

Management and Finance of Soft and Hard Risk

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ERM Symposium Session C-3

May 2, 2005

Agenda

1. Dimension of Risk
2. Hierarchy of Risk
3. Management of Soft Risk
4. Management of Hard Risk
5. Risk Management Tools & Infrastructure
6. Advanced Underwriting Skills
7. Summary

1. Dimension of Risk

- ◆ Intangible (soft) risk
 - Leadership risk
 - Behaviour risk
- ◆ Tangible (hard) risk
 - Technical risk
 - Organisational risk
 - Finance risk

2. Hierarchy of Risk

- ◆ PMR = probable maximum risk
- ◆ Soft risk
 - 50% of total risk
 - Monetarised: double digit Bn Euro
- ◆ Hard risk
 - 40% related to financial risk
 - 10% related to insurable risk
 - 8% related to insured risk

3. Management of Soft Risk

Spoilt by Success & hubris & moral hazard

- ◆ State of the art / volatility - Ex : Levis
- ◆ Product life cycle / cradle to grave - Ex : Polaroid
- ◆ Debt to equity ratio & level of incompetence - Ex : Vivendi & Kirch
- ◆ Ivory tower & arrogance - Ex : Shell / Brent Spar
- ◆ Price cartel / antitrust fine - Ex : VW & Zement / EU
- ◆ Court obstruction / balance sheet fraud - Ex : Enron

3. Management of Soft Risk

Corporate Culture

- ◆ Integration management / M & A - Ex : Allianz / Dresdner Bank
- ◆ Crisis & reputation & litigation management - Ex : Audi
- ◆ Value conflict management
 - Criticism culture & learning culture - Ex : Parmalat
 - Hushed customer complaints / shame culture - Ex : Mitsubishi / USA & Japan
 - Prejudice management - Ex : BMW / Rover

3. Management of Soft Risk

- ◆ Public relations
 - Risk legitimization - Ex : nuclear power stations
 - Investor relations : media & investors & analysts & rating agencies - Ex : Thyssen Krupp
- ◆ Corporate governance / business judgment rule
 - Relevance of legal liability v/s entrepreneurial failure
 - ◆ Directors & officers liability
 - ◆ Punitive damages & product liability
 - Penal relevance of entrepreneurial failure - Ex : EMTV / Haffa & BASF

4. Management of Hard Risk

- ◆ Production risk
 - Property damage / environmental damage - Ex : Arcelor / intra-corporate transparency of risk management
 - Supply chain & single v/s multiple sourcing & site neighbourhood manufacturer and supplier
 - Dematerialisation of risk / mere financial loss - Ex : the long way of industries : from " hardware " (James Watt - 1770) to " software " (Bill Gates - 2005)

4. Management of Hard Risk

- ◆ Product risk
 - Error in design & manufacture & instruction
 - Product recall & customer loyalty
- ◆ Finance risk
- ◆ Accounting risk

5. Risk Management / Tools and Infrastructure

- ◆ Risk philosophy
 - Risk culture / risk appetite
 - Risk tolerance level
 - ◆ Materiality of risk - local v/s global relevance
 - ◆ Early warning system - Ex : KontraG
- ◆ Risk catalogue
 - Risk questionnaire - Ex : Metro
 - Risk interview & risk conference - Ex : Böhringer & Bertelsmann
 - Risk prioritisation

5. Risk Management / Tools and Infrastructure

◆ Risk control

- Strategic control & process control
 - ◆ Intra-corporate transparency / moral hazard prophylaxis / corporate discipline - Ex : Arcelor & BMW
- Physical control
 - ◆ Ex: Fire & catastrophe loss prevention - Ex : BMW / FM
- Audit control
 - ◆ Efficiency check of risk control - Ex : BMW / IT simulation

5. Risk Management / Tools and Infrastructure

◆ Risk Budget

- To monetarize soft & hard risk to a feasible extent
- To benchmark profit budget and risk budget

◆ Risk committee

- Copilot of top management - Ex : Metro & Lufthansa
- Recognised senior persons / yellow & red card

◆ Risk manager

- " Chief risk officer "
 - ◆ Soft risk managers & hard risk managers
- Core function vs. matrix functions
- Motivation incentives - salary bonus & hall of fame & promotion bonus

6. Advanced Underwriting Skills

- ◆ Behavior-related risk control & mental change management expertise
 - Directors & officers liability insurance covers legal liability arising from leadership failure but not at all leadership failure as such or in total
 - Directors & officers liability tightens on a global level by which trend the scope of liability to be covered increases respectively
 - The insurer of leadership liabilities will have to be involved in his customer's risk chain much earlier / much closer - quality seal / main differentiator to competition
- ◆ Insurance products
 - "Old" industries : technical products / hardware
 - "New" industries : intellectual products / software

7. Summary and Conclusions

- ◆ The insurer's role in risk finance will in total remain limited
- ◆ But soft risk finance via insurance will increase because of global tightening of behavior-related liabilities
- ◆ Trend will be pushed in addition by penal leadership responsibilities increasing as well

7. Summary and Conclusions

- ◆ For historic & other reasons, the hard risk expertise of insurers is more developed than their soft risk expertise
- ◆ Soft risk insurance premiums are to a large extent still calculated from retrospective claims statistics rather than from prospective insight into the customer's risk chain - in local & in global terms
- ◆ To further advance the state of the art in risk management & risk finance is a continuous challenge - to do it is never too late

MERCER OLIVER WYMAN

May 3, 2005

2005 Enterprise Risk Management Symposium

ERM in a conglomerate/corporate environment

Michael Chagares
Chicago, IL

CONFIDENTIAL

CORPORATE RISK CONSULTING

NYC-MOW047ERC-054

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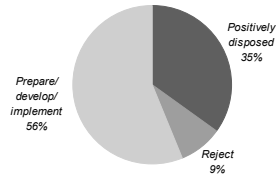
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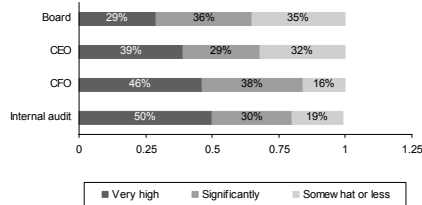
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Future of Enterprise Risk Management Selected findings from The Conference Board's 2004 ERM survey – North America and Europe

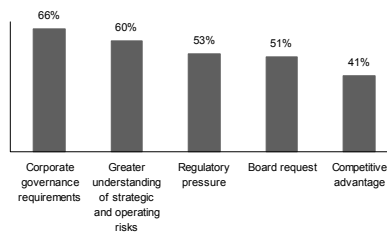
A majority of companies are choosing ERM



ERM is seen as an increasingly important responsibility by the . . .



Primary drivers for implementing ERM



Client/Project profile #1

- **Organization**
 - Global life science company
 - 40,000 employees
 - Research and development, manufacturing, marketing and sales
- **Level of effort**
 - Full ERM framework implementation
 - Cross functional internal virtual team and external consultants
 - 10 integrated workstreams
- **Duration**
 - Approximately 15 Months to establish ERM framework and infrastructure
 - On-going implementation efforts driven by internal ERM function
- **Sponsorship**
 - Initially sponsored by Chief Strategy Officer
 - Evolved into Entire Executive Management Team sponsorship and support

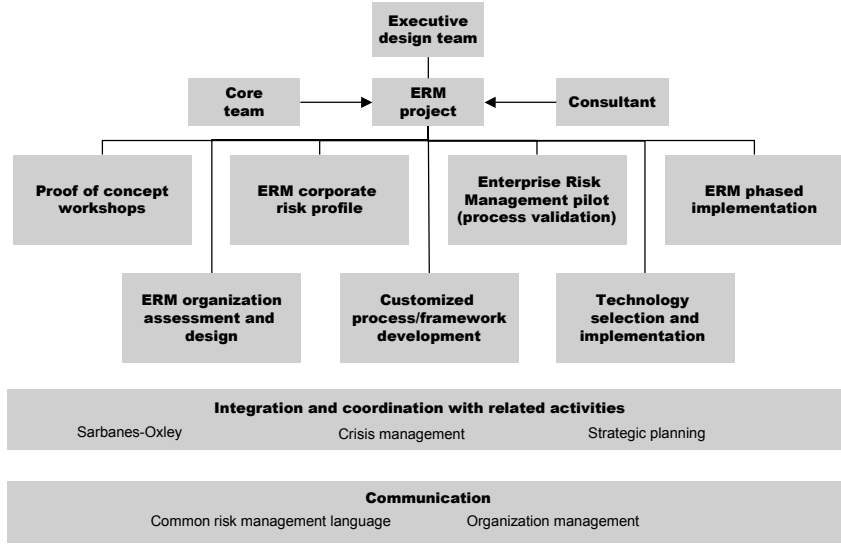
The business case: Why address Enterprise Risk Management?

- Significant Risk Management issues surfaced over the past several years
- Risk/crisis events dealt with reactively (requiring critical management resources). This approach was not sustainable
- Multiple crisis events harmed company's reputation
 - Many of the crises were in retrospect, predictable
- Current external vulnerabilities for the company from regulators, the media, and the legal community demand a more proactive approach to risk management

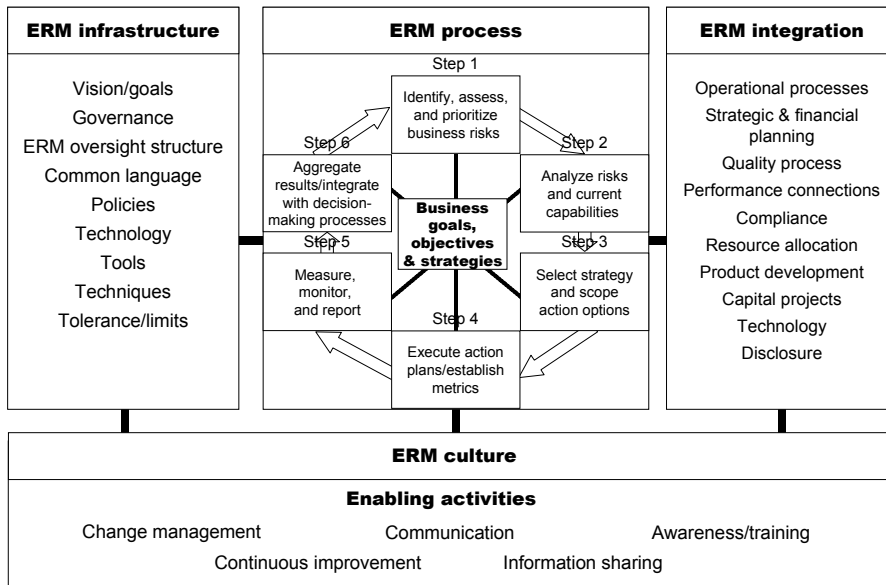
Company's vision for ERM

- To create a risk-aware culture to optimize performance and achieve the mission
- Risk management built into emerging business models – owned by the businesses
- Risk information and process integrated into strategic planning and disclosure
- Ongoing training, adoption of best practices, and knowledge transfer
- Communicate risk management commitment as a core competency with stakeholders, customers and other constituencies

ERM project workstreams



Customized ERM framework



Keys to this successful ERM implementation

- Leadership and executive sponsorship
- Consensus vision for 'future state' ERM framework
- Well defined and communicated phased work-plan
- Realistic goals and timeframes
- Time and resource dedication – virtual cross functional team
- Quick early 'wins' to build organizational credibility and support
- Balancing qualitative and quantitative demands
- Allowing process to provide answers, not seeking all answers and value creation before process
- Integration with key decisioning process (i.e., Strategic Planning)

Client/Project Profile #2

Organization:

- Global consumer products company – operations in 99 countries
- Research and development, manufacturing, marketing and sales
- Core Business commodity based

Level of Effort:

- Full ERM framework implementation
- Team of 4-5 consultants

Duration:

- Approximately 2 Years
- 3 Phases (Current State Assessment, ERM Design/Development, and Implementation)

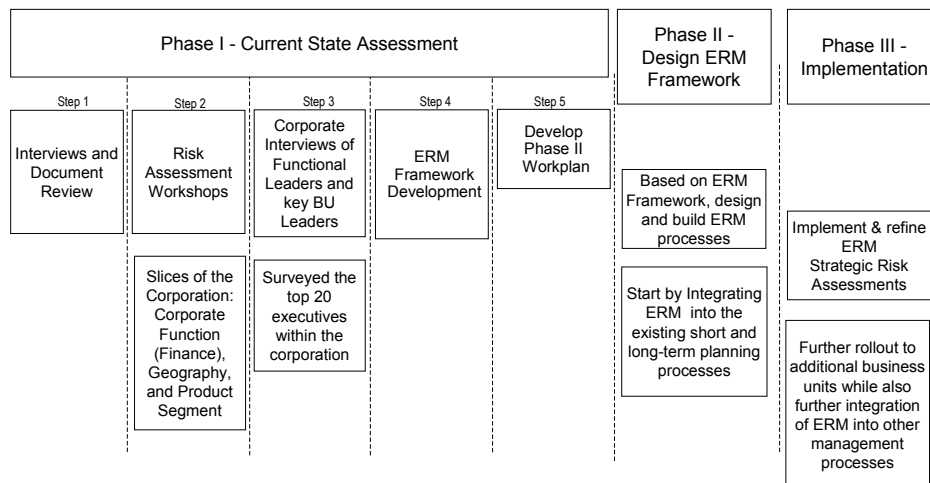
Sponsorship:

- Sponsored Chief Financial Officer
- Executive Committee assumed ownership during Phase I

The Business Case: Why Address Enterprise Risk Management Now?

- Company's ambitious growth goals are countered by significant, industry-specific strategic challenges
- Desire to prevent both financial and operational surprises
- Desire to capitalize rapidly on risk taking opportunities – part of mission statement
- Silo driven, de-centralized organization with inconsistent and reactive risk management activities in many operational areas.

Phased ERM Workplan





Managing Financial Risk In A Global Enterprise

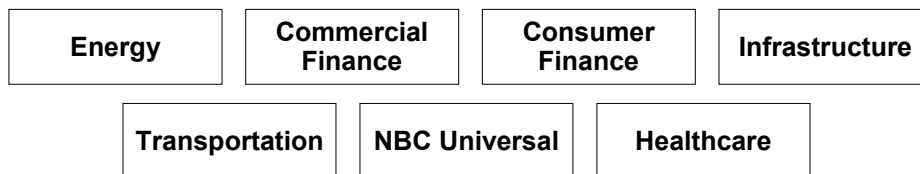
Joan Makara
May 2, 2005



GE Organization



Growth Engines



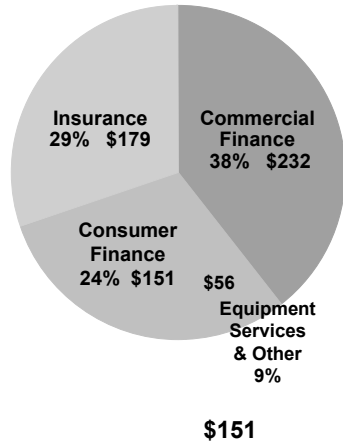
~ \$152B Revenues
~ \$16.6B Net Income
~\$750B Assets

Cash Generators



Total GECS portfolio - assets \$618B

(Dec 2004)

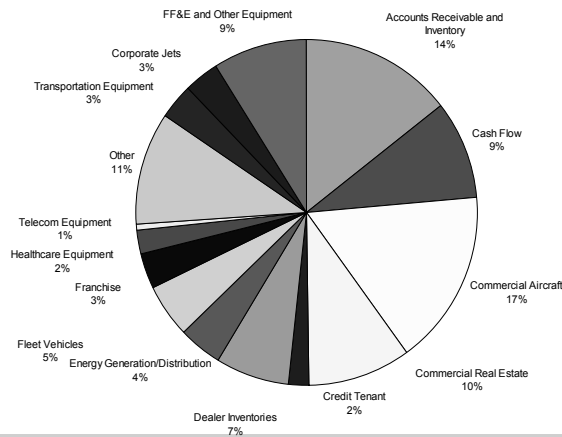


- Credit risk remains dominant risk characteristic
- Commercial Finance maintaining lead concentration
- Genworth assets still part of mix, not deconsolidated at December
 - GEI assets (x Genworth) ~ \$75B

Commercial credit risk – collateral concentrations

\$298B Exposure

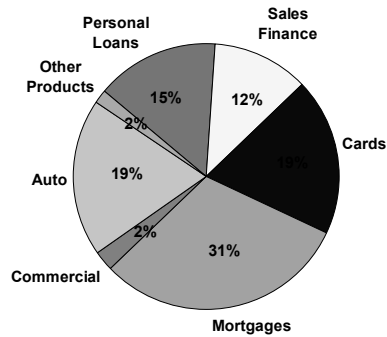
\$298B Commercial Exposure by Collateral December 2004



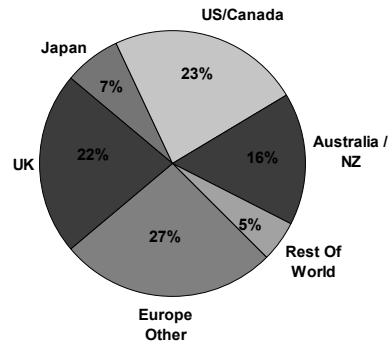
GE Consumer Finance - portfolio composition

Exposure - \$138B (Dec '04)

Product



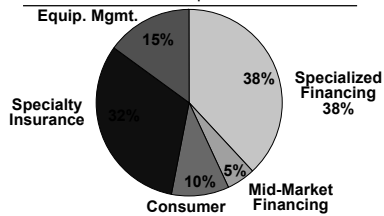
Geography



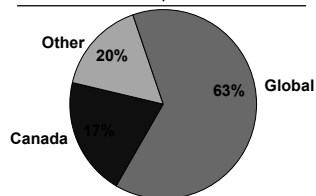
Circa 1990 GE Capital

The Company...

21 Businesses – \$962MM Assets



3 Countries – \$95MM Assets



The Process...



- **Transaction Focus**
 - **Primarily Credit Risk Focus**
 - **Deal Review Dominated**
 - **\$ Size - Based Approval Limits**
 - **Little Delegation of Authorities**
- **No Aggregation Of Risks**
- **Organizational Responsibility Not Defined**
- Systems Focused On **Individual Deal Processes**

The Traditional "Deal-Focused" Model Seemed Adequate, But...

Catalyst For Change

Late 80's – Early 90's
Stressed Old Approach

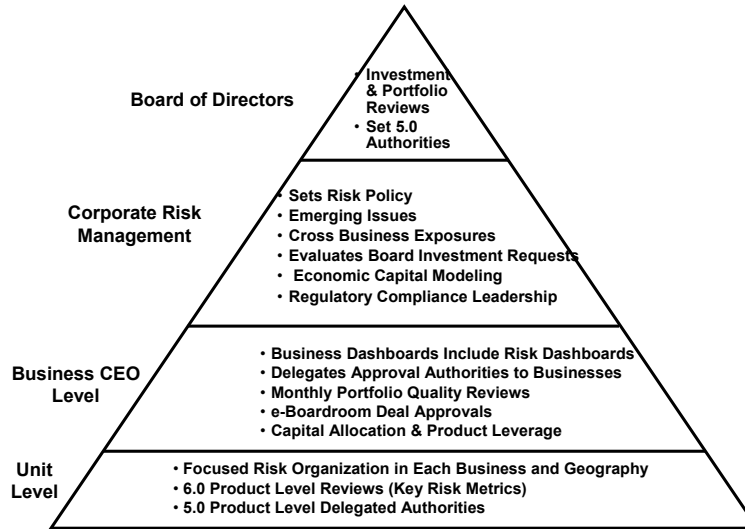


Provided Catalyst For New Look
At Risk Management...

New Risk Process “Must Haves”

- **Globally Applicable** Risk Methodology
 - Applies To **All Products** Across All Geographies
 - Applicable To **All Acquisitions**
- Grounded In **GE “Process-Based” Approach**
- **Sustainable, Measurable, Metrics Based**

Comprehensive oversight of risk



5.0 Investment Authorities

GE Company Board

- Acquisitions Over \$.5B Equity

GE Capital Services Board

- All Investments Exceeding 150% of Business CEO 5.0 Delegations

Investment Committee

- Up to 150% of Business CEO 5.0 Delegations

GE Commercial Finance
 GE Consumer Finance
 GE Equipment Management
 GE Insurance

- Specific Business CEO Delegations

Portfolio Monitoring Process (Policy 6.0)

Risk is evaluated at both the product and portfolio level

Board Reviews

Fin'l Svcs Portfolio

- Strategic Portfolio Reviews
- Risk Assessments
- Emerging Issues

Business
CEO Level

Portfolio Risk
Assessment

- Key Risk Metrics
- Emerging Issues

Product
Level

Policy
6.0 Review
Product A

Policy
6.0 Review
Product B

Policy
6.0 Review
Product C

Policy
6.0 Review
Product D

Policy 6.0 Approach

Incorporates Our Proprietary Six Sigma Disciplines & Analytic Tools

Define

- Determine Product/Program **Characteristics Matrix**
- Identify "**Critical Few**" Performance Drivers

Measure

- Collect Data & **Baseline Performance**
- Define Performance Standards
 - External Benchmarks + Business Leader's **Max Loss Allowable**

Analyze

- Isolate **Root Causes** Of Loss
- Use Statistical Analysis To **Determine Significant Loss Drivers**
- Establish Tolerance Levels Of Allowable Losses
 - Trigger Levels, "**Smoke Detectors**"

Improve

- Establish Levels Of **Acceptable Variability** To Yield Better Performance
- Monitor Results & Establish Feedback Loops

Control

- Establish Control **Monitoring Plan**
- Take **Corrective Actions** When Triggers Breached

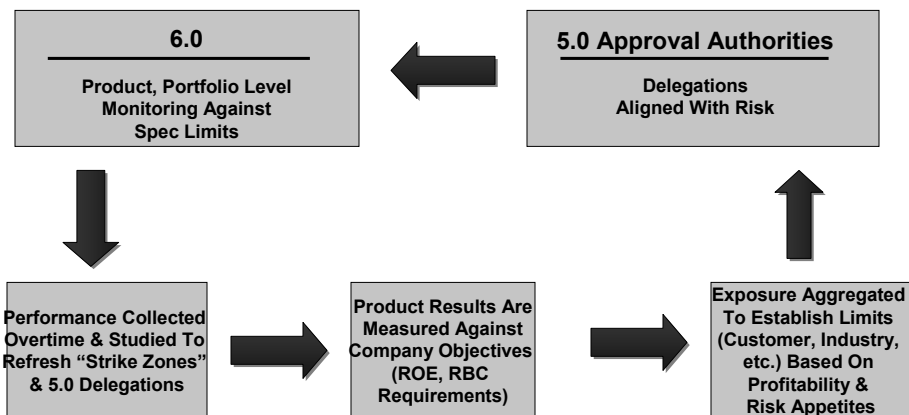
Policy 6.0 is required not optional - Operational definition

✓ Statistically based, objective process approach to product, portfolio performance management

- Sets investment “parameters” – “strike zones” at product level
- Establishes **aggregate distributions**, “limits” at product, portfolio level
 - Credit, collateral, tenor, LTV, for example
- Articulates monitoring of portfolio performance against “**specification limits**” – **tolerance for variability (i.e. volatility)**
- Provides efficient mechanism to **communicate portfolio performance** and risks

Allows business to receive **continuous feedback** of results, learnings

Risk process- continuous feedback loop



2005 Enhanced Focus

- **Corporate Audit Staff will include a 6.0 process review in each audit**

- ✓ **5.0** compliance already part of audit scope

- OTS will continue to look for 6.0's in "targeted" reviews

- Corporate global risk management will review **key** product

6.0's

- **Incorporate** economic capital analytics

- **Businesses** establish plan to revise major products in '05

Economic Capital

2002 & earlier → • 1 GECS leverage

2003 → • Multiple leverages – business level via top down portfolio estimates

2004 → • Multiple leverages – product level aggregated by business
• Diversification & LGD benchmarks

2005 & beyond → • Based on internal data with modeling to simulate loss & capital drivers
• Diversification at various layers of GECS – examine concentrations
• Regulatory alignment

Economic Capital – Portfolio Analytics

Project Launched March 2004 To Construct Portfolio Credit Models

Built Bottom up Analytical Method to Simulate Loss for Each Business at Transaction/Portfolio Level

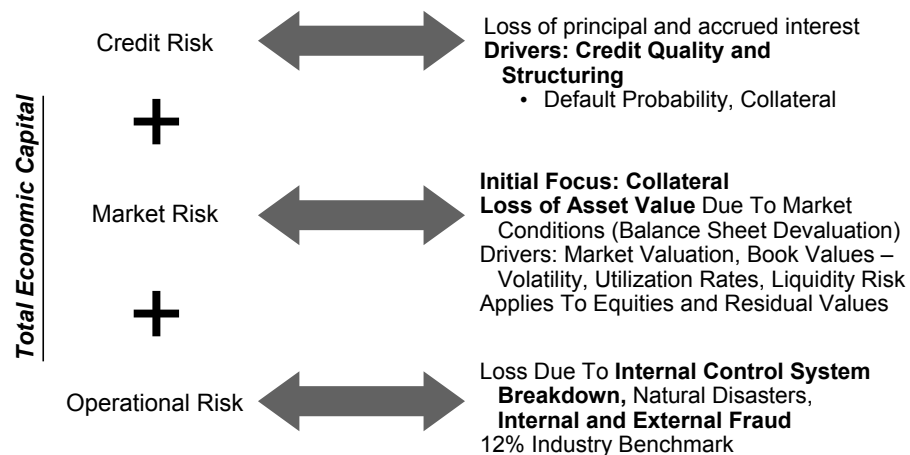
Aggregation of Credit and Collateral Risk for All GECS Portfolios

Determining Effects of Concentrating Exposures, e.g., Name, Industry, Country, And Portfolio Diversification

Developing New Metrics for

- Managing Risk
- Scenario Testing

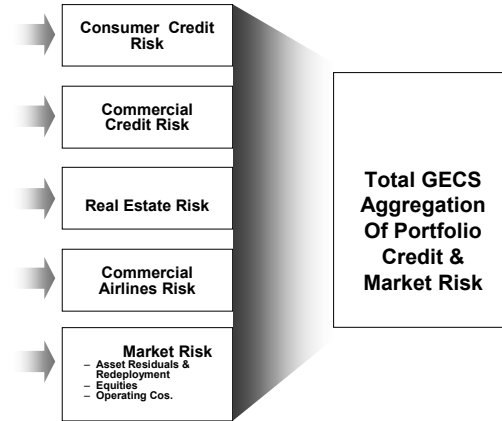
The Three Economic Capital Elements



Project Framework

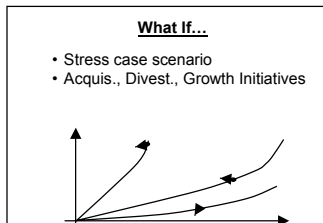
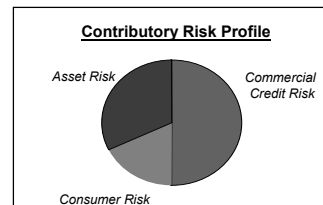
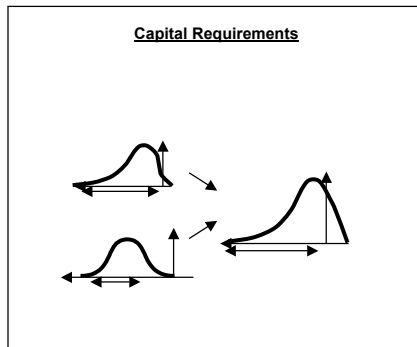
Six Analytic Engines

- Models capture risk from ~15 business units and multiple portfolios

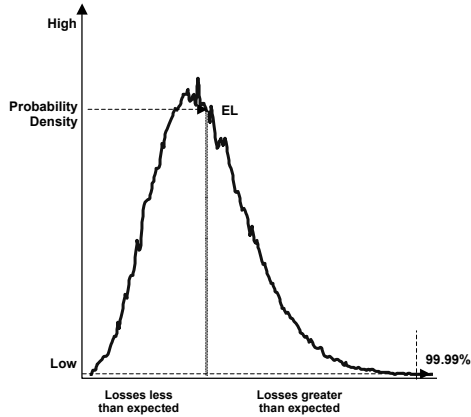


Project Deliverables

- Sustainable, stable loss simulation methodology
- Risk capture and capital understanding at business unit, portfolio, product and obligor levels



Composition of the Loss Distribution



Body

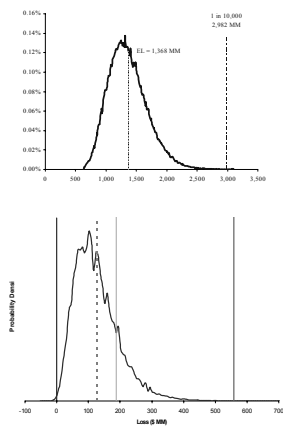
- Function of PDs, LGDs, and exposure
- Driven by correlation of obligors and likelihood they react similarly to industry & geographic external factors

Tail

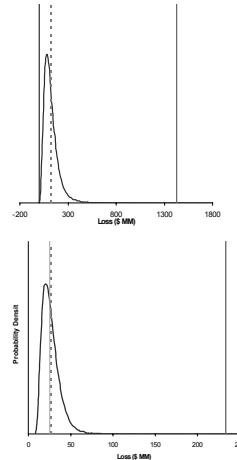
- 99.99% confidence interval: 1 in 10,000 chance
- Driven by unknown, unlikely, extreme, catastrophic event
- Skewness is lower in less correlated, more size-homogenous portfolio

Portfolio Distributions -sample portfolios

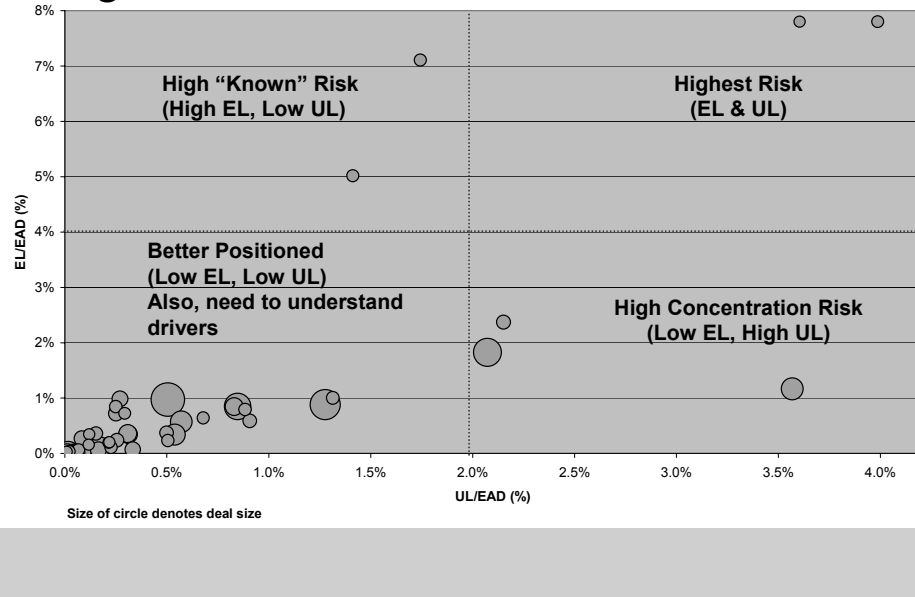
Less Skewed



More Skewed

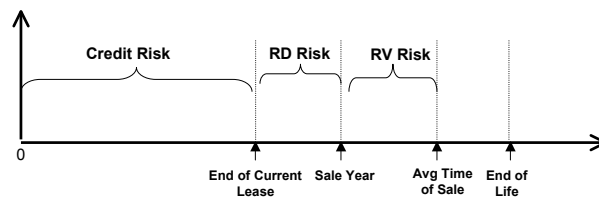


Loss Estimate For A Portfolios' Top Obligor



Collateral Risk

Asset Time Line



- **Credit risk** exists during the current lease term of the asset and incorporates an obligor's probability of default
- **Redeployment risk** extends from end of current lease through the point of asset sale (maybe shorter than the asset life) and incorporates cash inflows and outflows
- **Residual value** risk reflects the time it takes to sell the asset beginning with initiation of the sale process and focuses on the market effects on an assumed remaining value for a specific collateral

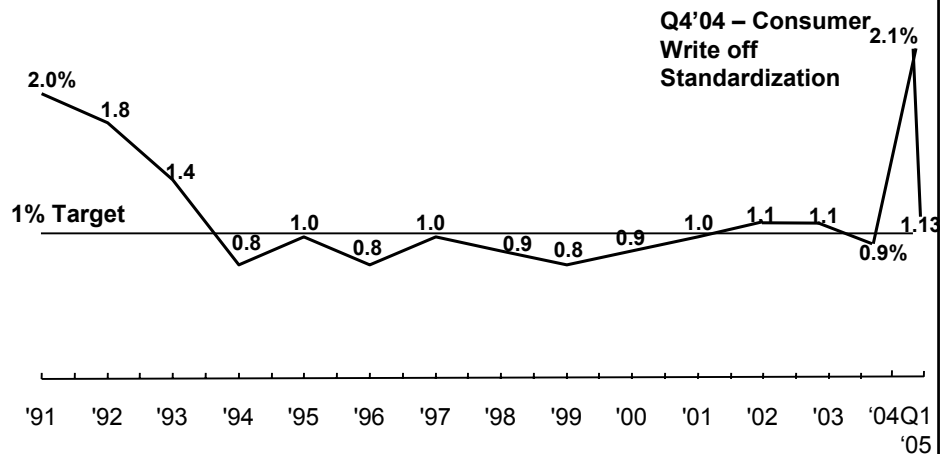
Risk management – the *next* generation

✓ Capital allocation data/analytics lead to stronger risk management

- **Transparency** to measure **key risk drivers**
- **“Stand-alone” capital** – business, product, borrower
 - Improved **pricing differentiation**, ROE enhancement
- Assessment of **diversification benefits** at each level.. **“Providers & Users”**
- More dynamic **stress-test** capabilities – **scenario testing**
- More intelligent, **data-based “limits”** for credit, collaterals, geographies
- Global consumer “proprietary” credit ratings – **commercial next**
- More real time assessments of portfolio, product **performance vs. markets**
 - **Benchmarking is critical**

Loss history – total portfolio

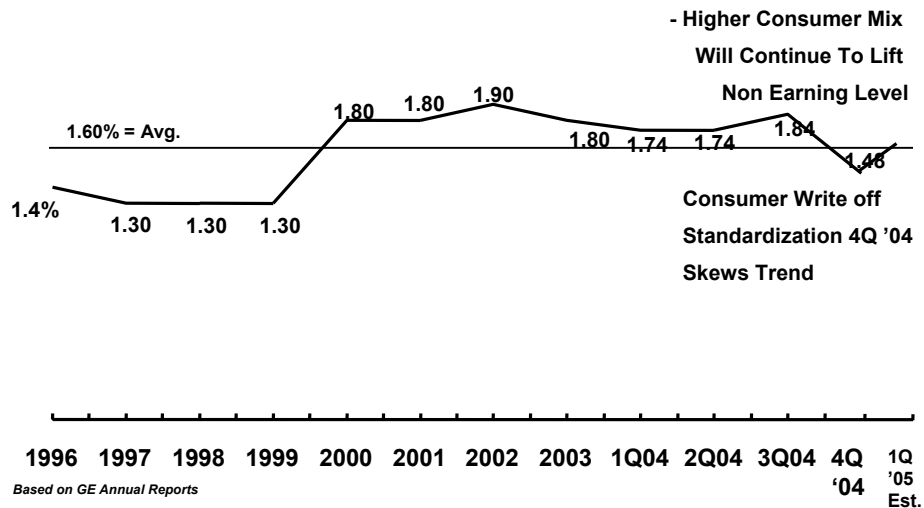
Loss Rate (% ANI)



Higher Consumer mix will reset “target” range to ~1.10-1.20% in 2005

Non-earnings history – total portfolio

Non-Earning Assets (% of Fin Rec)



Risk strategy - discipline through all cycles

- 1 Well-diversified portfolio... broad spread of risk
- 2 Senior and secured financings in collaterals we know
- 3 Conservative asset residuals & strong asset management
- 4 10,000 experienced risk & asset professionals globally
- 5 Data-driven analytics applied to manage and track key risk drivers