



Session 15

Quantifying Operational and Strategic Risks: An Advanced Yet Practical Approach

Sim Segal, FSA, CERA, MAAA

President

SimErgy Consulting LLC

CIA Annual Meeting

June 30, 2010

Defining operational and strategic risks

Operational

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

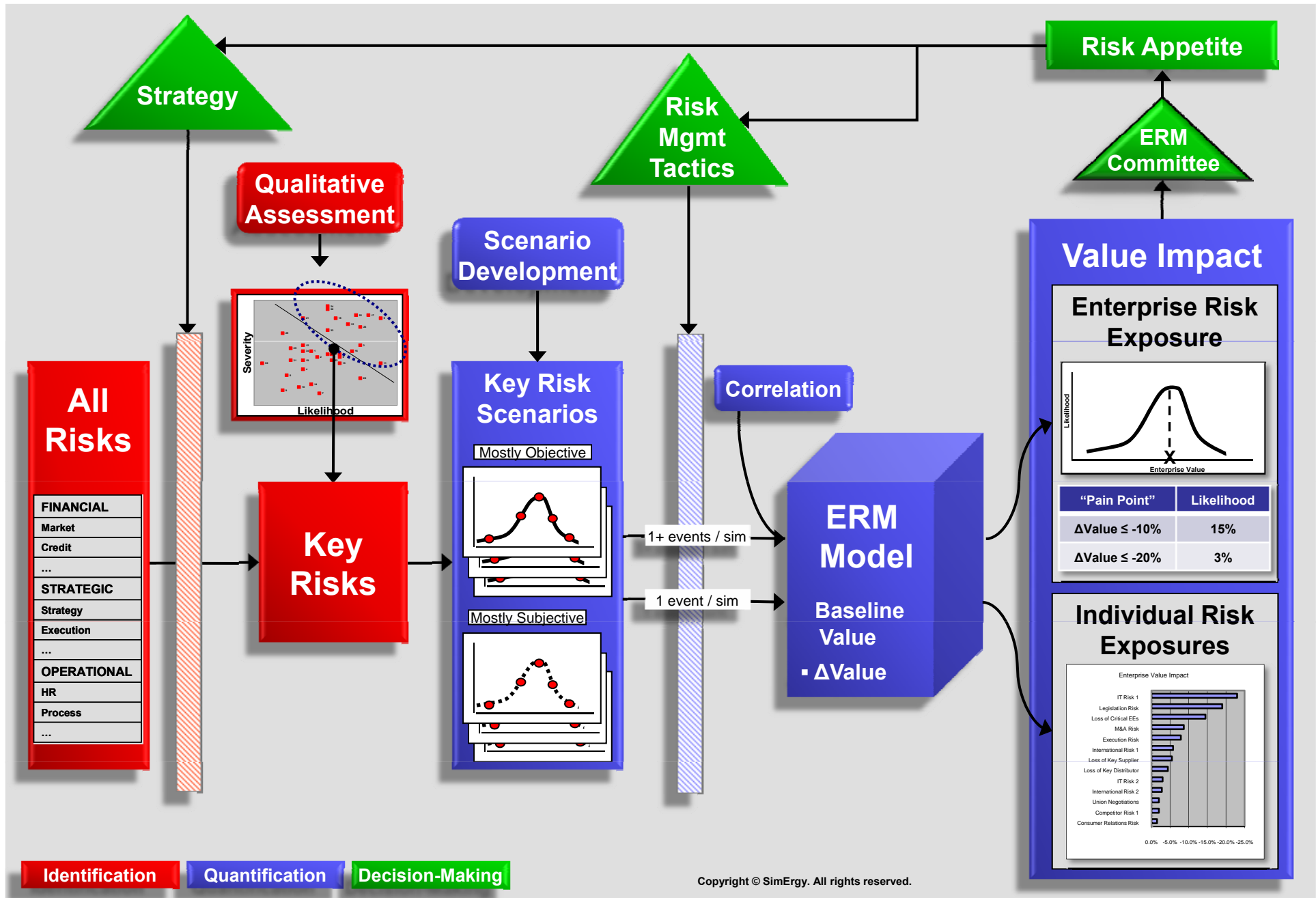
Strategic

- 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.

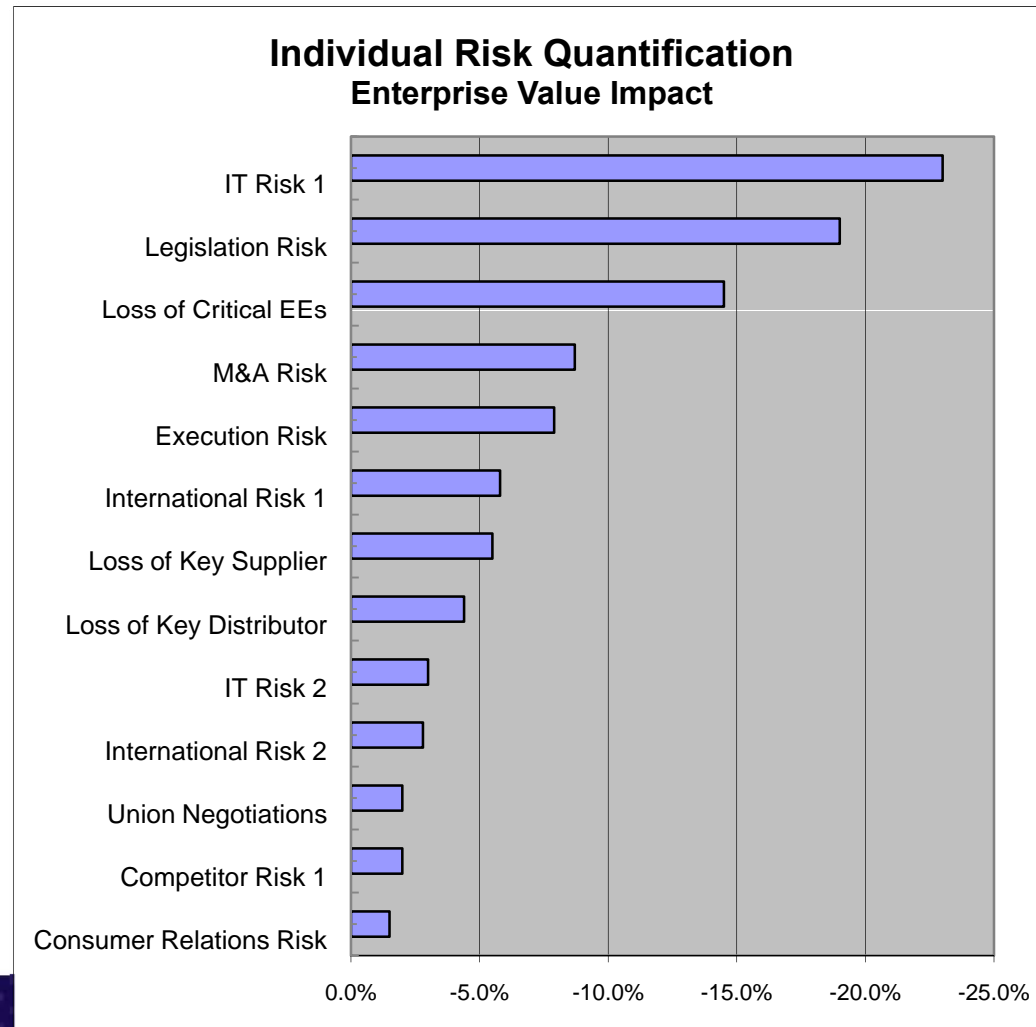
Traditional approaches struggle to quantify operational and strategic risks

Traditional Approach	
Method 1: Qualitative	Cannot support decision-making
Method 2: Industry data	Often unavailable or inappropriate
Method 3: Risk capital	<ul style="list-style-type: none">▪ Understates risk▪ Arbitrary / often directionally incorrect

Value-Based ERM Framework



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



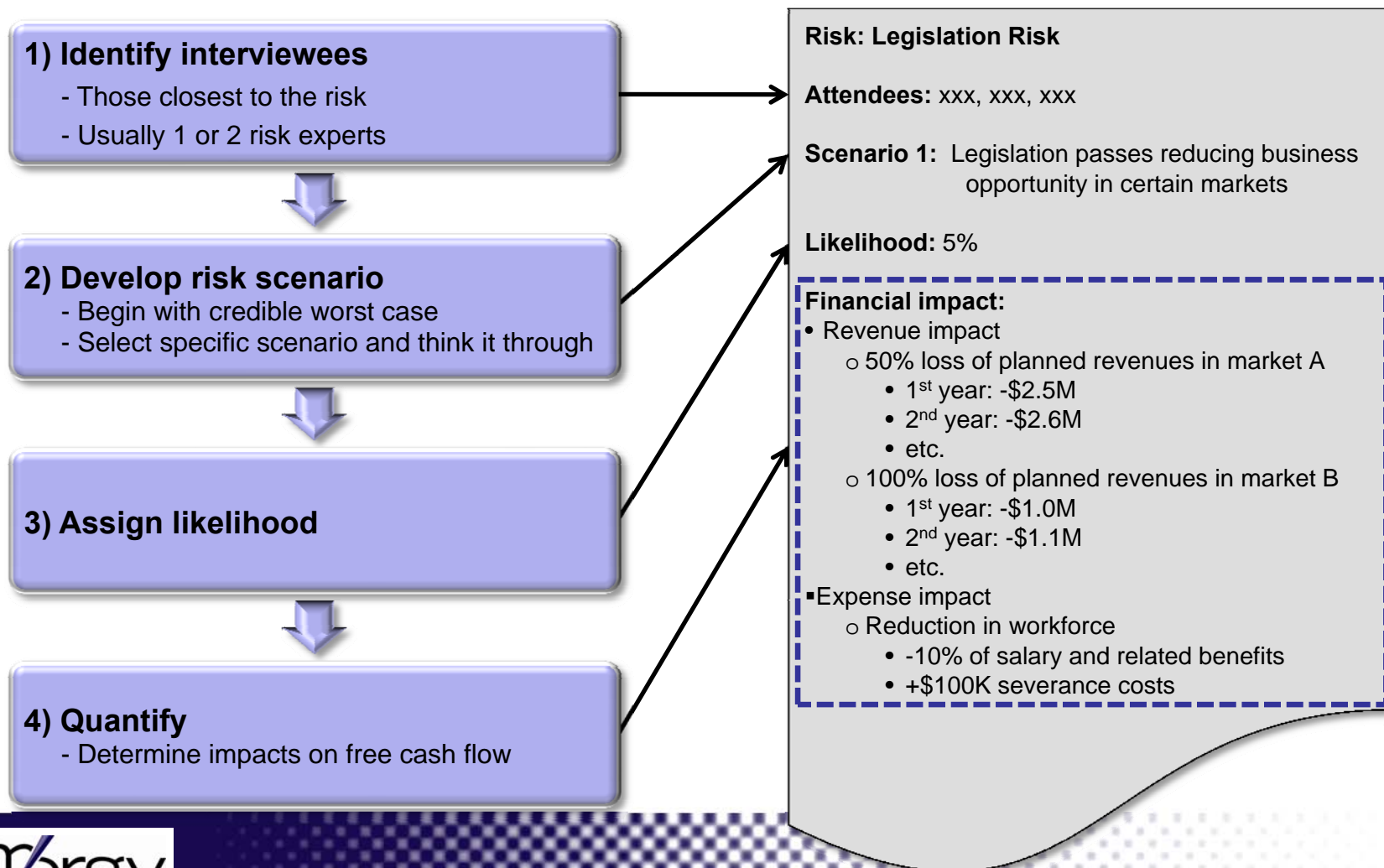
Modified case study: Quantifying individual risk exposures on multiple bases

	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%

Value-based approach properly quantifies operational and strategic risks

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

Developing company/situation-specific risk scenarios: FMEA technique



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	<ul style="list-style-type: none"> ▪ Ranked as #3 risk by value impact ▪ Primary driver found to be customer privacy data violation
Management action(s)	<ul style="list-style-type: none"> ▪ Make two immediate decisions: <ol style="list-style-type: none"> 1) Identified and secured PCs with customer data 2) Purged ex-customer data, cutting exposure in half
Lessons	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none">▪ 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	<ul style="list-style-type: none">▪ 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	<ul style="list-style-type: none">▪ 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	<ul style="list-style-type: none">▪ 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	<ul style="list-style-type: none">▪ 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	<ul style="list-style-type: none"> ▪ 20% drop in enterprise value from baseline valuation ▪ Attribution identified which of the 4 elements most impactful
Management actions(s)	<ul style="list-style-type: none"> ▪ Realized source of bias, vis-à-vis stock options ▪ Focused attention on achieving most impactful elements
Lessons	<ul style="list-style-type: none"> ▪ Value metric is relatable to existing business metrics ▪ Attribution focuses mitigation opportunities

Contact information

Sim Segal, FSA, CERA, MAAA
President

SimErgy Consulting LLC
Chrysler Building
405 Lexington Ave., 26th Flr
New York, NY 10174

(917) 699-3373 Mobile
(646) 862-6134 Office
(347) 342-0346 Fax

sim@simergy.com



www.simergy.com