inconsistent interpretation of terminology
- Key issues
 - Expected rate of migration
 - Potential for capital volatility
 - Implications for capital planning and management

Credit Risk – Risk Rating System

Observations

- Universally, internal data collection has identified unexpected weaknesses
- Leading banks use internal and external data in efforts to continuously improve systems
- Leading banks learn from more seasoned portfolios, and from mistakes
- Documentation often lacking or not reflective of actual practice
- Most banks have not articulated a ratings philosophy
- More work is needed in the areas of stress testing and validation

Credit Risk – Quantification

- Process of deriving numerical values for IRB risk parameters (PD, LGD, EAD, M)
- Four basic elements of quantification:
 - *Data*
 - identify or construct a reference data source
 - *Estimation*
 - apply statistical techniques to the reference data to derive parameter estimates
 - *Mapping*
 - **create a link between the reference data and a bank's actual portfolio data**
 - *Application*
 - Determination of final parameter estimates to be applied to each exposure in the portfolio

Credit Risk – Quantification

Selected Issues

LGD Data

- Shortcomings
 - Insufficient data histories
 - Insufficient sample size
 - Inconsistent default definitions
 - Difficulty tracking credits through life cycle
- AIRB Expectations
 - Minimum of seven years of data
 - Uniform default definition
 - Data must include sufficient information to estimate loss (eg. market prices or DCF analysis)
 - Data must include facility characteristics
 - “stress” parameter

Credit Risk – Quantification

Selected Issues

PD Mapping (process of establishing a correspondence between reference data and the bank's existing portfolio)

- Shortcomings
 - Insufficient attention has been paid to this important process
 - External mappings were asserted; little or no formal support
 - Little consideration has been given to the concept of internal mapping
- AIRB Expectations
 - Robust comparison of available data elements
 - Consideration of impact of different mapping approaches
 - **Mappings to historical internal data are necessary**
 - Mappings need to be updated and reviewed

Credit Risk – Data Maintenance

- “Cradle to grave” data capture for obligors and facilities
 - Includes quantitative and qualitative factors used to assign ratings
- Data must be of sufficient depth, scope and reliability to:
 - Validate IRB system processes
 - Validate parameters
 - Refine the IRB system
 - Develop internal parameter estimates
 - Apply improvements historically
 - Produce internal and public reports
 - Support risk management

Credit Risk – Controls

- System of interdependent controls must be implemented that includes:
 - Independence
 - Transparency
 - Accountability
 - Use of ratings
 - Rating system review
 - Internal audit
 - Board and senior management oversight
- Various control mechanisms must be combined in a way that provides checks and balances for ensuring IRB system integrity

Credit Risk – Validation

- Validation is the application of various tools to assess the performance of the IRB system
- Validation covers both rating assignment and rating quantification
- A comprehensive validation process includes a **timetable** for activities, the **tests and analyses** to be performed and **actions** to be taken in response to findings

Key Point

- Validation is more than back-testing

Credit Risk – Validation

Supervisory guidance presents a broad approach to validation:

- **Developmental Evidence**
 - Logic of the approach, conceptual soundness
 - Statistical testing done prior to implementation
- **Ongoing Monitoring**
 - Process verification: check that methods are applied as intended
 - Benchmarking: compare to relevant alternatives
- **Outcomes Analysis**
 - Back-testing and similar types of evaluation

Credit Risk

- Select Open Issues

- For Institutions:

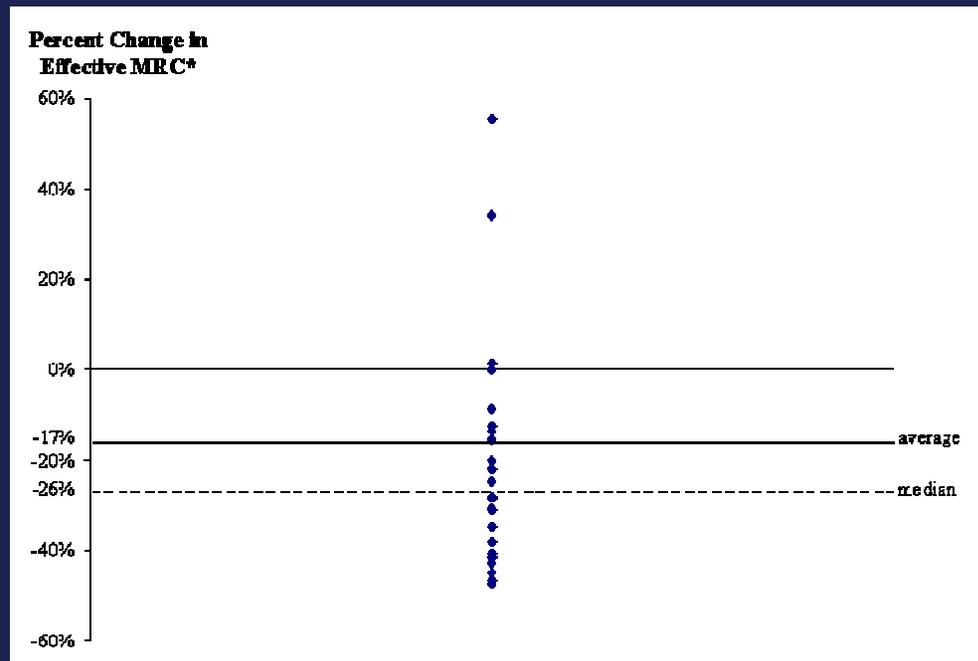
- Appropriate level of independence of processes
 - Building/maintaining data warehouse
 - Legal entity issues (e.g. parameter quantification)

- For Regulators:

- Counterparty credit risk
 - Double default
 - “Stress” LGD

QIS-4

Preliminary Change in Effective Minimum Capital Requirements of Participating Institutions: Basel I to Basel II



*This is the change in the amount of Tier 1 capital and Tier 2 elements other than reserves needed to meet the minimum capital requirement.

Note: These are preliminary data as of May 5, 2005 for the twenty-six participating QIS-4 institutions, and caution should be used in drawing any inferences from the aggregate data at this stage. The U.S. banking agencies plan additional work to determine whether these results reflect differences in risk, reveal limitations of QIS4, 35 identify variations in the stages of bank implementation efforts (particularly related to data availability), and/or suggest the need for adjustments to the Basel II Framework.

QIS-4

Preliminary Change in Minimum Capital Requirements of Participating Institutions: Basel I to Basel II

Portfolio	% Change in Portfolio MRC	Median % Change in Port. MRC	Share of Basel I MRC	Share of Basel II MRC
Wholesale Credit	(25%)	(24%)	44.3%	38.8%
Corporate, Bank, Sovereign	(22%)	(30%)	33.9%	30.7%
Small Business	(26%)	(27%)	4.6%	4.0%
High Volatility CRE	(33%)	(23%)	1.8%	1.4%
Incoming Producing RE	(41%)	(52%)	4.0%	2.7%
Retail Credit	(26%)	(50%)	30.5%	26.3%
Home Equity (HELOC)	(74%)	(79%)	6.1%	1.8%
Residential Mortgage	(62%)	(73%)	11.1%	4.9%
Credit Card (QRE)	66%	63%	6.1%	11.7%
Other Consumer	(7%)	(35%)	6.0%	6.5%
Retail Business Exposures	(6%)	(29%)	1.2%	1.3%
Equity	11%	(9%)	1.3%	1.6%
Other assets	(12%)	(3%)	10.1%	10.4%
Securitization	(20%)	(40%)	7.9%	7.7%
Operational Risk			0.0%	9.0%
Trading Book	0%	0%	5.2%	6.0%
Portfolio Total	(14%)	(24%)	100.0%	100.0%
Change in Effective MRC*	(17%)	(26%)		

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Pillar 2 - ICAAP

- ICAAP – Internal Capital Adequacy Assessment Process
 - For the most part industry and regulators have not focused on Pillar 2
 - In addition to Pillar 1 charge for credit, market and ops risk, Pillar 2/ICAAP will require banks to address IRRBB, concentrations in credit book, other material risks (e.g., strategic, reputational, country, liquidity).
 - ICAAP process may be the economic capital process for many banks.
 - Much more subjective process than Pillar 1.

Regulators and Analysts

Common Ground and Common Questions



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Common Questions

- Where do banks stand now?
 - Systems
 - Infrastructure
 - Resources
- Impact
 - Costs to implement
 - Changes in capital
- For “opt in” banks
 - Cost/Benefit analysis
 - Market/Customer Expectations

Basel II: *Resources*

- Bank for International Settlements

<http://www.bis.org/publ/bcbsca.htm>

- Federal Reserve:

<http://www.federalreserve.gov/generalinfo/basel2/default.htm>

<http://www.bos.frb.org/bankinfo/conevent/oprisk2005/index.htm>

<http://www.federalreserve.gov/boarddocs/srletters/2005/sr0501.htm>

- Federal Register:

<http://www.gpoaccess.gov/fr/>