
Enterprise Risk Management: Theory and Practice

企业风险管理：理论和实践

Define Enterprise Risk Management (ERM)

- A business can manage its risks separately, one at a time, or all together in a cohesive framework. **Enterprise risk management (ERM)** is the process of managing all of a corporation's risks within an integrated framework.
- The benefit of ERM is that a comprehensive program for managing risk allows the business to achieve its ideal balance of risk and return.

Creating Value with ERM

➤ Macro Level

- **The macro benefit of ERM** is that *hedging corporate diversifiable risk* improves management's ability to invest in value-creating projects in a timely manner and improves the firm's ability to carry out the strategic plan.
- In perfect markets, efforts to hedge diversifiable risk provide no benefit to shareholders, who can eliminate this risk by diversifying their portfolios.
- When markets are not perfect (i.e., investors' information about project values is incomplete), the firm may not be able to raise funds on fair terms. For a firm faced with an unexpected drop in operating cash flow, this can lead to the **underinvestment problem**, where the company passes up valuable strategic investments rather than raise equity on onerous (麻烦的, 有负担的) terms. The inability to fund strategic investments can result in a permanent reduction in shareholder value even if the cash shortfall is temporary. *Hedging diversifiable risk mitigates the underinvestment problem and creates value*, even though shareholders can eliminate diversifiable risk at low cost by diversifying their portfolios.

Creating Value with ERM — “Micro Level”

In order for ERM to achieve the objective of optimizing the risk/return tradeoff, each project must be evaluated not only for the inherent risk of the project but also for the effect on the overall risk of the firm. Thus, ERM requires that managers throughout the firm be aware of the ERM program. This decentralization of evaluating the risk/return tradeoff has two components:

- Any managers evaluating new projects must consider the risks of the project in the context of how the project will affect the firm's total risk.
- Business units must be evaluated on how each unit contributes to the total risk of the firm. This gives the individual managers an incentive to monitor the effect of individual projects on overall firm risk.

There are three reasons why decentralizing the risk-return tradeoff in a company is important:

1. *Transformation of the risk management culture:* A consistent, systematic assessment of risks by all business units ensures that managers consider the impact of all important risks.
2. *Every risk is owned:* Because performance evaluations are based on risk, managers have an incentive to consider important risks in their decision making.
3. *Risk assessment by those closest to the risk:* Managers in the individual business units have the knowledge and expertise needed to assess and manage the risks of the business unit.

Development and Implementation of ERM

- The goal of risk management is to optimize (not eliminate) total risk by trading off the expected returns from taking risks with the expected costs of financial distress. Financial distress in this case is defined as circumstances where the firm is forced to forego positive NPV projects.
- In *developing an ERM*, management should follow this framework:
 - Determine the firm's acceptable level of risk
 - Based on the firm's target debt rating, estimate the capital required to support the current level of risk in the firm's operations.
 - Determine the ideal mix of capital and risk that will achieve the appropriate debt rating.
 - Decentralize the risk/capital tradeoff by giving individual managers the information and the incentive they need to make decisions appropriate to maintain the risk/capital tradeoff.
- The *implementation steps of ERM* are as follows:
 - *Step 1*: Identify the risks of the firm. Should be performed both top-down (by senior management) and bottom-up (by individual managers of business units or other functional areas).
 - *Step 2*: Develop a consistent method to evaluate the firm's exposure to the risks identified above.

Economic Value vs. Accounting Value

- Credit ratings are typically based on accounting data, combined with some level of subjective assessment by analysts. Economic value, as determined by management, may very well be a more accurate reflection of the true value of the firm.
- In determining whether accounting value or economic value is more relevant, the firm must consider its objective.
 - If the objective is to manage the probability of default, the question of how default is determined becomes important. If default is determined by failure to meet certain accounting measures (e.g., debt ratio, interest coverage), then accounting measures will be a critical component of meeting the objectives.
 - If the objective is to manage the present value of future cash flows, then economic measures may be more appropriate than accounting measurements that do not accurately capture economic reality. Management must consider that managing economic value may lead to more volatile accounting earnings, which may ultimately affect economic value as well.

Risk Aggregation

- Firms that use value at risk (VaR) to assess potential loss amounts will ultimately have three different VaR measures to manage. **Market risk**, **credit risk**, and **operational risk** will each produce their own VaR measures. The trick to accurately measuring and managing firm-wide risk, and in turn **firm-wide VaR**, is to understand how these VaR measures interact. Market risks will typically follow a normal distribution; however, the distributions for credit risks and operational risks are usually asymmetric in shape, due to the fat-tail nature of these risks.
- Due to **diversification effects** of aggregating market, credit, and operational risk, firm-wide VaR will be less than the sum of the VaRs from each risk category. This suggests that the correlation among risks is some value less than one. It can be difficult to determine this correlation amount, so firms typically use average correlation values within their respective industry. However, firms should recognize that correlations can be influenced by firm-specific actions as well as external events such as a financial crisis.

Capital Allocation

- **Economic capital:** the amount of capital required for the company to achieve its target rating.
- **Regulatory capital:** the minimum capital required by the regulator.
- Economic capital depends on the intermediation margin and the cost of bank capital, while regulatory capital depends on the confidence level set by the regulator.
 - If regulatory requirements are less than economic capital requirement, then the firm will meet the regulatory requirements as part of its ERM objectives, and there will no effect on the firm's activities.
 - If regulatory requirements are greater than economic capital requirement, then the firm will have excess capital on hand.

Risks to Retain and Risks to Layoff

- Many risks can be hedged inexpensively with derivatives contracts. Examples include exposures to changes in exchange rates, interest rates, and commodities prices. Rather than face the risk that unexpected cash shortfalls due to these exposures might negatively affect the ability of the firm to carry out its strategic plan, the firm should hedge these exposures.
- Other risks cannot be inexpensively hedged. These are risks where the firm's management either has an informational advantage over outsiders or the ability to manage the outcome of the risk-taking activity. A counterparty to a transaction that hedges such risks would require very high compensation to be willing to take on the transferred risks. The firm's business risks fall into this category.
- The guiding principle in deciding whether to retain or layoff risks is the **comparative advantage in risk bearing**. A company has a comparative advantage in bearing its strategic and business risks, because it knows more about these risks than outsiders do. Because of this informational advantage, the firm cannot transfer these risks cost effectively. Moreover, the firm is in the business of managing these “core” risks. On the other hand, the firm has no comparative advantage in forecasting market variables such as exchange rates, interest rates, or commodities prices. These “noncore” risks can be laid off. By reducing noncore exposures, the firm reduces the likelihood of disruptions to its ability to fund strategic investments and increases its ability to take on business risks.

Example

1. Reducing diversifiable risk creates value:

- A. only when markets are perfect.
- B. because it is costly for shareholders to eliminate diversifiable risk through their own actions.
- C. because reducing diversifiable risk mitigates the underinvestment problem that can occur when investors have imperfect information about the firm's projects.
- D. only when it results in a permanent reduction in cash flow.

1. C When markets are not perfect (i.e., investors' information about project values is incomplete), the firm may not be able to raise funds on fair terms. For a firm faced with an unexpected drop in operating cash flow, this can lead to the underinvestment problem, where the company passes up valuable strategic investments rather than raise equity on onerous terms. The inability to fund strategic investments can result in a permanent reduction in shareholder value even if the cash shortfall is temporary. Hedging diversifiable risk mitigates the underinvestment problem and creates value, even though shareholders can eliminate diversifiable risk at low cost by diversifying their portfolios.

Example

2. Effective enterprise risk management includes all of the following except:
- A. centralized evaluation of every project's risk.
 - B. a project is only accepted if its return is adequate after considering the cost of the project's contribution to total firm risk.
 - C. the project's planners perform the initial evaluation of project risk.
 - D. periodic evaluations of the performance of business units consider each unit's contribution to total risk.

2. A Central to ERM is the idea that a *decentralized* approach to the evaluation of project risks focuses managers throughout the firm on the importance of properly considering the risk and return implications of projects.

Example

3. The goal of enterprise risk management (ERM) can best be described as maximizing firm value by:
- A. eliminating the total risk of the firm.
 - B. minimizing the total risk of the firm.
 - C. optimizing the total risk of the firm.
 - D. eliminating the probability of financial distress.

3. C The goal of ERM is to optimize the total risk of the firm. Eliminating total risk is not possible. Minimizing total risk would preclude accepting risky projects that would allow the firm to expand and maximize value. These risky projects will increase the probability of financial distress. The goal of ERM is to optimize the risk of distress relative to the potential returns from the risky projects.

Example

4. In determining the relative importance of economic value compared to accounting performance in its enterprise risk management program, a firm should:
- A. rely on accounting performance because it will be more accurate.
 - B. rely on economic value because it will be more accurate.
 - C. base its decision on the input of project-level managers.
 - D. base its decision on the objective of the ERM program.

4. **D** There are certain situations where either accounting values or economic values will more accurately reflect the firm's situation. The determining factor in choosing between economic values and accounting values is the objective of the program. For example, if the objective is maintaining a rating, based in large part on accounting numbers, then accounting numbers will assume more relative importance.

Example

5. Which risk is least likely to be beneficial for a company to layoff?
- A. Currency exchange rate risk.
 - B. Business risk.
 - C. Commodities price risk.
 - D. Interest rate risk.

5. **B** A company has a comparative advantage in bearing its strategic and business risks because it knows more about these risks than outsiders do. The firm is in the business of managing these “core” risks. The firm has no comparative advantage in forecasting market variables such as exchange rates, interest rates, or commodities prices. These “noncore” risks can be laid off.

恭祝大家

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