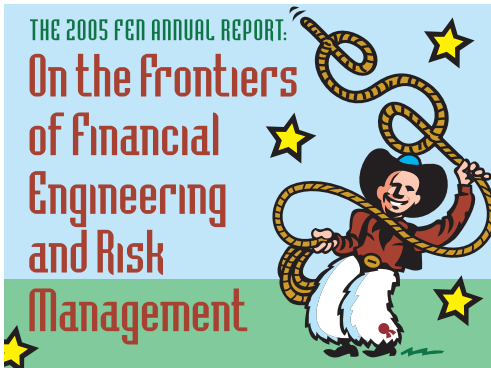


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ERM is the Next Big Thing for Quants

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The achievement of financial engineers, in helping to revolutionize Wall Street and the global capital markets, has been a phenomenal one. Now, a new opportunity of equal – or even bigger scale – has arrived for quants to revolutionize the way that firms manage their risks.

Enterprise Risk Management (ERM) has grabbed the attention of the business community. Unlike established strains of risk management, ERM is not just about compliance and control, but is more about strategic risk-taking and building an effective organization. At this point in time, corporate strategy and shareholder value initiatives are in need of exactly the tools that are emerging in the ERM discipline.

ERM as a Natural Evolution of Risk Management

For the banking industry, ERM follows more or less naturally from the risk management revolution that is being driven by the new Basel Accord. The initial Accord focused predominantly on market risks and credit risks. In recent years, the new Accord has put operational risks on the front burner. When you enter the operational risk arena, you are dealing with a broad spectrum of risks and their interactions – exposures like misselling, and IT systems failures which have dragged risk managers out of their comfort zone. Enterprise-wide risk management requires a deep understanding of the risk dynamics and the business processes, the incentive alignments and the cost-benefits analysis.

In the broader economic sector, the recent Sarbanes-Oxley Act drove home the role that ERM can play in underpinning enhanced corporate governance and financial transparency. Rating agencies and consumers are also pressuring firms to embrace ERM to address financial, strategic, operational and reputation risks.

To implement ERM, firms are developing risk measurement systems and economic capital frameworks that can reflect both the inherent risks and the level of risk control in place. One symbol of this sea-change has been the appointment at many firms of chief risk officers to join chief financial officers and chief information officers at the top table of management.

ERM is an Emerging Discipline

- Most current textbook theories are derived from one set of assumptions and follow a one-dimensional logical thinking. ERM by nature must be multidisciplinary, reflecting the different perspectives and competing interests of multiple stakeholders. ERM promises to elevate the science of risk-taking to the next level. Before you can quantify risks, you first need to understand which risks to focus on.

- ERM requires research breakthroughs and new paradigms if it is to deliver on its promise. How to quantify the impact of big hedge funds money flows; how to apply agent-based risk modeling; how to extract the most relevant risk information among a wealth of financial data; how to reconcile different perspectives and interests of multiple stakeholders, etc. Here I would use a mathematical analogy: traditional silo-based risk modeling is like working in a linear space, ERM risk modeling is like working on manifolds, with changing “views” between global versus local perspectives.
- The traditional take on corporate finance needs to evolve into more advanced analytical corporate finance, which treats asset risks and liability risks in a holistic fashion. For instance, based on the risk appetite of the firm, analytical corporate finance should aim to design the optimal risk management techniques, whether it is through hedging, raising additional capital or through some contingent capital contracts.

at an ever faster speed. These will continue to require computation-intensive data analysis and risk modeling. Without some appreciation of quantitative models, nowadays it is almost impossible to lead an institution’s ERM efforts.

Many ERM issues call for solutions that look like those encountered in financial-engineering; for instance, how to design a capital allocation model that properly accounts for the effectiveness of internal controls and the hedging program.

Given the multiple-perspective nature of ERM issues, endless debates can only create more heat, while an objective quantitative approach can help shed some light. Many quants by nature are solution-oriented and can formulate complex issues in an objective quantitative framework. This gives quants a leg up in dealing with ERM issues.

“A last, and perhaps most important effect of such models is to provide a common language of risk for both SME and non-listed credits...”

Why Quants Can Play a Key Role in ERM

The financial service industry is witnessing the increased proliferation of complex financial products and accelerated globalization. Technology development has enabled business transactions to take place

What Other Skill Sets Do Quants Need to Practice in ERM?

Some might be inclined to view ERM as nothing but a huge risk-aggregation machinery. I think this is only a partial

understanding of ERM. In order to make a greater impact, quants must go broader and go deeper. At the end of day, all businesses are conducted by people. Human behavior is the fabric of ERM.

The most important skill above all is to leave one-dimensional thinking behind. Quants need to develop a good appreciation of economic, accounting and legal considerations.

ERM needs an army of quantitative risk professionals with enforceable professional conducts. Currently no single profession can fulfill the vast ERM space, whether it is financial engineers, actuaries or accountants/ auditors. The growing field of ERM invites all who are open-minded, technically solid, intelligently curious and action-oriented. Financial engineering solutions can help revolutionize the broader risk management field. I envision that through collaborative ERM educational and research efforts all the above risk professionals can play a part in practicing ERM. ■

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