ERM: The Next Step in the Evolution of Business Management

Sim Segal, FSA, CERA, MAAA
Adjunct Professor
Columbia Business School
Decision, Risk & Operations

Shanghai Jiao Tong University EMBAs
Asia-Pacific Development Society, Columbia University
April 22, 2010

Agenda

- Drivers of ERM adoption
- ERM challenges
- Defining risk
- Defining ERM
- ERM approaches
- ERM and the financial crisis
- Appendices
- Contact information

Drivers of ERM adoption

Events

- Accounting fraud (e.g. Enron)
- September 11th
- H1N1 pandemic
- Financial crisis

Stakeholders

- Rating agency scrutiny
- SEC Feb 2010 disclosure rule

Other

- Technology
- Increased risk savvy

ERM challenges

- Confusion over what ERM is
  - Providers jumping into the market, portraying traditional risk-related products and services as ERM
    - Consultants
    - Auditors
    - Insurance brokers
    - Technology firms
- Full promise of ERM still not realized
  - Best practices not yet widely identified

Defining risk

- Uncertainty
  - Is anything 100% certain? Death and taxes?
- Includes upside volatility
  - A bit unusual, but important for our purposes (all volatility impacts a company's value, e.g., discount rate of future free cash flows)
- Deviation from expected
  - Not just "loss" but loss above and beyond expected loss in Strategic Plan

DEFINING ERM

Basic definition of ERM

"The process by which companies identify, measure, manage and disclose all key risks to increase value to stakeholders"

ERM 10 key criteria

1) **Enterprise-wide** – all areas in scope
2) **All risk categories** – financial, operational & strategic
3) **Key risks only** – not hundreds of risks
4) **Integrated** – captures interactivity of 2+ risks
5) **Aggregated** – enterprise-level risk exposure/appetite
6) **Decision-making** – not just risk reporting
7) **Risk-return mgmt** – mitigation plus risk exploitation
8) **Risk disclosures** – integrates ERM information
9) **Value impacts** – includes enterprise value metrics
10) **Primary stakeholder** – not rating agency-driven

ERM process cycle

Benefits of ERM

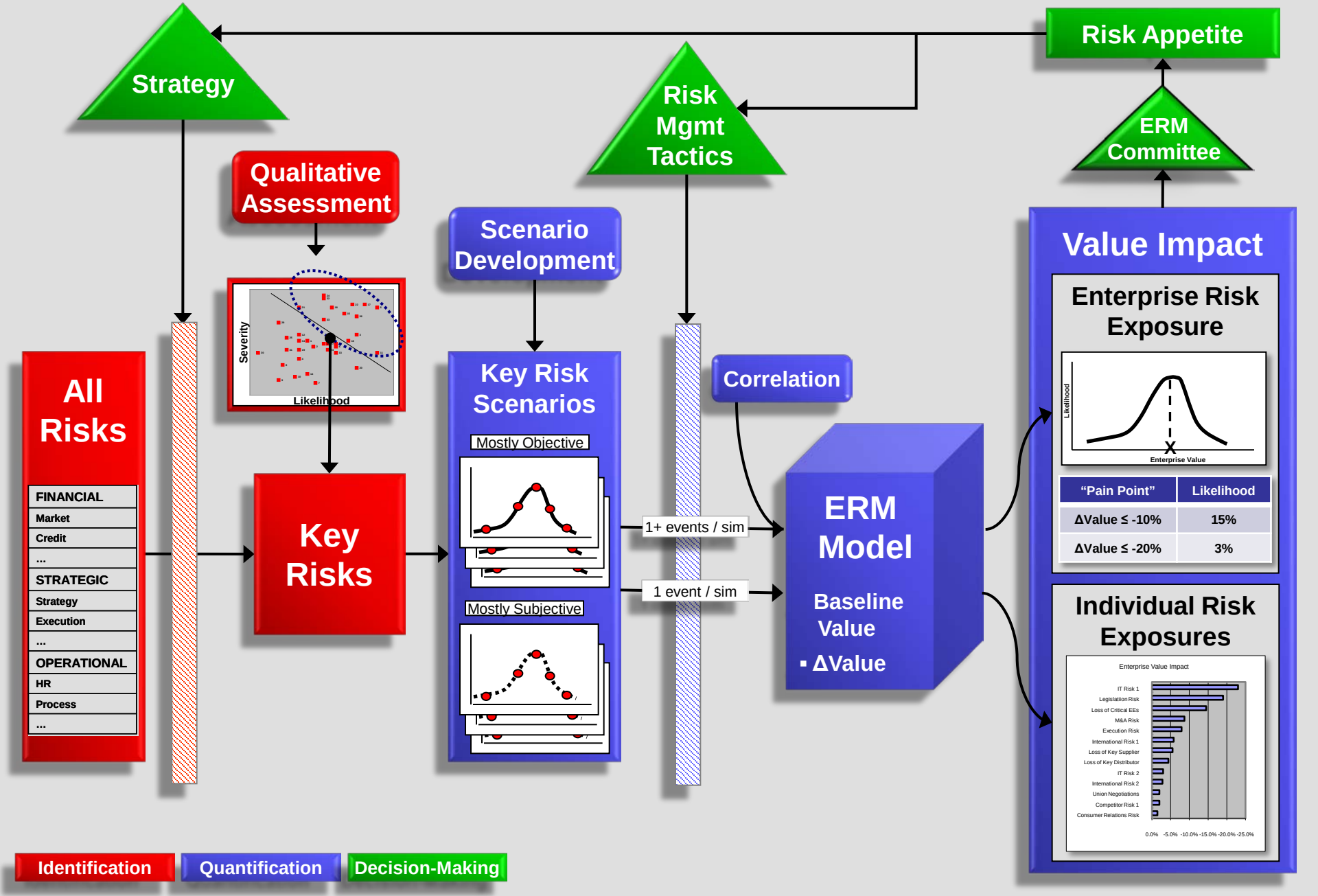
Shareholders	• Increased likelihood company achieves strategy • Enhanced risk disclosures
Board of directors	• Assurance key risks well understood / managed • Compliance with SEC Feb 2010 disclosure rule
C-Suite	• Better stakeholder communications • Higher stock price • Stronger rating
Management	• Tools to manage exposure within appetite • Better risk-return decisions
Rating agencies	• Prospective information for better credit risk assessment
Regulators	• Lower systemic risk

ERM APPROACHES

Obstacles in traditional ERM frameworks

1) Quantifying operational and strategic risks
2) Defining risk appetite
3) Integrating ERM into decision-making

Value-Based ERM Framework



1) Quantifying operational and strategic risks

Traditional Approach		Value-based Approach
Method 1: Qualitative	Cannot support decision-making	Quantifies impact to value / supports decision-making
Method 2: Industry data	Often unavailable or inappropriate	Company/situation-specific
Method 3: Risk capital	▪ Understates risk ▪ Arbitrary / often directionally incorrect	▪ Fully quantifies risk impacts ▪ Risk-based

See Appendix 1: Examples of operational and strategic risks

Developing risk scenarios: FMEA

1) Identify interviewees
- Those closest to the risk
- Usually 1 or 2 risk experts

2) Develop risk scenario
- Begin with credible worst case
- Select specific scenario and think it through

3) Assign likelihood

4) Quantify
- Determine impacts on free cash flow

Risk: Legislation Risk

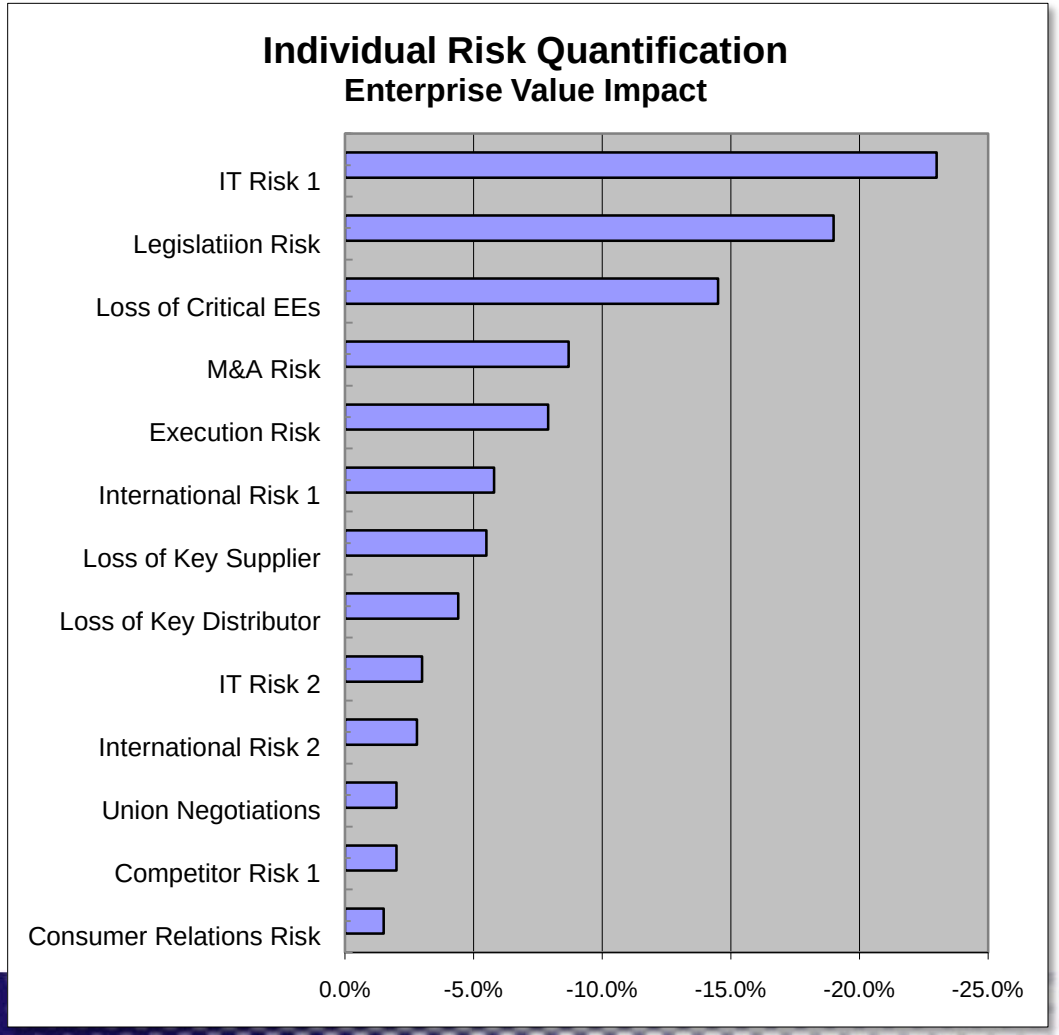
Attendees: xxx, xxx, xxx

Scenario 1: Legislation passes reducing business opportunity in certain markets

Likelihood: 5%

Financial impact:
- Revenue impact
  - 50% loss of planned revenues in market A
    - 1st year: -$2.5M
    - 2nd year: -$2.6M
    - etc.
  - 100% loss of planned revenues in market B
    - 1st year: -$1.0M
    - 2nd year: -$1.1M
    - etc.
- Expense impact
  - Reduction in workforce
    - -10% of salary and related benefits
    - +$100K severance costs

Modified case study: Quantifying individual risk exposures on enterprise value basis



Modified case study: Quantifying individual risk exposures on multiple bases

	Risk	Δ Enterprise Value	Δ Revenue Growth	Δ EPS Growth
1	IT Risk 1	-23.0%	-5.3%	-7.4%
2	Legislation Risk	-19.0%	-17.0%	5.9%
3	Loss of Critical EEs	-14.5%	-8.9%	-9.5%
4	M&A Risk	-8.7%	0.0%	-3.7%
5	Execution Risk	-7.9%	-1.1%	-4.1%
6	International Risk 1	-5.8%	-1.8%	-4.0%
7	Loss of Key Supplier	-5.5%	-0.9%	-3.3%
8	Loss of Key Distributor	-4.4%	-2.7%	-2.2%
9	IT Risk 2	-3.0%	0.0%	-1.4%
10	International Risk 2	-2.8%	-2.0%	-1.7%
11	Union Negotiations	-2.0%	-1.3%	-1.0%
12	Competitor Risk 1	-2.0%	-1.8%	-0.8%
13	Consumer Relations Risk	-1.5%	-1.2%	-0.5%

Case studies: Quantifying impact to value supports decision-making

A) Technology – External attack

B) Human resources – Critical employees

C) Fraud – Money Laundering

D) Supplier – Disruption

E) Technology – Data Privacy

F) Strategy – Strategic Planning Process

Case study A
Technology – External attack

Sector	Financial services
Event	External attack through unprotected wireless device leading to numerous impacts on systems, data and customers
Quantification	▪ Ranked as #3 risk by value impact ▪ Primary driver found to be customer privacy data violation
Management action(s)	▪ Make two immediate decisions: 1) Identified and secured PCs with customer data 2) Purged ex-customer data, cutting exposure in half
Lessons	▪ Value metric leads to decision-making ▪ Attribution focuses mitigation opportunities

Case study B
Human Resources – Critical employees

Sector	Insurance
Event	Plane crash results in death of some top salespeople, sales managers and executives
Quantification	Attribution identified sales managers as primary driver
Management actions(s)	Decision to strengthen adherence to company policy limiting concentration of key employees on flights, particularly for sales managers
Lessons	▪ Value metric superior to traditional capital metric, which does not rank this risk properly ▪ Attribution focuses mitigation opportunities

Case study C
Fraud – Money Laundering

Sector	Insurance
Situation	Decision needed on whether to resume AML spending
Event	Money laundering violation with fines and criminal prosecutions
Quantification	Destroys approximately half the company's value
Management actions(s)	Immediate decision to continue AML spending
Lessons	▪ Quantification exercise adds value, despite approximate nature of inputs ▪ Value metric leads to decision-making

Case study D
Supplier – Disruption

Sector	Chemical manufacturer
Event	Sole source supplier facility destroyed by fire
Quantification	▪Ranked as #1 risk by value impact ▪100% destruction of minor product line ▪Market share loss in major product line, some permanent
Management actions(s)	Immediate decision to qualify backup supplier
Lessons	▪Value metric fully quantifies impact, including future years ▪FMEA process translates and shares experts' knowledge

Case study E
Technology – Data Privacy

Sector	Telecommunications
Situation	Rapid decision needed on response to customer request to guarantee data privacy
Event	Multiple scenarios under each of three decision options
Quantification	Produced within required short time frame
Management actions(s)	ERM information helped management arrive at their decision
Lessons	▪ Value-based ERM model can be modified and run rapidly, making it practical to include in decision-making process ▪ Value metric is the language of business decision-makers

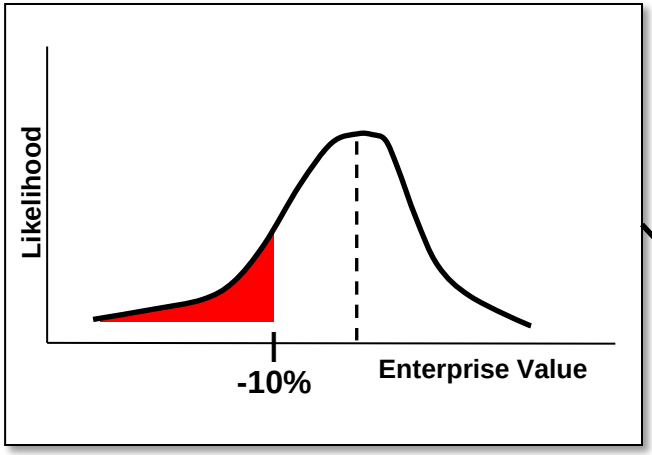
Case study F
Strategy – Strategic Planning Process

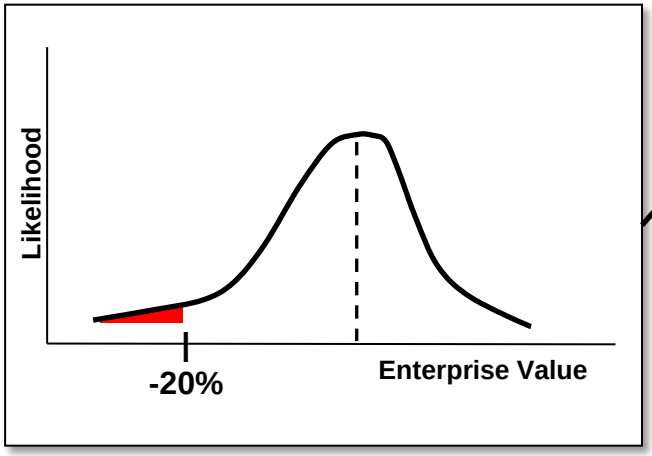
Sector	Technology
Event	Strategic plan process is unrealistic, and 4 elements of the plan are not achieved
Quantification	▪20% drop in enterprise value from baseline valuation ▪Attribution identified which of the 4 elements most impactful
Management actions(s)	▪Realized source of bias, vis-à-vis stock options ▪Focused attention on achieving most impactful elements
Lessons	▪Value metric is relatable to existing business metrics ▪Attribution focuses mitigation opportunities

2) Defining risk appetite

	Traditional Approach	Value-Based Approach
Metrics	Multiple, competing metrics	Single, unifying metrics
Trade-off decisions between exposures?	X	✓
Aggregated enterprise risk exposure?	X	✓
Ability to set risk limits by cascading downward?	X	✓

Enterprise risk exposure “pain points” are used to define risk appetite





“Pain Point”	What is it now? Likelihood	What do we want it to be? Likelihood
ΔValue ≤ -10%	15%	?
ΔValue ≤ -20%	3%	?

Current exposure (calculated)

Target exposure (defined by ERM Committee)

RISK APPETITE

Modified case study: Other key metrics supplement enterprise value metrics

"Pain Point"	Likelihood
Decrease in enterprise value of more than 10%	15%
Ratings downgrade – one level	7%
Falling short of Planned revenue growth by more than 200 basis points	11%
Falling short of Planned earnings by more than 2¢ per share	10%

3) Integrating ERM into decision-making

	Traditional Approach	Value-Based Approach
Do metrics support decision-making?	NO ▪ Not for operational or strategic risks ▪ Only risk, not return	YES ▪ Metrics for all risks ▪ ΔValue = rigorous business case
Do ERM models work?	NO ▪ Complex ❑ *Increases* risk ❑ Too many inputs ❑ Slow run time ▪ Violates "significant digits" rule	YES ▪ Practical balance ❑ Robust enough for decisions ❑ Nimble enough for speed and changes ▪ Apples-to-apples math
Is there buy-in from business units?	NO ▪ Corporate-driven ▪ Compliance-oriented	YES ▪ Business unit input ▪ Corporate for consistency ▪ Supports business unit goals/initiatives

Case study – insurance company

- Enhanced business segment buy-in / risk culture
  - Baseline scenario exercise
  - Risk scenario development exercises
- Board sees ERM as “management decision-making tool”
- S&P upgraded company’s rating
  - Ability to quantify diversification benefits
  - Robust ERM program generally
- ERM goals into long-term bonus pool formula
- ERM drove decision to increase strategic planning frequency from annual to quarterly

ERM is more than risk management

Rather than the next step in *risk* management,
ERM is the next step in *business* management

ERM AND THE FINANCIAL CRISIS

ERM 10 key criteria

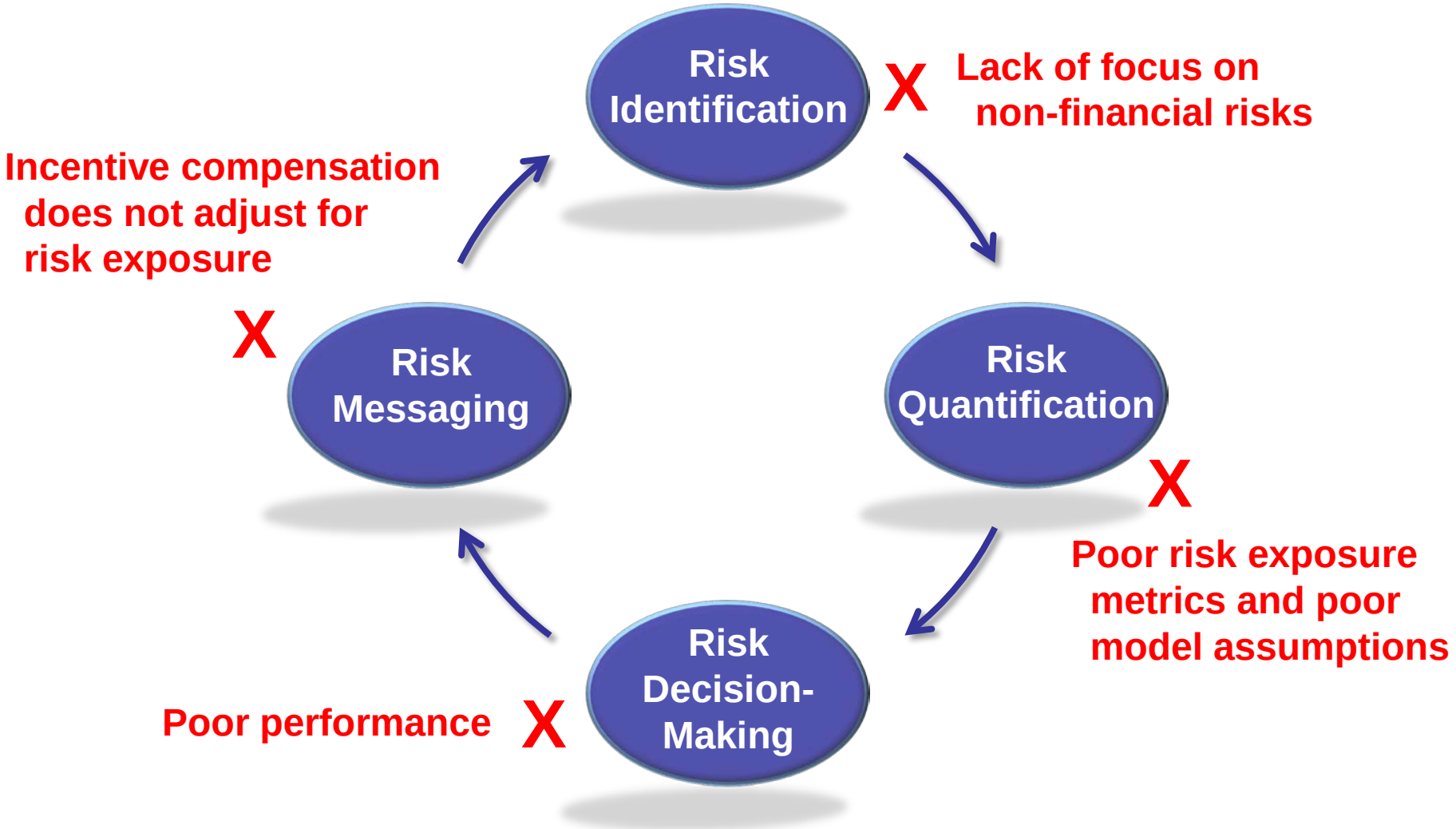
1) **Enterprise-wide** – all areas in scope
2) **All risk categories** – financial, operational & strategic
3) **Key risks only** – not hundreds of risks
4) **Integrated** – captures interactivity of 2+ risks
5) **Aggregated** – enterprise-level risk exposure/appetite
6) **Decision-making** – not just risk reporting
7) **Risk-return mgmt** – mitigation plus risk exploitation
8) **Risk disclosures** – integrates ERM information
9) **Value impacts** – includes enterprise value metrics
10) **Primary stakeholder** – not rating agency-driven

ERM 10 key criteria – banking scorecard

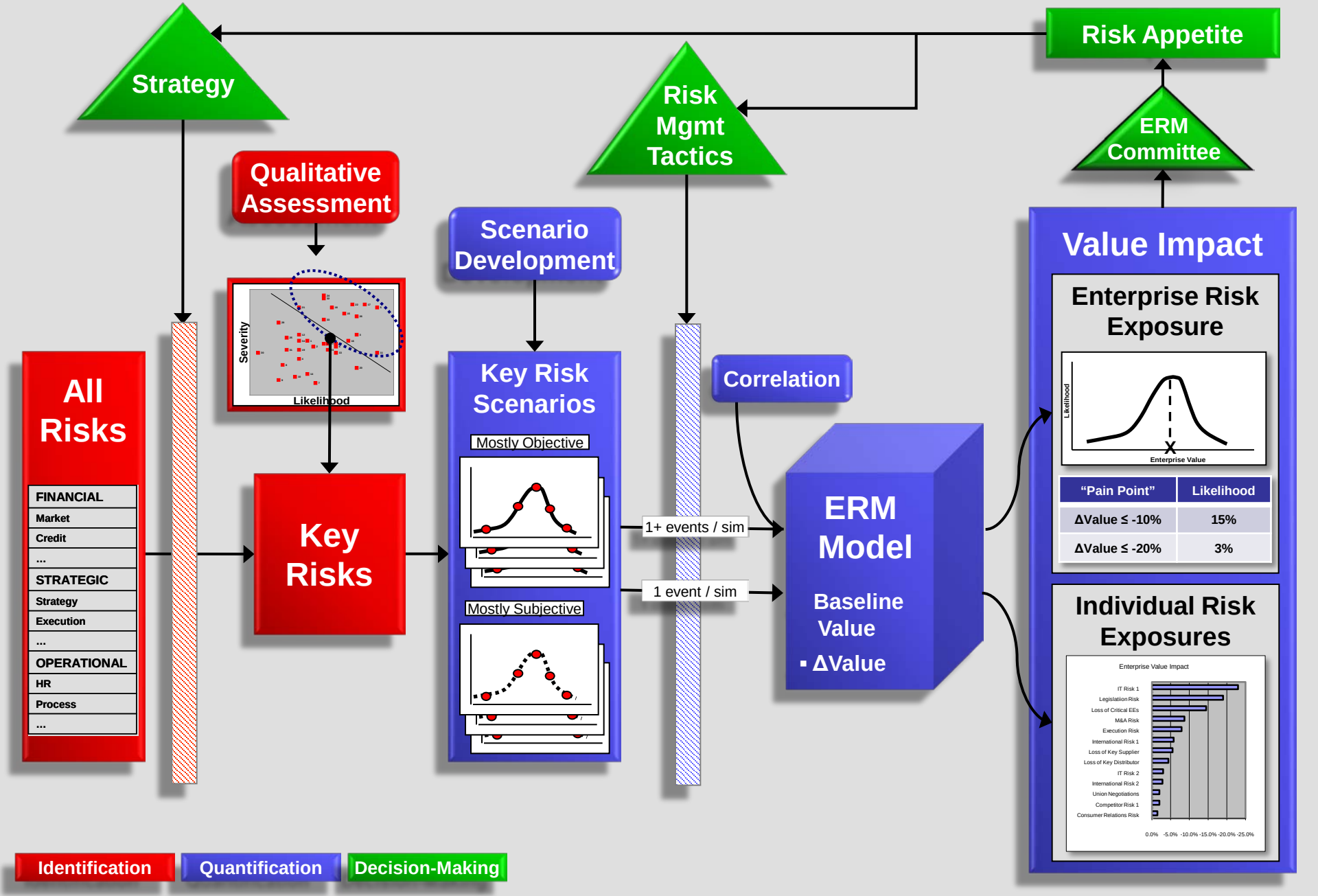
- ✗ 1) Enterprise-wide – "golden boys" out of scope
- ✗ 2) All risk categories – overly-focused on financial
- ✓ 3) Key risks only
- ✗ 4) Integrated – "silo" management / measurement
- ✗ 5) Aggregated – no aggregate enterprise-level metrics
- ✓ 6) Decision-making
- ✗ 7) Risk-return mgmt – metrics only support mitigation
- ✗ 8) Risk disclosures – inappropriate even post-event
- ✗ 9) Value impacts – only capital metrics
- ✗ 10) Primary stakeholder – focus on ratings / regulators

ERM process cycle

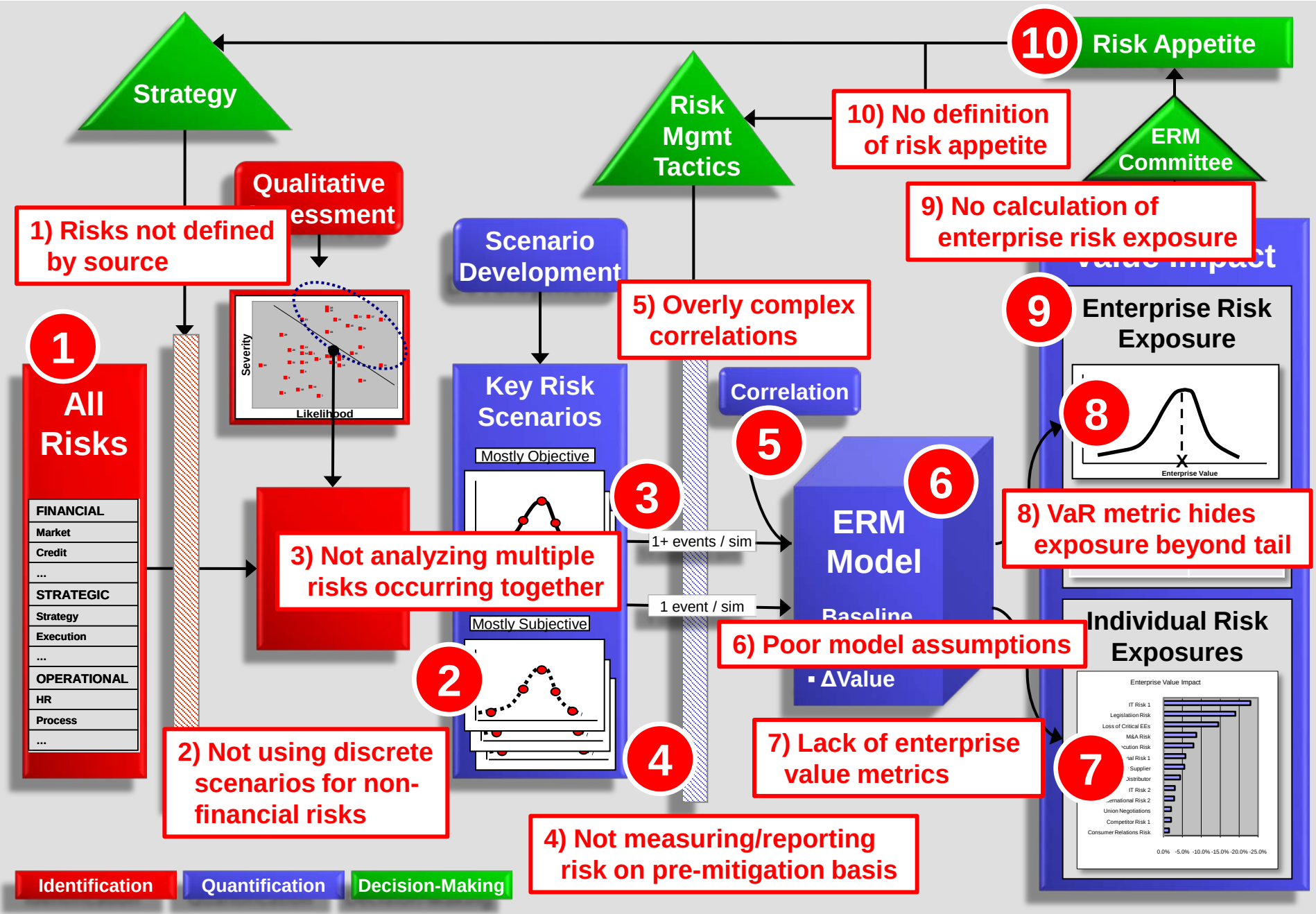
ERM process cycle – banking scorecard



Value-Based ERM Framework



Value-Based ERM Framework – banking scorecard



Some actions to prevent another crisis

- Require companies to implement ERM, in a robust manner
- Require incentive compensation plans to reflect risk exposure (SEC rule)
- Require enhanced risk disclosures, including free cash flow projection
  - Baseline scenario (strategic plan) / key risk scenarios (defined by management)/ standard risk scenarios (defined by regulators)
  - Investors apply their own discount rates, and compare scenarios cross-sector
- Replace capital requirements with pooled risk charges
  - Capital not there when needed anyway (must replace or be downgraded)
  - Government guarantee protects rating during rehab period to rebuild capital
- Employ ERM principles at the country level (e.g., concentration risks)
  - Firms “too large to fail” (e.g., banks, auto companies) / supplier concentration (e.g., energy) / oligopolies (e.g., rating agencies, monoline insurers)
- Employ ERM principles at the retail level (e.g., financial planning)
  - Holistic view of risks and solutions for individuals/families

APPENDICES

Appendix 1: Examples of operational and strategic risks

Operational

- HR risk (e.g., critical employees)
- Technology (e.g., data security)
- Disasters (e.g., pandemic)
- Etc.

Strategic

- Strategy (e.g., wrong product set chosen)
- Execution (e.g., poor integration of acquisitions)
- Competitor (e.g., unexpected innovation by competitor)
- Supplier (e.g., sudden change in supplier capacity)
- External relations (e.g., negative publicity)
- Etc.

Contact information

Sim Segal, FSA, CERA, MAAA
Adjunct Professor
Columbia Business School
Decision, Risk & Operations

(917) 699-3373 Mobile

ss3866@columbia.edu