

Session 5A: ERM Metrics That Answer “How Likely Are We to Achieve Plan?”

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ERM Metrics That Answer "How Likely Are We to Achieve Plan?"

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Traditional ERM metrics

- Capital ratio (RBC/MCCSR)
- Required capital
- Earnings
- Other?

Questions traditional ERM answers

- How much an individual risk scenario decreases the key metrics:
 - Capital ratio (RBC/MCCSR)
 - Earnings
 - Other
- How much required capital should be set aside...
 - ...to provide an X% confidence...
 - ...that a key metric (e.g., capital ratio, earnings, etc.)...
 - ...will not decrease more than Y%...
 - ...over time horizon Z...
 - ...from exposure to financial and insurance risk.

Traditional ERM is of limited interest and usage

- Quantifies only financial and insurance risks
 - Cannot inform decisions on strategy and operations
- Includes only downside risk scenarios defined by losses
 - Cannot inform risk-reward business decisions
 - Fails to capture shortfall from Plan goals that does not yield loss
- Risk scenarios are not fully dynamic
 - External data sets or static formulae (changes IFF external data changes)
 - Single extreme scenario (changes IFF extreme scenario changes)

Value-based ERM expands interest and usage

- Quantifies strategic, operational, financial, insurance risk
 - Can inform all decisions, including on strategy and operations
- Includes upside and downside risk scenarios defined by deviation from baseline strategic plan goals
 - Can inform risk-reward business decisions
 - Captures shortfall from (or increase above) Plan goals
- Risk scenarios are fully dynamic
 - Internal SMEs (changes whenever risk exposure changes)
 - Full range of deterministic scenarios (changes when any part of risk profile changes)

Value-based ERM metrics

- **Value**
 - **Corporations: company value (we will use this for today's discussion)**
 - **Non-corporate entities: key objectives**
- Capital ratio (RBC/MCCSR)
- Required capital
- Earnings
- Other

Value-based ERM better answers basic questions...

- How much an individual risk scenario decreases **or increases**:
 - **Company value**
 - Capital ratio (RBC/MCCSR)
 - Earnings
 - Other
- How much required capital should be set aside
 - ...to provide a X% confidence...
 - ...that key metric (balance sheet capital, RBC ratio, earnings)...
 - ...will not decrease more than Y%...
 - ...over time horizon Z...
 - ...from exposure to **all sources of risk**

...and answers new, more important questions

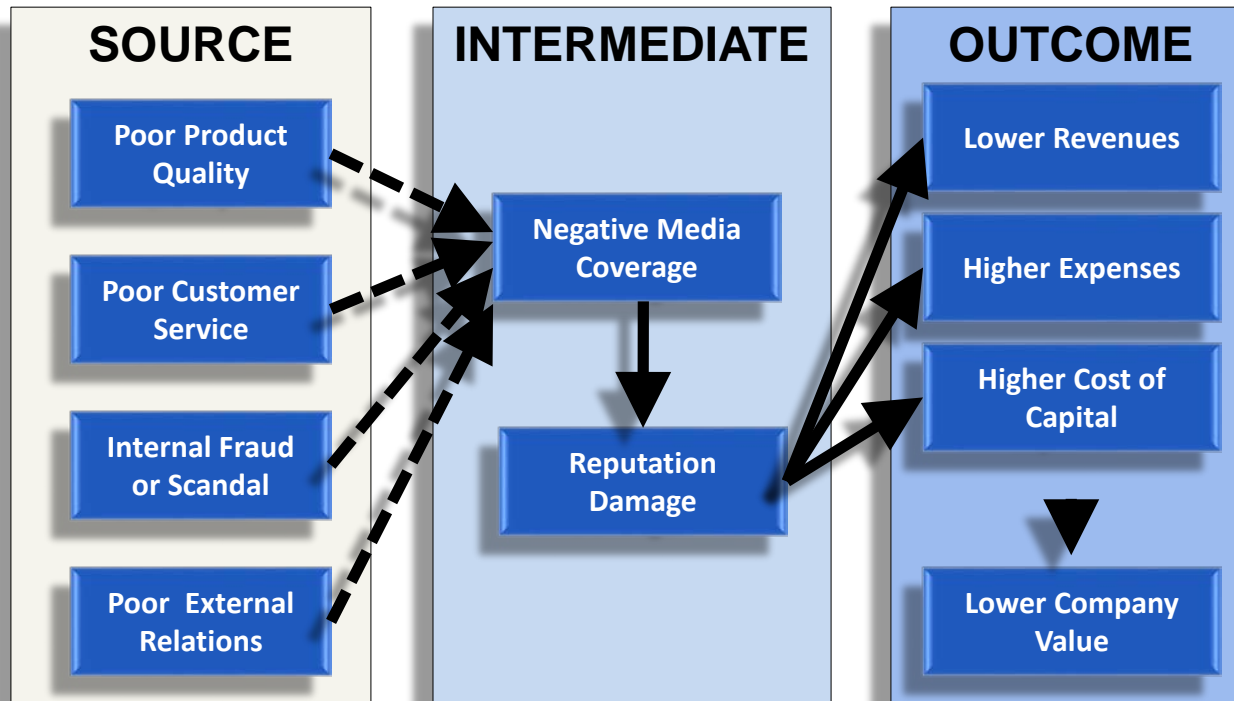
- How likely are we to achieve or exceed Plan goals? (everyone cares about)
- How likely are we to fall short of a Plan goal by X% or more?
- Based on our Plan and overall risk profile, what is our company value?
- What portion of company value is contributed by each business segment?
- What is the risk-reward profile of each business segment?
- During strategic planning:
 - Is the new Plan easier or more difficult to achieve than the prior Plan? By how much?
 - Which business segments are contributing to this change?
 - What risks are contributing to this change?
 - How can/should we change the level of risk in a way that adds value?
 - Before we commit to the Plan, how certain are we of its reasonability/achievability?

What is value-based ERM and how does it work?

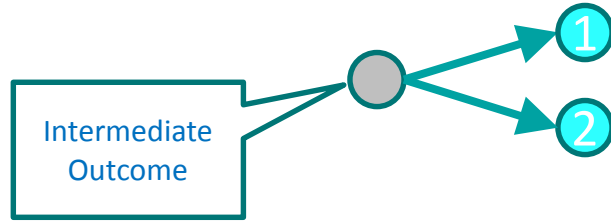
- 1) Define risk as deviation from Plan goals
- 2) Define risk by source
- 3) Include all sources of risk (strategic, operational, financial, insurance)
- 4) Conduct QRA interviews → identify key risks
- 5) Build baseline ERM model → dynamic projection of Plan CFs at BU level
- 6) Conduct FMEA interviews → full range (upside, downside) of risk scenarios
- 7) Quantify individual risk scenarios
- 8) Quantify enterprise risk exposure
- 9) Define risk appetite
- 10) Integrate ERM into decision making (strategic planning, other routine business decisions, mitigation decisions, etc.)

Define risk by source

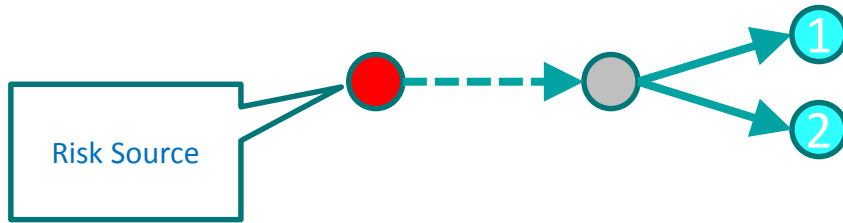
Failing to define risks by source muddles risk assessment efforts



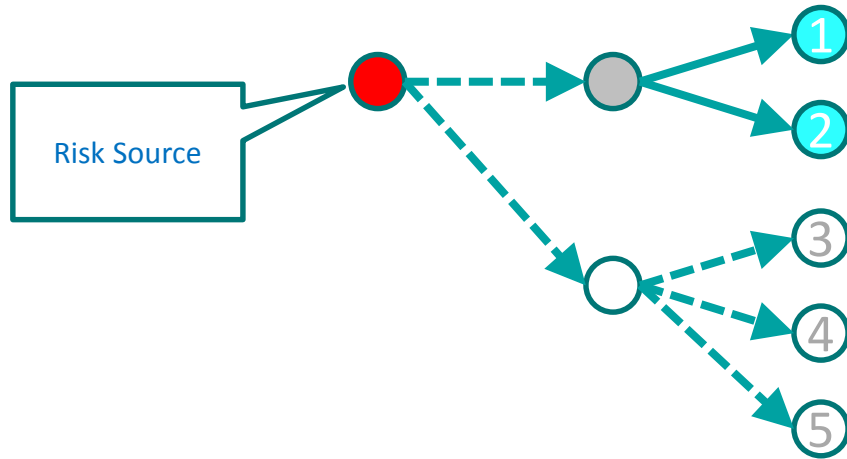
Risk source key to capturing all downstream impacts



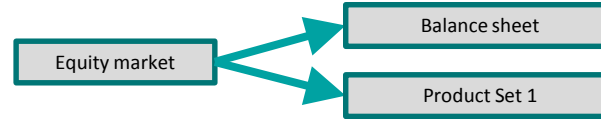
Risk source key to capturing all downstream impacts



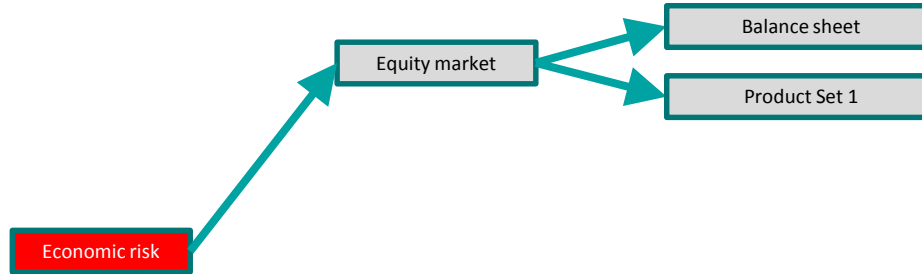
Risk source key to capturing all downstream impacts



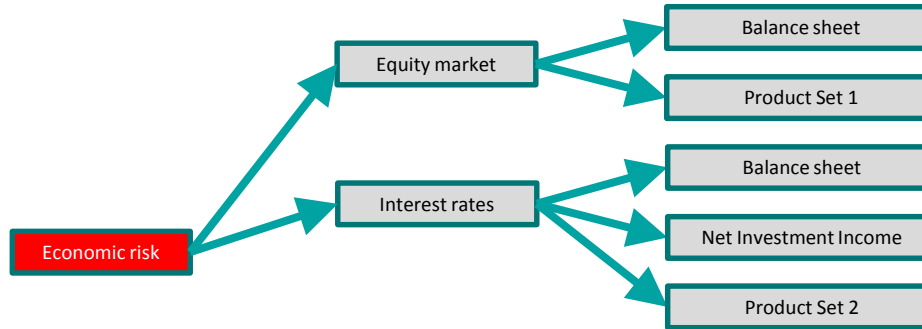
Equity market risk often mis-identified as risk source



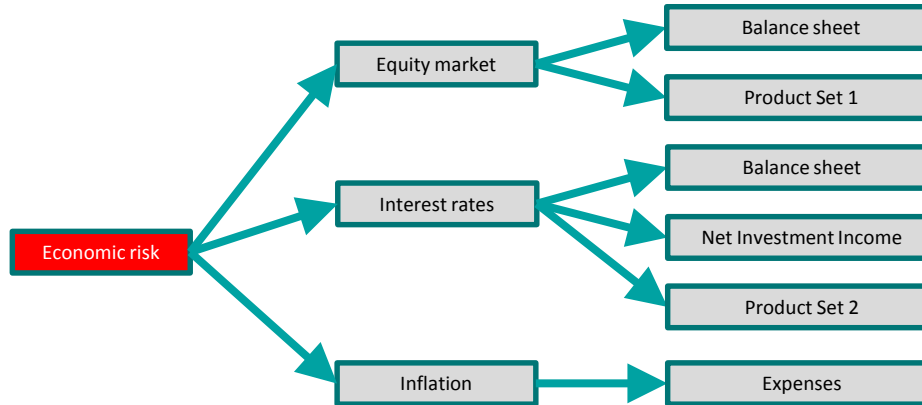
...when economic risk is the true risk source...



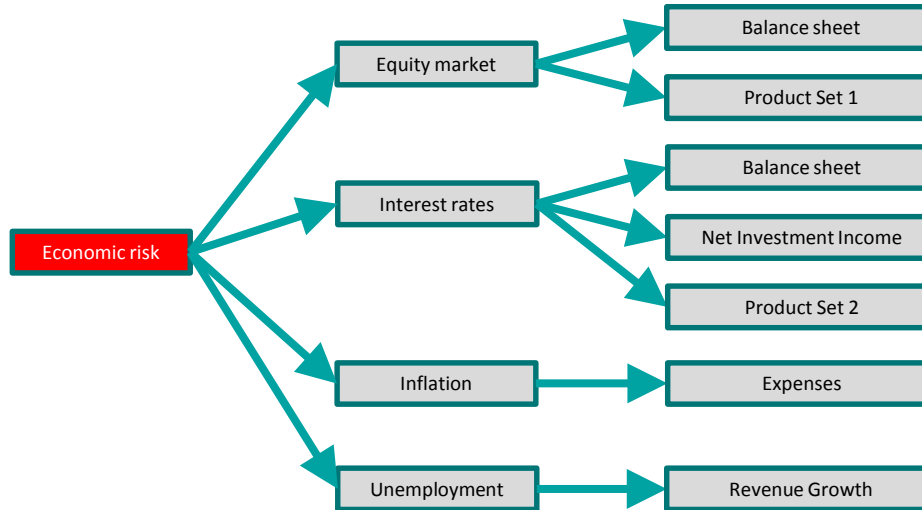
...with other downstream impacts



...with other downstream impacts



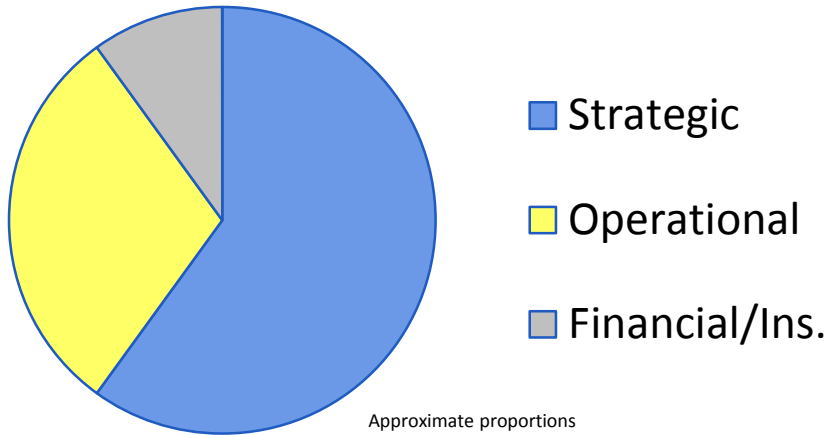
...with other downstream impacts



Include all sources of risk

Importance of strategic/operational risks

Risks by Source

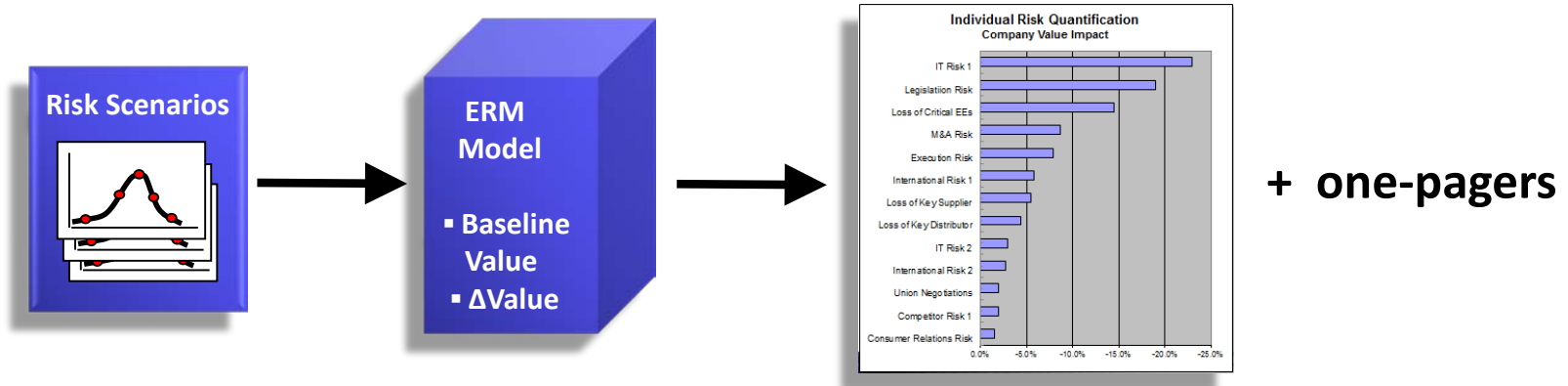


Research studies

- 1) 1-Year Globe & Mail study: Strategic: 65% / Operational 22% / Financial 13% (Source: "Front-Page Risks", Joint Risk Management Section)
- 2) 1-year WSJ study: Strategic: 64% / Operational 35% / Financial 1% (Source: "IMPACT Study," Watson Wyatt)
- 3) 18-year 50% market cap decline study: Strategic: 65% / Operational 20% / Financial 15% (<15% / most "financial" were miscategorized operational) (Source: CFO Executive Board, Audit Director Roundtable research)
- 4) 6-year largest 1-month value decline study: Strategic: 61% / Operational 33% / Financial 6% (Source: Mercer Management Consulting)
- 5) Director survey of biggest threats: Strategic outnumbered financial by margin of >3-to-1 overall, and >2-to-1 in financial services sector (Source: The Conference Board, *The Role of U.S. Corporate Boards in ERM*)

Quantify individual risk scenarios

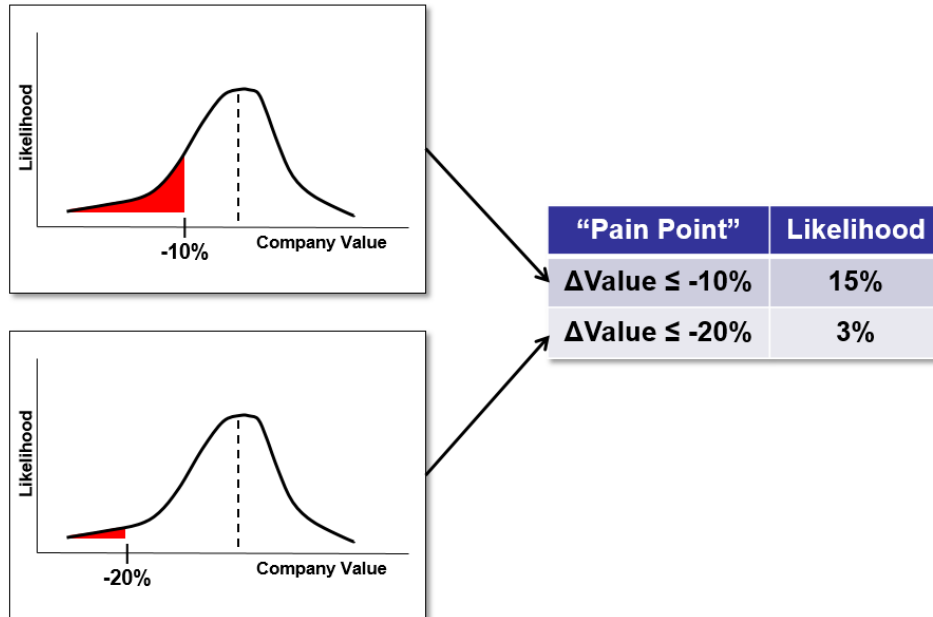
Quantify individual risk exposures for all key risks (building blocks for ERE)



**Quantify enterprise risk exposure
and
Define risk appetite**

Combinatorics of IRSQ → ERE distribution

- Combinatorics of individual scenarios → full distribution for each key metric
- Expressed as likelihood of crossing management-selected “pain points”



ERE is quantified → facilitates defining risk appetite

Modified
Case Study

PAIN POINTS		LIKELIHOOD	RISK APPETITE
ΔValue			
Increase of at least	0%	32.5%	
Decrease of at least	-10%	36.3%	
Decrease of at least	-20%	13.8%	20%
Decrease of at least	-30%	2.0%	
ΔCapital (5-Yr Calls on Parent, \$M)			
Not more than	0	55.2%	
Equal to or greater than	50	24.5%	
Equal to or greater than	100	13.3%	20%
Equal to or greater than	150	2.9%	

Likelihood of achieving/exceeding
Plan goals for each key metric

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