Intelligent enterprise risk management: The role of probability, statistics and scenario analysis

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The negative effects of the global downturn can be observed in the form of greater systemic risk. Systemic risk (also called market risk) represents the probability of loss or failure common to the entire system or a particular sector. It cannot be circumvented or eliminated by portfolio diversification, although it can be reduced by hedging. Non-systemic risk is security-investment risk that is not common to all securities or capital markets but instead is associated with the securities of a particular issuer. Unlike systemic risk, non-systemic risk can be avoided by portfolio diversification, as well as reduced by efficient enterprise risk management. Conventional enterprise risk management focuses on successful risk mitigation. Conversely, the new approach assumes intelligent balance between risk mitigation in order to avoid unexpected losses and risk exploitation for higher returns to be achieved. Moreover, in face of a new turbulent global economy, intelligent risk management means the ability to measure the level of risk exposure (both systemic and non-systemic) and vulnerability of the enterprise through enterprise shock resistance test, and knowledgeable management to match it with its risk appetite. In this paper we present different statistical tools that help managers in measuring risk exposure and enterprise shock resistance as well as subtle scenario analyses that reveal the possibilities of using risk factors as a mean of shareholder value creation. Although quantitative risk analysis may not be able to help predicting probabilities of risk events occurrence it surely provides a solid sense of their tangible consequences on the firm's value.

Keywords: Intelligent risk management, Risk impact calculation, Risk types, Risk distributions, Valuation models, Scenario testing, Enterprise shock resistance, Risk appetite