8. Enterprise Risk Management and Future Trends

FRM Part 1: Foundations of Risk Management

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1 ERM: What is it and why to firms need it?

Enterprise risk management (ERM) applies the perspective and resources at the top of the enterprise to manage the entire portfolio of risks and account for them in strategic decisions.

ERM improves on traditional *silo-based risk management* by giving senior management an integrated enterprise-level view of risk.

Silo-based risk management means that the risks of an organization are managed at the business unit level.

According to GARP, the top ten benefits of ERM are:

1. Helps firm define and adhere to enterprise risk appetites.
2. Focus oversight on most threatening risks.
3. Identifies enterprise-scale risks generated at business line level.
4. Manages risk concentration across the enterprise.
5. Manages emerging enterprise risks (e.g. cyber risk, AML risk, reputation risk, etc.)
6. Supports regulatory compliance and stakeholder reassurance.
7. Helps firms to understand risk-type correlations and cross-over risks.
8. Optimizes risk transfer expenses in line with risk scale and total cost.
9. Incorporates stress scenario capital costs into pricing and business decisions.
10. Incorporates risk into business model selection and strategic decisions.

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2 ERM: From Vision to Action

It helps to think of ERM implementation in practice across the following different dimensions.

1. *Targets* - this dimension includes the risk appetite and how it relates to the firm's strategic goals.
    - the goal is to set the right targets and make sure they are not in conflict with other strategic goals
2. *Structure* - this dimension is related to the organizational structure of an ERM program (e.g. the board, risk committees, CRO, corporate governance, etc.)
    - the goal of ERM is to make sure each structure sensitive to the enterprise-scale risks faced by the firm
3. *Identification & Metrics* - the goal is to make sure the firm has the right family of metrics to capture enterprise risk
4. *ERM Strategies* - goal is to articulate specific strategies for managing enterprise-scale risks (e.g. avoid, retain, mitigate, transfer, risk transfer instruments, etc.)
5. *Culture* - a strong risk culture is built from a pervasive sense of common goals, practices, and behaviors.

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3 Risk Culture

Firms need to measure the progress of their risk culture. To do so, we can use the following *key risk culture indicators*, specified by the Financial Stability Board,

1. *Tone from the top of the organization* - are the actions of management in conflict with the stated risk goals/appetite of the firm?
2. *Effective communication and challenge* - is there room for open debate about the risks facing the firm?
3. *Incentives* - do compensation plans support the ERM strategy or do they encourage risk-taking?
4. *Accountability* - are expectations clear?

Some other factors that can be used to build a strong risk culture are:

- knowledge of the firm's risk appetite by employees
- risk literacy by everyone
- flow of risk information
- risk/reward decisions of managers
- whistle blowing and escalation
- priorities of the board
- actions against offenders
- identification of risk culture concerns and incidents

The following are common identified factors that prevent firms from developing robust risk cultures:

- risk indicators that before risk levers
- risk education
- risk across the org and across time and space
- culture cycle
- curse of data

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4 Scenario Analysis and Stress Testing

Sensitivity testing - involves changing one parameters or variable in a risk model to see how sensitive the model result is to the alteration, thereby identifying key variables

Stress testing - changing one or more key variables to explore risk model results under stressful conditions

Scenario analysis - involves imagining a whole scenario, developing a coherent narrative that explains why the variables change, and assessing the effects of these changes on the firm's risk portfolio

- this type of testing is helpful particularly when there are events with no historical data

Some **advantages** of scenario analysis include:

- no need to consider risk frequency beyond plausibility
- scenarios can be transparent and intuitive
- challenges firms to imagine the worst and gauge the effects
- can allow firms to focus on key exposures, key risk types, and the ways in which risk develops over time

- allows firms to identify warning signals and build contingency plans
- doesn't depend on historical data
- can be sophisticated or as straightforward as firm's like, outside of regulator defined programs
- stress test results can influence risk appetite, risk limits, and capital adequacy

Some **disadvantages** of scenario analysis include:

- difficult to guage the probability of the events and thus doesn't lead to quantification of risk
- scenarios can become complex with too many choices
- lack of imagination may lead to scenarios underestimating the impact of an extreme loss event
- only a limited number of scenarios can be fully developed - are they the right ones?
- are they the right warning and plans, given the scenario selection challenge?
- imaginative future scenarios may be dismissed as improbable
- vary in terms of quality and sophistication
- usefulness depends on accuracy, comprehensiveness, and the forward-looking qualities of the firm's stress test program

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5 Post-crises Trends in Scenario Building

In 2009, the Supervisory Capital Assessment Program (SCAP) began regulatory stress testing.

In 2011, the Fed began conducting two annual stress tests as part of the Dodd-Frank Act:

- *Dodd-Frank Act Stress Test (DFAST)* - conducted in the middle of the year for all banks with assets over $10 billion USD
  - DFAST is more prescriptive, applies limited capital action assumptions, and is less demanding report-wise than CCAR
- *Comprehensive Capital Analysis and Reviews (CCAR)* - conducted at the end of the year for banks with assets above $50 billion USD

The Fed generates their supervisor-devised macroeconomic scenarios that each bank much adhere to during testing:

- *Baseline* - corresponds to the consensus forecasts among major bank economists
- *Adverse* - a moderate declining economy
- *Severely adverse* - scenario corresponds to a severe, broad global recession/depression and an associated decline in demand for long term fixed income investment

For the above macroeconomic scenarios, CCAR obliges the banks to project how they affect income statements and balance sheets over the next nine-quarter horizon. CCAR firms must also submit detailed capital plans.

Reverse stress test - a bank can identify worst-case outcomes on key performance indicators (KPIs) and work backward to see which scenarios gav rise to them