Use of External Data for Operational Risk Management

Joseph Sabatini, Chairman
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Agenda

- Overview of ORX
- ORX Data Collection Processes
- The Loss Data
- Data Analytics
- ORX Outlook 2008 and Beyond

Overview of ORX

- Background & History
- ORX Structure
- Membership Profile
- Key Affiliations

Background and History

- ORX is a not-for-profit organization, owned and run by the Members
- ORX was incorporated as a Swiss Association in April 2002
- ORX was founded with the objective of sharing quality operational risk data on a secure and anonymized basis to enable banks to improve risk measurement and management
- ORX also works with its members to:
  - develop operational risk management practice
  - set common standards for the industry
  - develop professional networks
  - conduct leading edge research

Structure

- Board of Directors, Managing Board
  - Sets policy and strategy
  - Provides overall management
- Working Groups
  - Focus on specific topics to advance ORX value
    - Definitions
    - Analytics
    - Quality assurance
    - Operational risk transfer
- General Membership
  - Approves matters affecting ORX Members
  - Elects Board of Directors

Membership

- ORX currently has 41 Members from 14 different countries
- Membership has more than tripled since its foundation in 2002 and strong future growth is anticipated

ABN Amro
Banco Bilbao Vizcaya Argentaria
Banco Pastor
Banco Popular
Banco Português de Negócios, SA
Banc Sabadell
Banco Santander
Bank Austria – Creditanstalt
Bank of America
Bank of Nova Scotia
Barclays Bank
BMO Financial Group
BNP Paribas
Caja Laboral
Cajamar
Caixa Catalunya
Commerzbank AG
Credit Agricole
Danske Bank A/S
Deutsche Bank AG
Dresdner Bank AG
Erste Bank
Euroclear Bank
Fortis
Grupo Banesto
Hana Bank
HSBC
HBOS plc
ING
Intesa Sanpaolo
JPMorgan Chase & Co.
Lloyds TSB Bank plc
National City
Royal Bank of Canada
Royal Bank of Scotland
Skandinaviska Enskilda Banken AB
TD Bank Financial Group
US Bancorp
Wachovia Corporation
Washington Mutual
WestLB

Key Affiliations

- ORX leverages its key affiliations to execute its operating model and business objectives
  - RMA: Executive and administrative support
  - PwC Switzerland: Data custodian
  - SAS: Technology and application support
  - IBM Research Lab, Zurich Data analytics
- ORX is committed to co-operating with other industry bodies in the development of compatible standards and to making ORX standards freely available to all interested parties
- ORX is emerging as an industry utility and standard setter in the field of operational risk

What ORX has Achieved to Date

- Since 2002 ORX has built a significant platform made up of:
  - **Membership**: ORX membership currently stands at 41 institutions; strong pipeline of interest
  - **Data**: ORX Global Loss Database contains 92,000 loss events to a total value of €30 billion and is an unrivalled analytical resource
  - **Knowledge**: ORX has developed 5 years of experience in how and how not to run an operational risk loss data consortium; begun to collaboratively exploit the analytic potential of the ORX data
  - **Brand**: ORX is well known and well respected in the industry and by supervisors
  - **Culture**: highly valued culture of co-operation amongst membership
- The strategy for ORX is based upon the continued development of this platform and then incremental exploitation releasing exponential value

ORX Data Collection Processes

- Data Quality
- Data Requirements
- Data Security
- Data Collection Process

Data Quality

- Ensuring data is of the highest quality is essential to ORX
  - Begins with the process of applicant review and vetting
    - Every new Member is required to participate in an assessment of their ability to supply data of the required quality to ORX
    - Upon application, new Members are asked to formally attest to the quality and completeness of data to be supplied
  - Maintained by requiring that rigorous standards are followed
    - The cornerstone of this effort is the ORX Reporting Standards, developed and maintained by the ORX Definitions Working Group
    - These standards are supplemented by the dialogue within the Working Group and captured in the form of a centralized FAQ resource
  - Assessed via data quality checks built into the ORX Data Cycle process
    - Assures appropriate formatting of data submissions to ORX
    - Tests individual member data submissions against the data patterns regularly observed in the aggregate ORX loss database
    - In cycle tests for form and volatility, out of cycle tests for systemic trends and completeness

Data Requirements

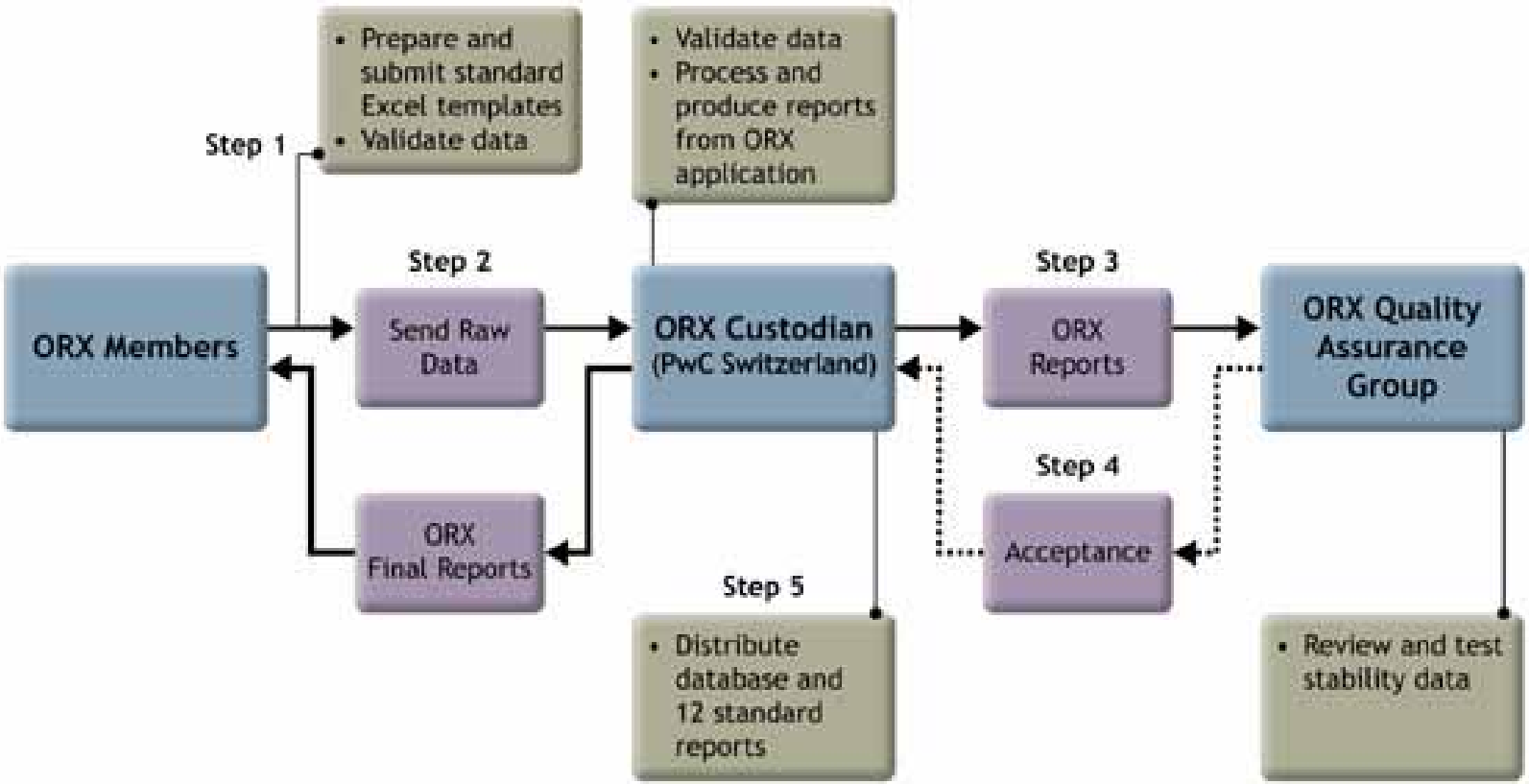
- Members are required to submit data in a common format
- Members are required to report all losses over €20,000. Each loss is then characterized according to the following primary attributes:
  - Reference ID number (Member generated)
  - Business Line (Level 2) Code
  - Event Category (Level 2) Code
  - Country (ISO Code)
  - Date of Occurrence
  - Date of Discovery
  - Date of Recognition
  - Credit-related
  - Gross Loss Amount
  - Direct Recovery
  - Indirect Recovery
  - Related event Ref ID
- Members required to report Gross Income per Business Line (Level 2)
- The Definitions Working Group is currently developing categorizations for Product type and Process type. It is also considering plans to produce a categorization for Cause and expand the scaling data collected to include expenses and assets
- ORX is very sensitive to the implications of any changes to data specifications or new data requirements. Processes are in place to provide adequate review of and lead time for such changes

Data Security

- Data security is critical to the operation of ORX
  - Starts with the decision to establish ORX as an association
    - The Articles of Association are the contract between the Members, and between the Members and ORX. The Articles establish that all Members are equal owners of ORX and bound by the same rules and with the same rights; the purpose of the Association and the Associations rights in respect of contributed data, restrictions on the use of member data and member ownership of their own data
  - Supported by the design of the ORX operating model
    - ORX has from the outset appointed a trusted Custodian, PwC Switzerland, to process and anonymize member data
    - Only the data Custodian has access to raw member loss data and the primary contractual duty of the Custodian is to protect the confidentiality of the data
  - Operated to the highest standards of information security
    - All communications between Members and the Custodian are encrypted via PKI technology, anonymization is based on a separated transition key system and data is stored on a secure, dedicated and non-networked server
  - Reviewed annually, where the whole system is subject to both an internal audit and an independent external review

Data Collection Process

- The data collection process is divided into 5 steps to ensure data quality and security



ORX System Upgrade in Process

Available in the Current System

- Periodic loss data submission/collection
- Confidentiality and security of data
- Robust data validation
- Support/segmentation of national databases
- Loss data analysis and reporting (Loss Frequencies, Loss Severities, Benchmark Reports, etc.)
- System management and audit facilities

Changes and Additions

- Replacement of CD-ROM interchange with online, secure transmission
- Enhanced access to, and analysis of, data on both predetermined and *ad-hoc* bases by various constituencies
- Additional support for database segmentation (e.g., by industry, country, region, etc.)
- Support for product-based offerings (e.g., Sector or National Groups)
- Self-service capabilities (to reduce the time and cost to respond to routine requests)
- Automated interfaces to and from other external sources (e.g., business environment metrics, third-party operational risk software packages)
- Storage and distribution of software tools, including analytics and validation routines
- More efficient processes (for existing members as well as for on-boarding new members)
- Reduction in the Total Cost of Ownership (TCO)

Data Outputs

- Data output varies by member and by service
- Global loss database:
  - Anonymised loss database
  - Global benchmarks and reports
  - Regional and Business Line Benchmarks and Reports e.g. European Retail External Fraud Benchmark
- National and sector database
  - Anonymised loss database
  - National loss benchmarks and reports
  - Intended to vary by data input e.g. loss versus capacity

Number of Losses per EUR m Gross Income						
BL Commercial Banking	**Total 2002-2005**	**2002**	**2003**	**2004**	**2005 Q1**	**2005 Q2**
Bank Rank 1	11.7	12.0	14.0	12.0	13.0	12.5
Bank Rank 2	11.3	11.5	12.0	10.0	9.9	10.0
Bank Rank 3	10.1	11.0	11.4	9.8	9.7	9.8
Bank Rank 4	9.6	10.5	9.8	9.3	9.4	9.7
Bank Rank 5	9.4	10.0	8.1	7.6	9.2	9.4
Bank Rank 6	9.2	9.8	7.5	7.5	8.9	9.2
Bank Rank 7	9.0	9.0	5.9	7.1	8.5	8.9
Bank Rank 8	8.9	8.6	5.2	6.9	8.4	8.7
Bank Rank 9	8.4	8.3	4.3	6.8	8.3	8.6
Bank Rank 10	8.1	7.5	3.5	6.4	8.0	8.5
Bank Rank 11	7.6	4.3	2.4	6.3	7.6	8.3
Bank Rank 12	7.4	1.0	1.3	5.8	6.5	7.8
Bank Rank 13	7.3			5.6	6.0	7.7
ORX average	**10.5**	**9.1**	**7.4**	**7.6**	**9.4**	**8.6**

The Loss Data

- Primary Data Characteristics
- Loss Data Profile

Primary Data Characteristics

The following data fields are collected for each loss event:

- Classification
  - Business Line (Level 2) - ORX definition
  - Event Category (Level 2) - ORX definition
- Reference data
  - Reference ID number and Related event Reference ID, if relevant
  - Country of occurrence
  - Credit-related event
- Dates
  - Date of Occurrence
  - Date of Discovery
  - Date of Recognition
- Amounts
  - Gross Loss Amount
  - Direct Recovery
  - Indirect Recovery

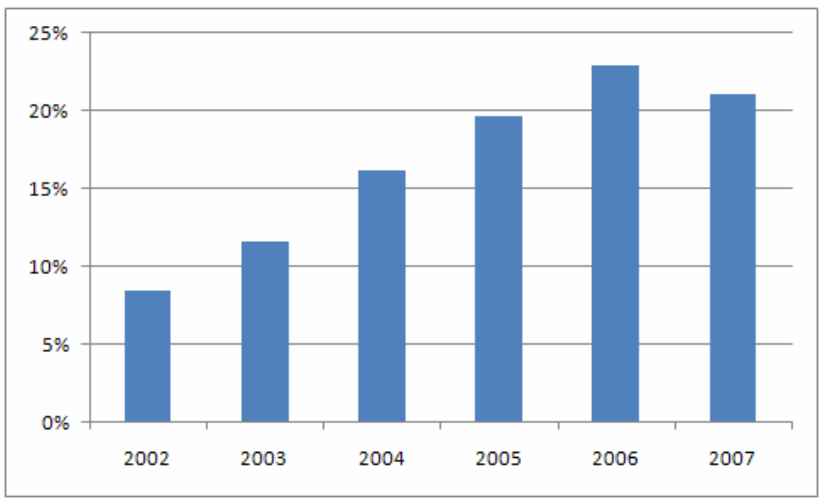
Gross Income is captured per Business Line (Level 2) per quarter

Loss Data Profile: Time Trends in Data Capture

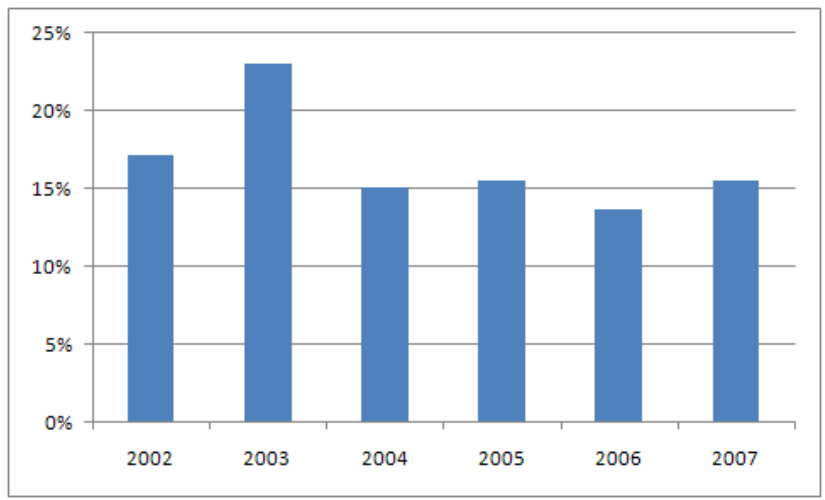
Overall ORX Data and Statistics

	Total	2002	2003	2004	2005	2006	2007
Total Number of Loss Events	*92,157*	7,838	10,718	14,905	18,150	21,135	19,411
Total Gross Loss Amount (Millions)	*€30,722*	€5,272	€7,068	€4,640	€4,760	€4,218	€4,764

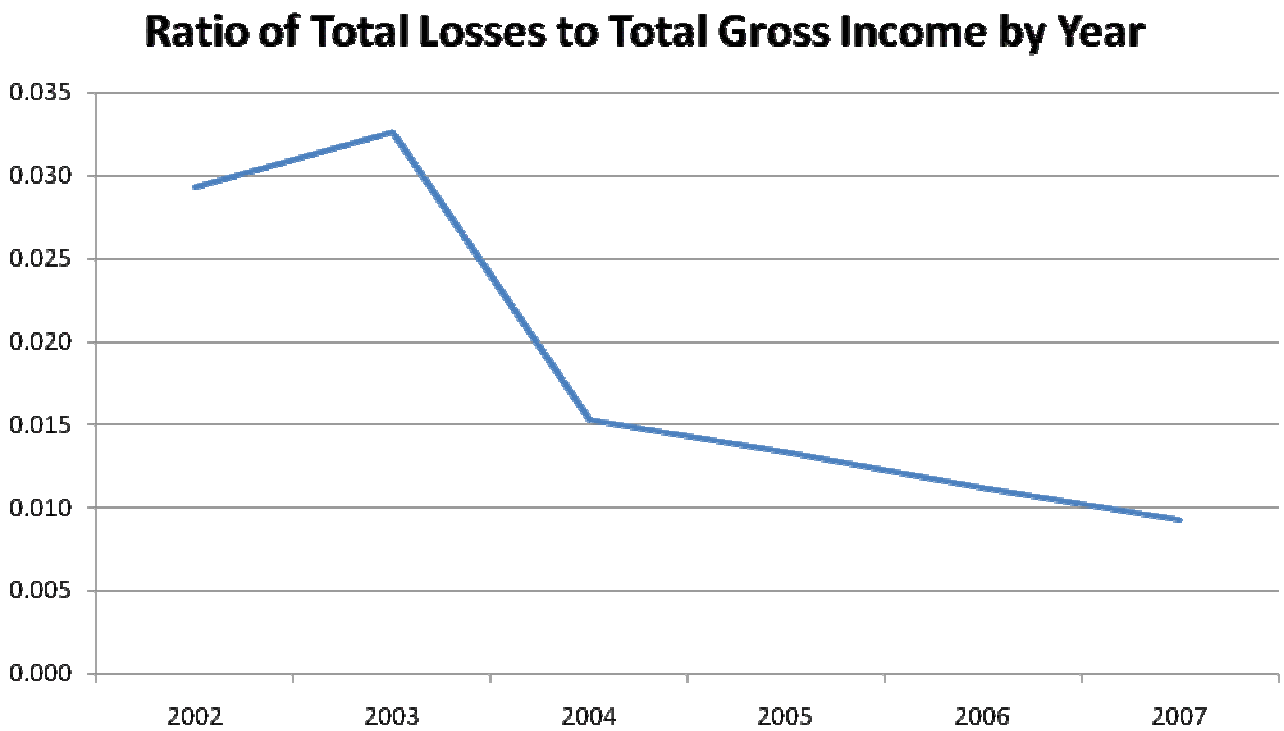
Loss Frequency 2002-2007



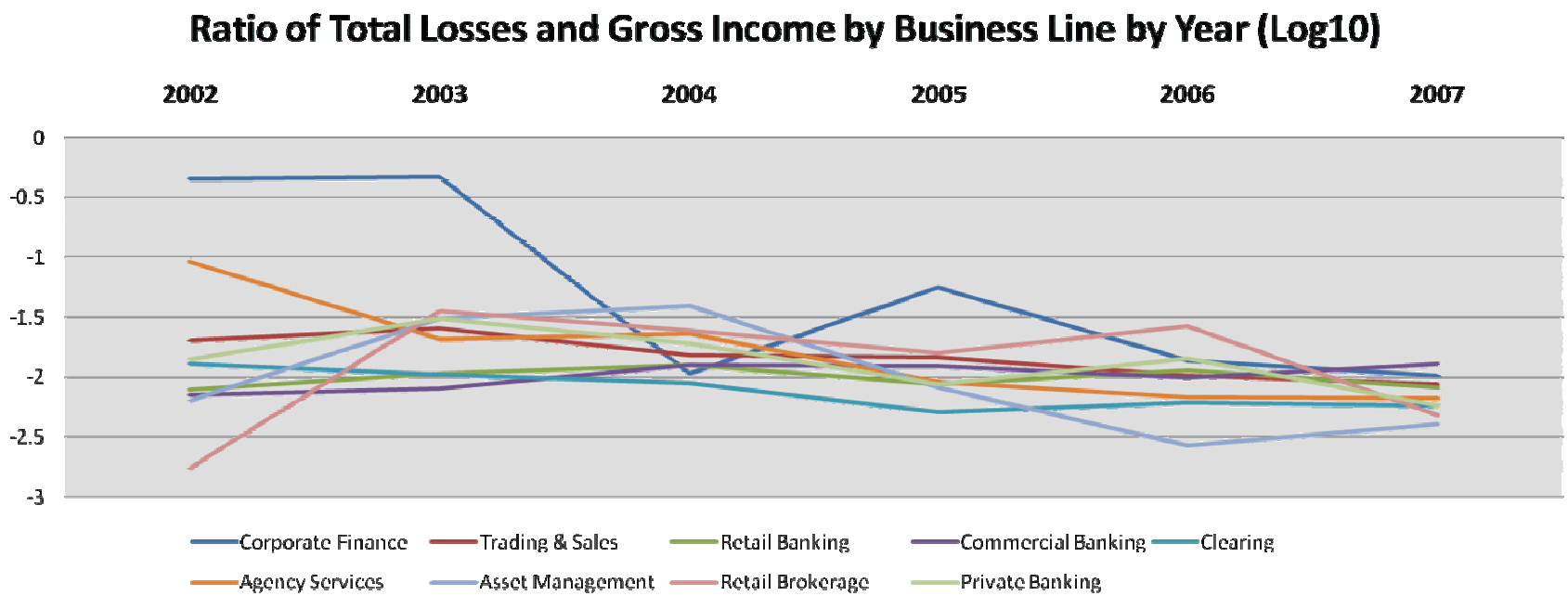
Loss Severity 2002-2007



Ratio of Total Losses to Total Gross Income by Year



Losses to Gross Income



Loss Frequency by Event Type and Each Business Line

- Frequency profiles of the loss data have become increasingly stable
- Upcoming additions of product and process hierarchies will make the analysis even more worthwhile

Table 3: Distribution of Number of Losses Across Event Type for Each Business Line

KEY

	0% - 1%
	1% - 5%
	5% - 10%
	> 10%

	Internal Fraud	External Fraud	Employment Practices and Workplace Safety	Clients, Products and Business Practices	Disasters and Public Safety	Technology and Infrastructure Failures	Execution, Delivery, and Process Management	Malicious Damage	% of Total Number of Losses
Corporate Finance	0.02%	0.09%	0.11%	0.24%	0.00%	0.01%	0.22%	0.00%	0. 70%
Trading and Sales	0.09%	0.07%	0.33%	0.57%	0.01%	0.51%	8.13%	0.00%	**9.72%**
Retail Banking	3.71%	32.55%	7.78%	5.49%	0.66%	1.02%	12.94%	0.09%	**64.25%**
Commercial Banking	0.16%	3.07%	0.38%	1.19%	0.03%	0.23%	3.78%	0.00%	8.84%
Clearing	0.04%	0.43%	0.12%	0.07%	0.01%	0.11%	1.44%	0.00%	2.21%
Agency Services	0.01%	0.01%	0.06%	0.13%	0.00%	0.04%	1.41%	0.00%	1.67%
Asset Management	0.05%	0.12%	0.14%	0.52%	0.01%	0.06%	1.81%	0.00%	2.72%
Retail Brokerage	0.10%	0.12%	0.50%	1.77%	0.01%	0.03%	0.92%	0.00%	3.45%
Private Banking	0.22%	0.36%	0.15%	1.45%	0.02%	0.05%	2.06%	0.00%	4.31%
Corporate Items	0.04%	0.14%	0.61%	0.30%	0.20%	0.05%	0.79%	0.01%	2.14%
% of Total Number of Losses	4.44%	**36.97%**	10.19%	11.74%	0.96%	2.10%	**33.50%**	0.10%	100.00%

Loss Severity by Event Type and Each Business Line

- Severity data at the tail remains key area of focus, drives capital estimations and are frequently used in scenario analysis
- Stability in calculations increasing with growing breadth of data

Table 4: Distribution of Total Loss Amount Across Event Type for Each Business Line

KEY		Internal Fraud	External Fraud	Employment Practices and Workplace Safety	Clients, Products and Business Practices	Disasters and Public Safety	Technology and Infrastructure Failures	Execution, Delivery, and Process Management	Malicious Damage	% of Total Number of Losses
	0% - 1%									
	1% - 5%									
	5% - 10%									
	> 10%									
Corporate Finance		0.08%	0.43%	0.18%	26.33%	0.00%	0.00%	0.41%	0.00%	**27.44%**
Trading and Sales		1.11%	0.31%	0.30%	5.35%	0.00%	0.28%	7.00%	0.00%	**14.35%**
Retail Banking		2.00%	7.09%	2.20%	8.45%	0.33%	0.58%	6.82%	0.02%	**27.49%**
Commercial Banking		1.09%	2.10%	0.32%	3.65%	0.01%	0.11%	4.20%	0.00%	**11.48%**
Clearing		0.02%	0.16%	0.03%	0.27%	0.00%	0.07%	0.53%	0.00%	1.08%
Agency Services		0.03%	0.03%	0.03%	2.12%	0.00%	0.01%	0.67%	0.00%	2.89%
Asset Management		0.06%	0.05%	0.17%	3.17%	0.01%	0.01%	0.79%	0.00%	4.25%
Retail Brokerage		0.15%	0.09%	0.25%	1.72%	0.00%	0.00%	0.30%	0.00%	2.51%
Private Banking		0.57%	0.20%	0.12%	2.46%	0.00%	0.01%	0.67%	0.00%	4.03%
Corporate Items		0.09%	0.08%	0.35%	1.62%	1.19%	0.03%	1.10%	0.01%	4.47%
% of Total Loss Amount		5.19%	**10.55%**	3.96%	**55.12%**	1.56%	1.11%	**22.48%**	0.03%	100.00%

Data Analytics

- Members' Capital Methodologies
- A Case Study
- The Analytic Agent Work Program

Members' Capital Methodologies

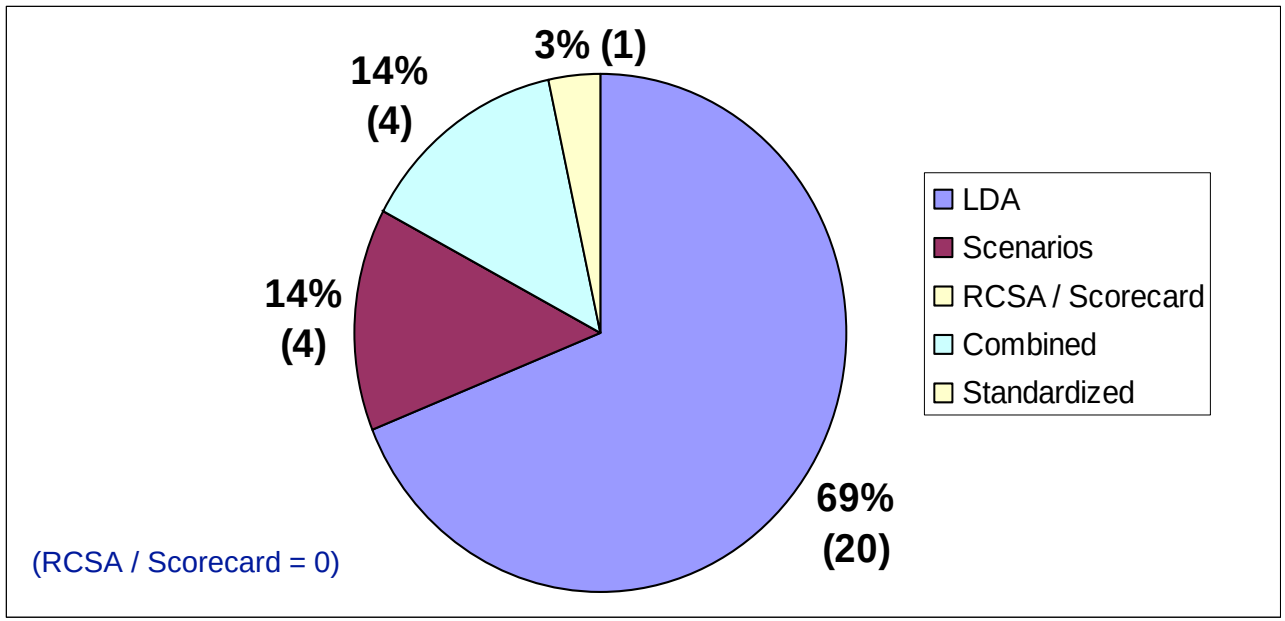
ORX formally surveyed its membership in Q3 2007 to assess how banks were using ORX loss data

- 29 Member banks participated in the survey
- The scope covered methodology and calibration results
- The results of the survey are currently being compiled and analyzed
- The following pages present a summary of the output related to the use of external data

The information presented is based on preliminary analysis and subject to change

Members' Capital Methodologies: Modelling Approaches

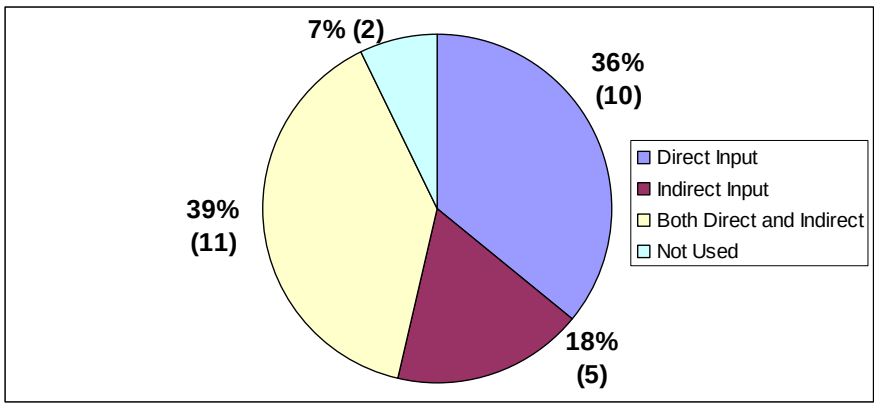
Q: What is the predominant basis of your operational risk capital model?



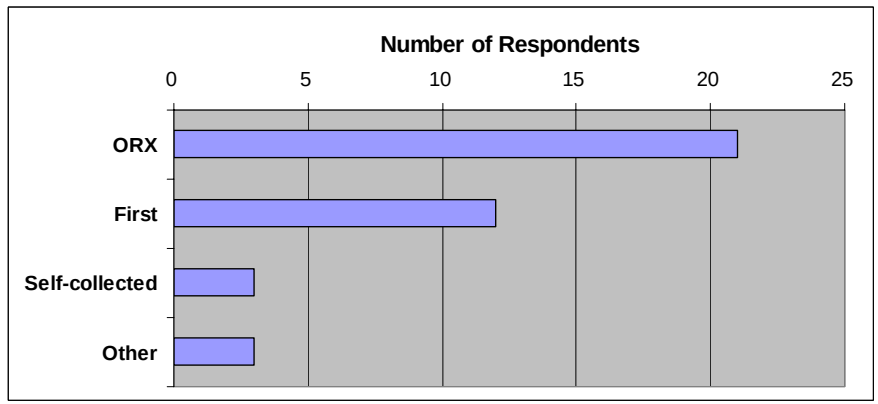
- Two thirds of the respondents use an actuarial based LDA model

Members' Capital Methodologies: External Data as Model Input

Q: How do you use external data in your model?



Q: What is the source of the data?



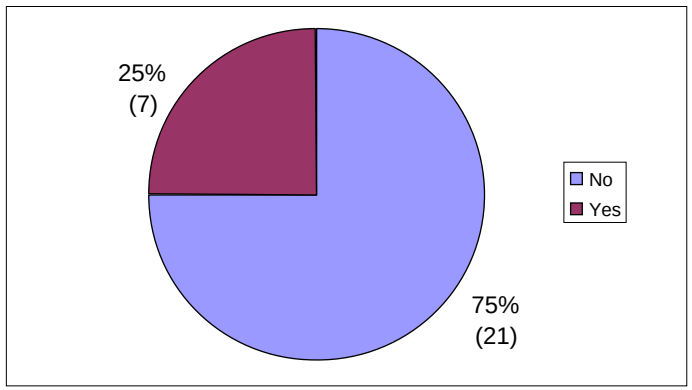
** Note: multiple answers were permitted to this question*

- Over 90% of the respondents use external data as direct or indirect inputs into their capital model

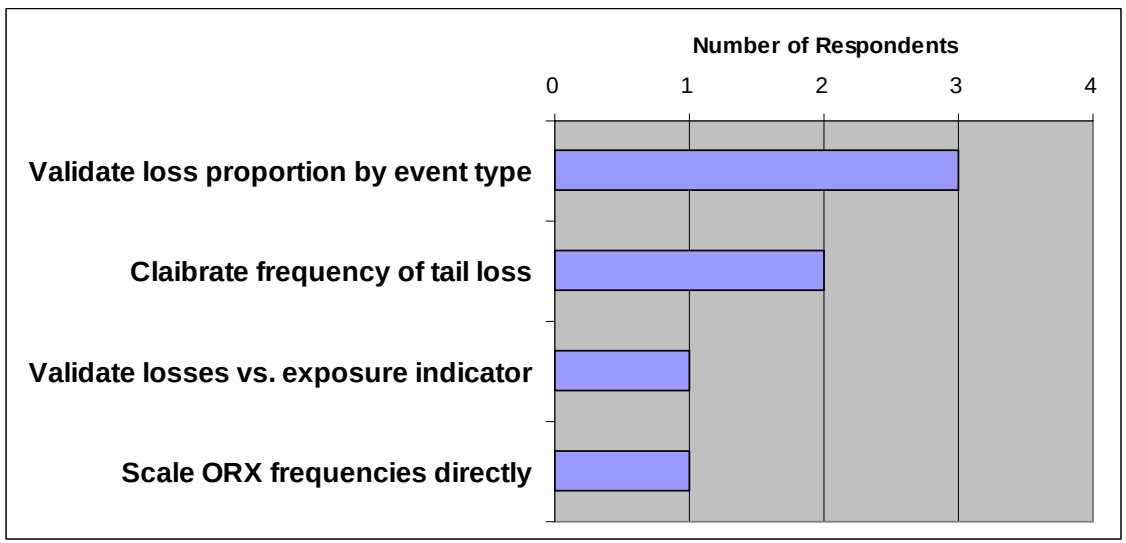
- ORX data is used by the majority of the respondents in their models. The First database (FitchRisk) is a secondary source of data used by over 40% of respondents

Members' Capital Methodologies: Frequency Modelling

Q: Is the data used to help determine frequency?

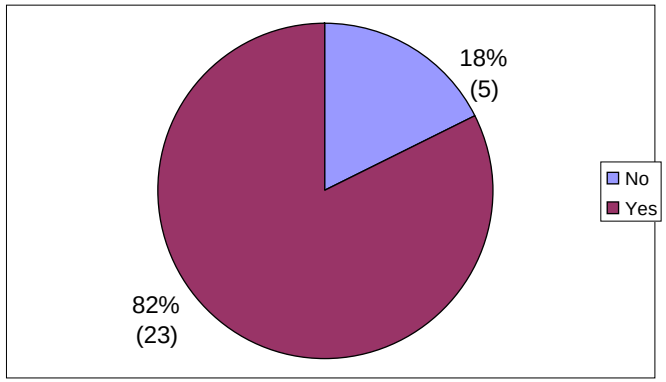


Q: How is the data used?

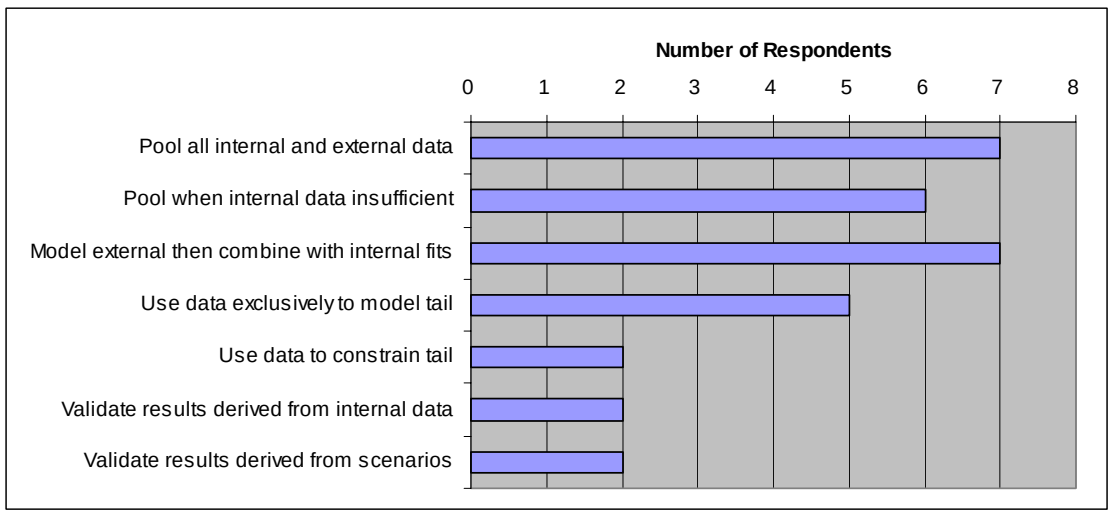


Members' Capital Methodologies: Severity Modelling

Q: Is the data used to help determine severity?



Q: How is the data used?

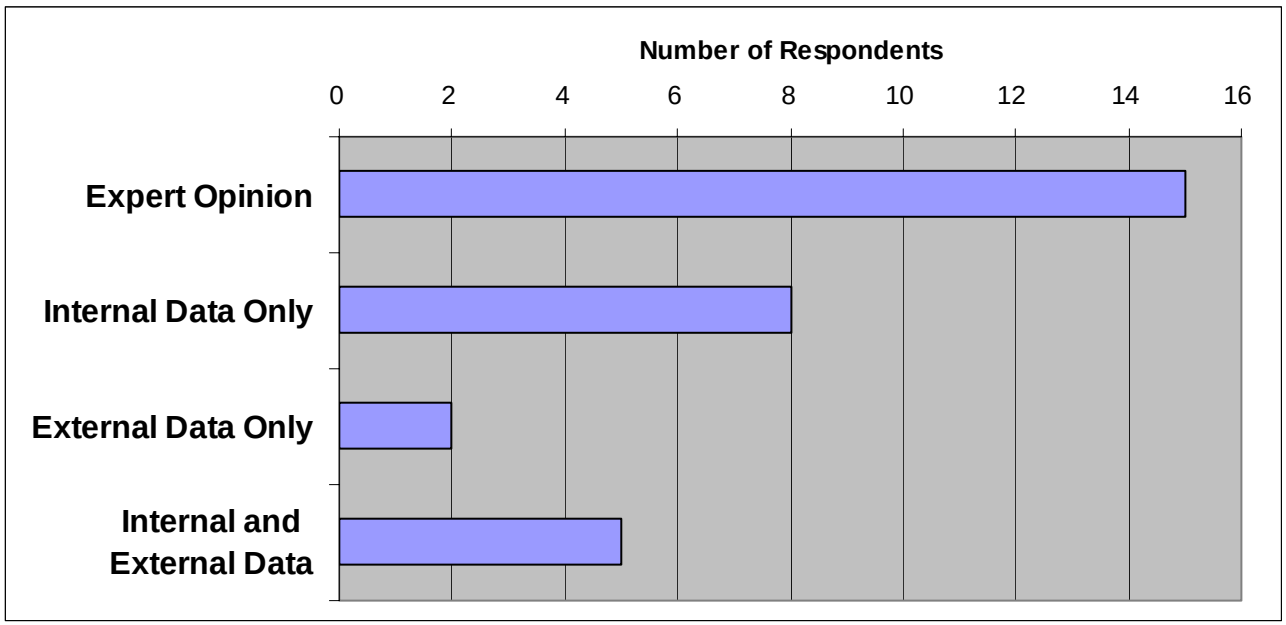


8 banks scale the data before use

** Note: multiple answers were permitted to this question*

Members' Capital Methodologies: Correlation Estimation

Q: What data is used in estimating correlation?

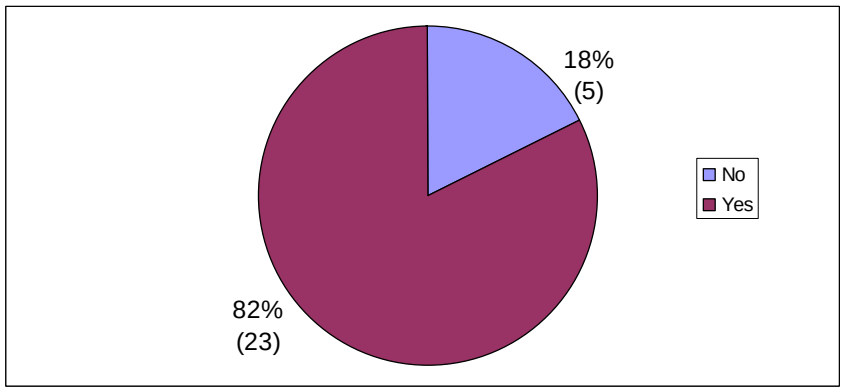


** Note: multiple answers were permitted to this question*

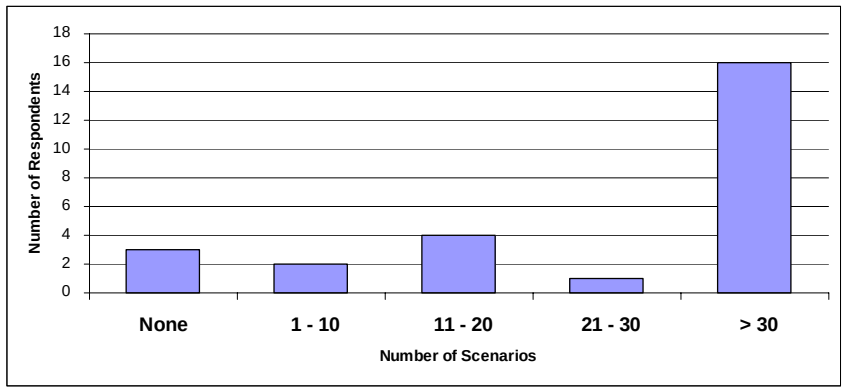
- Internal and External data is used alone or in combination with expert opinion in a majority of cases
- Some Members rely on expert opinion alone supported by analysis of losses e.g. common causes

Members' Capital Methodologies: Scenarios

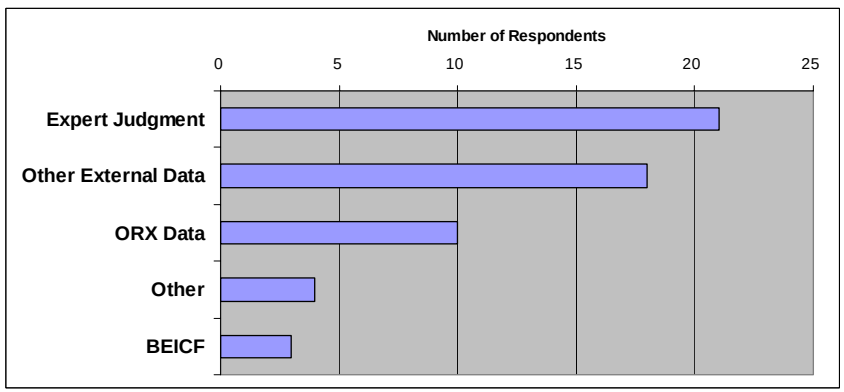
Q: Do you use scenarios in your model?



Q: How many scenarios are used as input to the capital model?



Q: What sources of input are used to generate scenarios?



** Note: multiple answers were permitted to this question*

A Case Study: One bank's use of ORX data to fit severity

- Below is sample output from one bank's use of ORX data in fitting severity

Summary Metrics for Fitted Severity Distribution: Unit-of-Measure 1

Data used in estimation: Pooled Internal loss event data and External ORX loss event data

Summary of Event Data:	Internal	Pooled ORX
Number of Events	47	612
Mean Event	294,119	385,102
Mean of 10 Largest Events	1,037,006	9,987,120
Largest Event	2,559,137	19,468,217

Assessment of Fit: Fitted vs. Data Used to Fit

Fit vs. Actual:

Percentile	Actual	Fitted	Ratio
25%	41,682	42,774	0.97
50%	76,521	83,032	0.92
75%	192,775	195,158	0.99
90%	575,167	668,181	0.86
91%	690,830	740,560	0.93
92%	873,095	843,778	1.03
93%	1,012,413	954,494	1.06
94%	1,252,141	1,095,940	1.14
95%	1,390,726	1,286,759	1.08

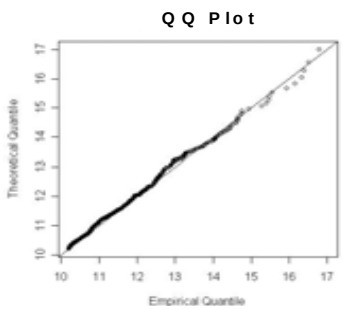
Top Ten:

Percentile	Actual	Fitted	Ratio
98.37%	4,911,671	3,802,590	1.29
98.53%	5,224,713	4,240,578	1.23
98.69%	5,283,921	4,782,892	1.10
98.86%	5,737,969	5,469,831	1.05
99.02%	8,309,342	6,356,863	1.31
99.18%	10,436,700	7,541,107	1.38
99.35%	12,502,278	9,157,198	1.37
99.51%	13,156,517	11,545,788	1.14
99.67%	14,839,880	15,469,660	0.96
99.84%	19,468,217	23,963,853	0.81

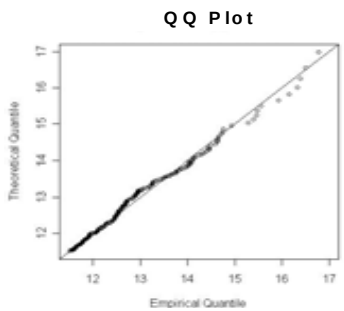
- **In this case, the bank chose to pool its internal data with a ORX data for a given unit-of-measure**
- **The unit-of-measure is Level 1 LOB/ET level of granularity**
- **Goodness-of-fit is assessed against the pooled data**

QQ Plots:

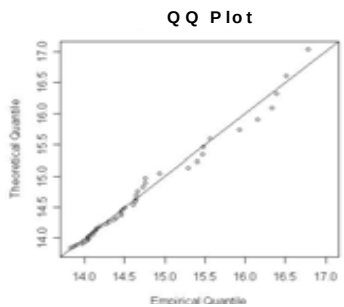
All Events



Events > $100k



Events > $1m



A Case Study: Assessment of "appropriateness" of fitted severity

- Below is sample output from one bank's approach to assessing appropriateness of fitted severity

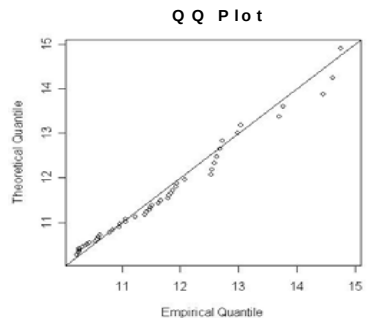
Assessment of Fit: Fitted vs. Internal Data Only

Fit vs. Actual:

Percentile	Actual	Fitted	Ratio
25%	39,380	42,814	0.92
50%	100,000	83,194	1.20
75%	301,660	196,662	1.53
90%	905,000	648,141	1.40
79.17%	312,092	263,585	1.18
81.25%	331,440	311,289	1.06
83.33%	361,140	369,836	0.98
85.42%	399,928	441,639	0.91
87.50%	437,464	531,220	0.82
89.58%	905,000	648,141	1.40
91.67%	950,000	810,612	1.17
93.75%	1,900,000	1,061,815	1.79
95.83%	2,213,856	1,533,594	1.44
97.92%	2,559,137	2,976,026	0.86

Test Statistics:

	K-S	A-D	Chi-Sq.
Statistic	0.110	1.0	8.5
p-value	56%	20%	58%



Large Event Prediction:

Event Prediction with Frequency = 18	Prediction	Ratio to Internal Mean	Ratio to Internal Max	Ratio to Pooled Mean	Ratio to Pooled Max
Largest event in 10 years	10,448,705	35.53	4.08	27.13	0.54
Largest event in 20 years	17,278,192	58.75	6.75	44.87	0.89
Largest event in 50 years	29,566,074	100.52	11.55	76.77	1.52
Largest event in 100 years	41,650,661	141.61	16.28	108.15	2.14
Largest event in 1000 years	109,274,534	371.53	42.70	283.75	5.61
Largest event in 3333 years	166,494,045	566.08	65.06	432.34	8.55

- **Key Appropriateness Questions:**
  - How well does the fitted severity fit pure internal data
  - What are the "large event predictions" and how do they compare to actual loss experience

Analytic Agent Work Program

- In May 2007, ORX appointed IBM Research Laboratory (Zurich) as ORX Analytic Agent to fully leverage and exploit the analytic value of this unique data pool
- The program utilizes 2 FTE research staff with access to a unique data set that retains the link between anonymised firm and its loss population
- Objective:
  - Tackle industry level problems that no individual institution can tackle alone;
  - Establish the feasibility and the appropriate methods for using pooled loss data;
  - Advance the measurement of operational risk
- Two initial work packages have been completed to date:
  - **Homogeneity analysis:** How similar are the loss distributions among banks that fall in various business line / event type categories?
  - **Scaling analysis:** How should losses from one bank be transformed in order to make them comparable to losses from another bank?

The work to this point has focused primarily on the distributions of loss severity

Analytics Agent Work Program: Homogeneity Analysis

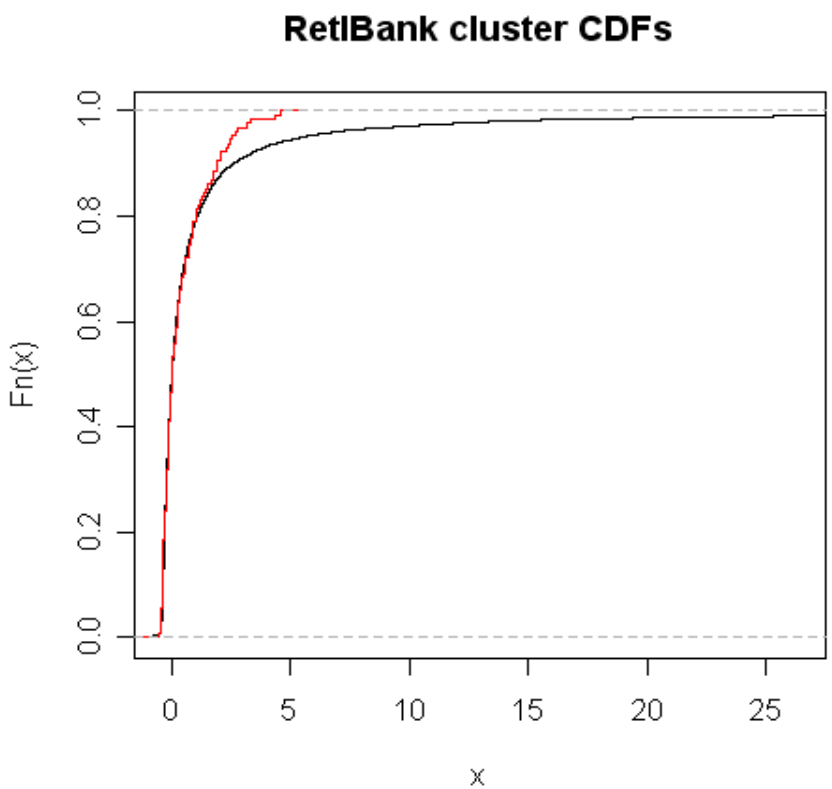
- Goal: Determine what similarities exist in the size and shape of the loss distributions from Members
- Similarity was measured in terms of:
  - Statistical measures of goodness-of-fit among loss distributions
  - Reduction of error in predicting large losses as a result of using pooled data rather than internal data alone
- Clustering techniques were used to determine groupings of banks with similar loss distributions
- Overall results:
  - A high level of homogeneity was evident in the shapes of various loss distributions across all levels in the sample
  - Simple scaling relations were effective in aligning many loss distributions
  - Pooling losses among banks with similar loss distributions can result in (estimated) error reductions when estimating high quantiles of the loss severity distribution

Analytics Agent Work Program: Sample Analysis (1)

Clusters were often associated with distinct distributional shapes

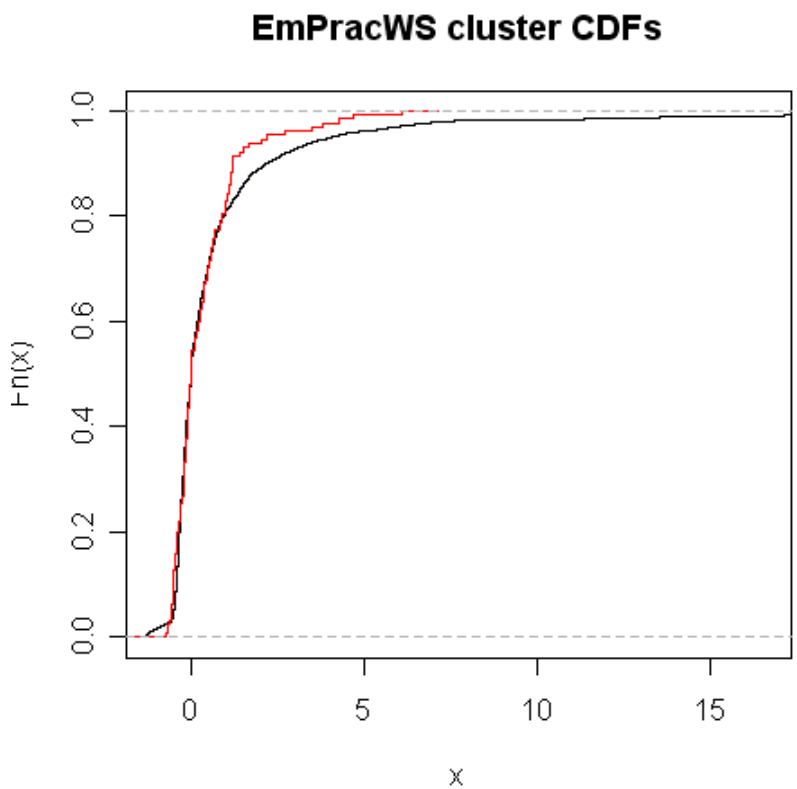
Retail Banking

cluster sizes 25, 3



Employee Practices

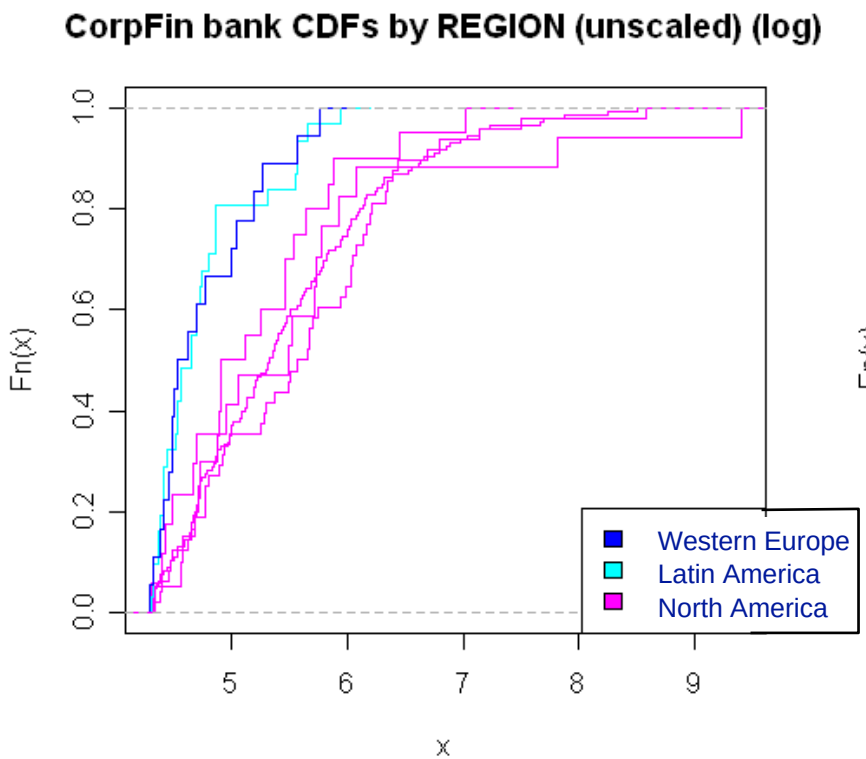
cluster sizes 15, 4



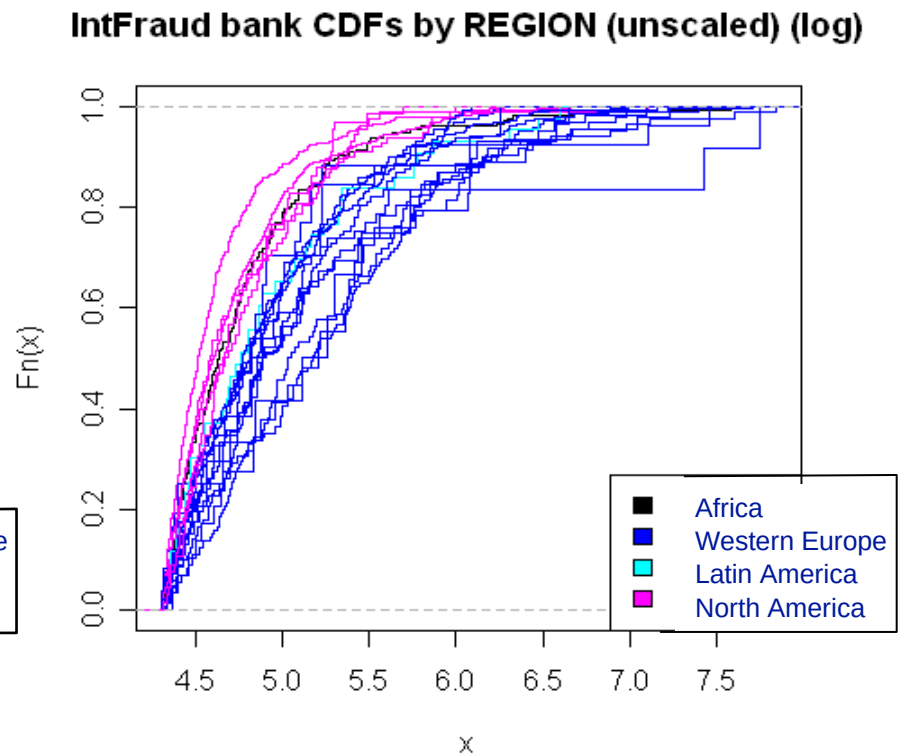
Analytics Agent Work Program: Sample Analysis (2)

Differences in loss scale were often evident across regions

Corporate Finance



Internal Fraud



Analytics Agent Work Program: Scaling Analysis

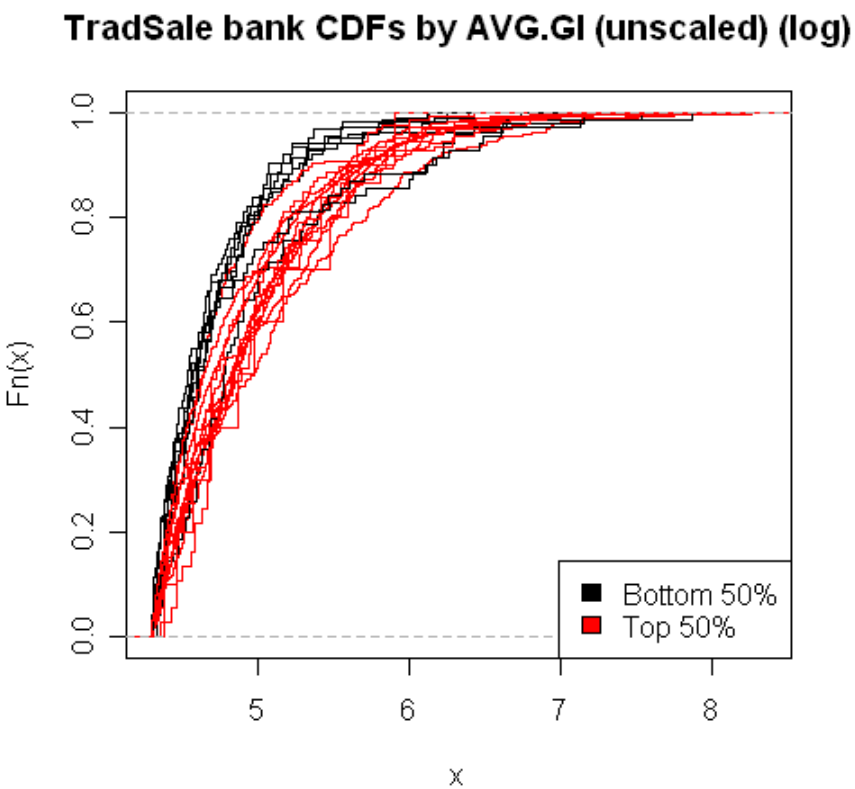
- Goal: determine how losses scale according to various exposure indicators, including firm size (gross income, headcount) and the region where the loss was incurred:
  - Provide the scaling relationships with an economic interpretation
  - Enable benchmarking and efficiency analyses among banks of varying sizes and geographies

- In many loss categories (business line, event type), the scale of the loss distribution was strongly correlated to the exposure indicators:
  - Both increasing and decreasing relationships between loss sizes and firm size were observed
  - Large differences were seen between Western European and North American losses in several categories
  - In many cases, large losses were observed to scale differently from small or medium-size losses

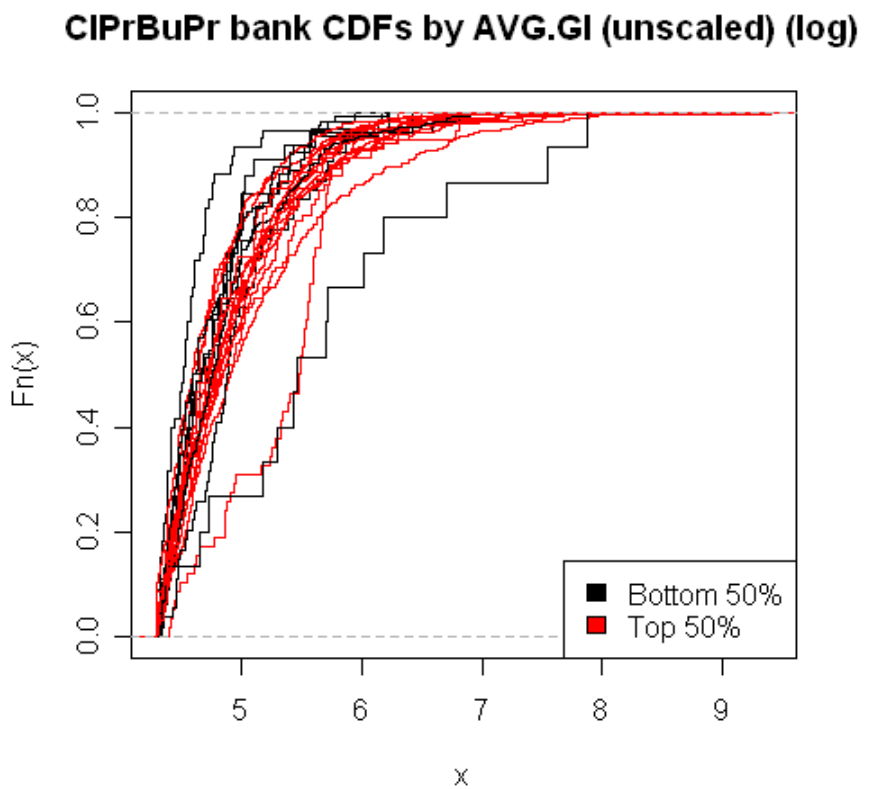
Analytics Agent Work Program: Sample Analysis (3)

Some categories showed correlations between firm size and loss scale

Trading and Sales



Clients, Products, and Business Practices



Analytics Agent Work Program: Producing Scaled Data

- Develop a complete statistical modeling framework incorporating both the homogeneity and scaling analyses:
  - Group banks according to similarities in observed loss distribution patterns
  - Explain between-group and within-group differences using exposure indicators
  - Validate the robustness and consistency of the models over time
- Establish processes to operationalize the analysis:
  - Provide Members with the means and procedures to use scaled ORX data together with their internal loss data
  - Create benchmarks for regulatory capital models and capital allocations
- Aim to roll-out scaled data to Members at Q3 2008

Using the Output

Banks may use the CDFs which are generated as output from this analysis as a:

- set of quantile estimates of a loss distribution within a category
- benchmark to compare with internal loss distributions
- means to generate random samples from a loss category
- basis for fitting a parametric distributional model for a loss category

We estimated the loss distribution for each partition corresponding to a Western European bank with given quarterly gross income figures

- In most cases the scaled datasets appeared to differ significantly from unscaled ORX data previously used by the bank
- Majority of those showed a closer match between scaled data and the internal data than did the unscaled data

Continuing Work

- In 2008 the work programme will continue:
  - Capital benchmarking
  - Diversification and correlation
  - Quality assurance tools
- We intend to publish full papers on the results of our research starting in early 2008

ORX Outlook 2008 and Beyond

- Strategic Initiatives
- 2008 Objectives
- Opportunities
- Summary

Strategic Initiatives

- At year-end 2006 the Executive Committee commissioned a comprehensive strategic review to determine the appropriate strategic and implementation plan to leverage the key strengths of the Association:
  - Unique and high quality database
  - Breadth and engagement of ORX membership base
  - Quality and service of ORX affiliated vendors
- Strategic review incorporated a broad-based assessment of ORX, its potential markets, products and reviews, technology and staff needs, and governance structure
- We envision ORX serving a dual role going forward
  - Providing value-added products and services to its Members
  - Serving as an industry utility for the development of the discipline of operational risk management

ORX 2008 Objectives

- Continue to grow general membership
- Advance analytical understanding of operational risk
- Expand basic data services to include other metrics
- Develop peer group (national & sector) services
- Develop other value added services
  - Bespoke benchmarking
  - Scenario library
  - Capital benchmarking
- Streamline governance structure and processes
- Implement new, more flexible, technology platform
- Increase outreach to regulators, non-members and other constituents
- Explore opportunities in operational risk transfer

National and Sector Services

- ORX is seeking to establish National and Sector database from within current membership and as a service to future members
- National and Sector Services would use the ORX legal, security and system platform but have the capacity to:
  - Define own loss data categorisation and standards including: loss attributes; text fields; business metrics and KRIs
  - Define own frequency of loss submission and distribution
  - Set own quality assurance testing and reporting regime
  - Create own reports and benchmarking
  - Use ORX global analytical tools and routines
- ORX objective is to develop bespoke National and Sector services as business level tools
- Creating new trend and comparative data directly relevant to business units and directly in support of business decisions

Summary

- ORX has a unique quality and breadth of membership
  - 41 leading international banks and strong growth
  - Emerging as industry utility
- ORX has a unique quality and breadth of data
  - Specifications and on-going efforts to enhance consistency and quality
  - Best source for industry analysis of operational risk
- ORX is becoming a leading forum for exchange of ideas and leadership
  - Developing standards around around loss data classification
  - Leading in analysis, commentary and initiatives