

Enterprise Risk Management Through Strategic Allocation of Capital

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Abstract

This paper presents a conceptual framework for operationalizing strategic enterprise risk management (ERM) in a general firm. We employ a risk-constrained optimization approach to study the capital allocation decisions under ERM: Given the decision maker's risk appetite, the problem of holistically managing enterprise-wide hazard, financial, operational, and real project risks is treated by maximizing the expected total return on capital, while trading off risks simultaneously in Value-at-Risk type of constraints. This approach explicitly quantifies the concepts of risk appetite and risk prioritization in light of default and financial distress avoidance reflected in the firm's target credit rating. Our framework also allows the firm to consider a multi-period planning horizon so that changing business environments can be accounted for. We illustrate the implementation of the framework through a numerical example. As an initial conceptual advancement, our formulation is capable of facilitating more general integrated ERM modeling within a consistent strategic framework, where idiosyncratic variations of firms and different modeling assumptions can be accommodated. Managerial implications are also discussed.

Key Words: enterprise risk management (ERM); Value-at-Risk (VaR); portfolio choice; capital allocation; risk appetite; risk prioritization; operational risk