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Editorial: The growing importance of quantifying financial risks

Over the last 10 years we have witnessed an emerging consensus in the need for and the methods to quantifying financial risks. Accounting, the lingua franca of finance, is thus being enhanced. In addition to explaining what we have (the assets and liabilities) and how much we made (the income statement), we are starting to disclose in a standardized fashion how much risk we have on the books and how much risk we took to generate the income. As a consequence of widely publicized accidents in the banking industry, there is a broad misconception that risks need to be quantified primarily to allow imposition of stricter controls and limits, regulatory and other. The illusion is, we would all be better off with less risk. The reality however is different – without risk there is no return. Thus the central task of management is optimize returns on risks, not to limit risks.

The ongoing financial revolution

Information technology was a principal driver in transforming the financial markets – fundamental changes in how money is intermediated, between suppliers of capital (investors) and users of capital (issuers of debt and equity). The most obvious change is in the players themselves, most pronnounced in the United States. There in the 1970s, commercial banks held 75% of all financial assets. But in the intervening two decades, securities replaced loans and investment banks (and the institutional investors they serve) rose to prominence. Today's banks control less than 40% of total U.S. financial assets, a tremendous loss in terms of market share. Banks didn't sit idly by, of course; many built derivatives capabilities (again, a by-product of technology advances) and expanded into investment banking. And investors became much more dynamic and performance-driven.

The resulting explosion of trading activity was inevitable. More securities, more investment activity, better and richer information, and lower transaction costs have made traders and market makers rise to the top of the financial heap. The liquidity they provide is increasingly central to the markets and customers alike. But the trading business is maturing, and its growth is slowing (even the world's emerging markets are becoming more sophisticated, more liquid, more developed). Investors are clamoring for ever lower transaction costs and ever more sophisticated (read: expensive) services, while higher volumes of trading activity have severely curtailed arbitrage opportunities. Margins have been, and are being, squeezed.

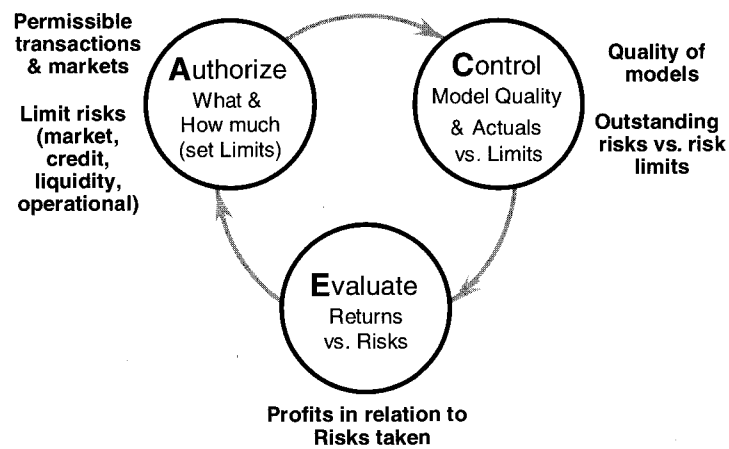
What's next for trading? Credit, energy, and insurance trading on a global scale. The key to success will be nimble exploitation of regulatory

change and the ability to transfer analytic and trading technology across asset classes. Even more important, however, is the fact that the winners emerging from this current phase of the financial revolution will be asset managers. Institutional investors will assume the central role of the financial markets: allocating capital.

Managing risks in trading organizations

In a static world, measuring (and managing) risk would be challenging enough, but in today's dynamic world of trading, marked by a very high rate of innovation, charting the future is a task of almost unbelievable complexity. Over the last decade volumes of trading activity have increased by a factor of 100. The number of different markets and instruments a firm is exposed to have increased by a factor of 10. And the complexity of each transaction (as measured by the number of independent variables required to describe it) has increased by a factor of five. Put slightly differently, complexity in the aggregate has increased by a factor of 5,000. This has forced most trading organizations into massive decentralization of decision-making. Instead of decisions being passed down from the lofty atmosphere of upper management, they are made bottoms-up, and the information to support them must flow up the pyramid.

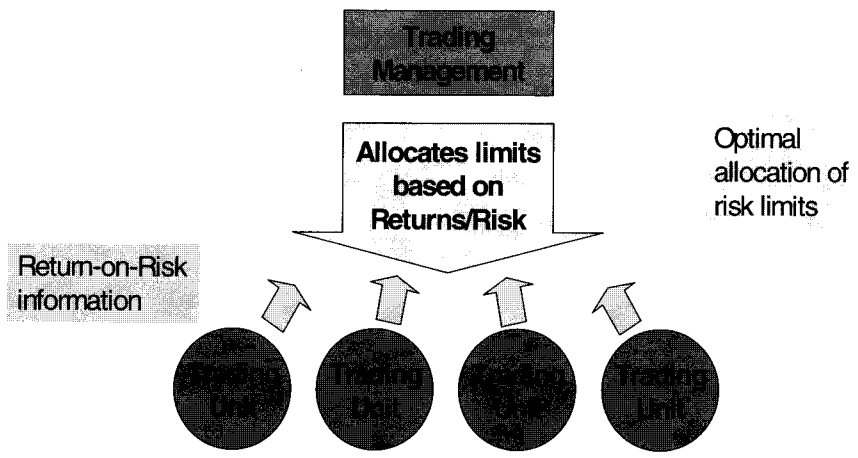
Hence the huge infrastructure investment in instrument-specific decision support tools for traders. At the business management level, the information needs are market-specific, with near-time information presented quickly and flexibly. A level higher, senior management requires consistent, aggregated information on prices and positions; more important, they require consistent return-on-risk comparisons of businesses. That's the only way to allocate resources efficiently. There is an even higher level: the regulatory one. Professionals who oversee market participants have still different information needs, and they represent a key driver of change. Their requirements, along with those of senior management, have spawned the position of corporate risk controller, who collects position information from trading units to meet the needs of two distinct audiences. It's important to remember they have different, but often, overlapping interests.



The first response by most banks to the relentless push by regulators for consolidated risk information has been to establish the position of a Corporate Risk Controller. He/she would collect position information from all trading units and independently estimate and report on aggregate risks, mostly for regulatory capital requirements. This has clearly very little to do with risk "management". In fact, it tends to parallel, if not override, an established risk management process. Management is a two way process, not a policing activity with a one-way flow of information. This is where we see a major challenge for financial trading institutions today.

Any 101-course in management will tell you there are three steps to management in general and risk management in particular: First you authorize risk takers what they can do and how much of it. In trading, this is done with a limits system specifying what types of transactions are permitted in which markets, and how much risks can be assumed in the process of trading. Second, you control whether the limits you set are adhered to. In trading this takes two forms: you check on the models used to estimate the risks, and you track the outstanding risks against the limits. Third, and most importantly, you evaluate the performance of the risk takers / traders. You measure their profitability and evaluate it in the context of the risks taken. Only a consistent evaluation of returns in the context of risks allows you to optimally allocate resources, such as limits, compensation, etc. Looks like common sense. We call this the ACE process – Authorize – Control – Evaluate. Implementation looks very different than independent control. It applies to every management level and becomes an integral part of total management. Independent risk control is related, but not identical; the right approach is to begin by building an integrated risk management system, then making sure that the risk controller can assure its integrity with appropriate independent checks and balances.

Why is an integrated risk management system so important? Because it is the best measure of trading effectiveness and efficiency, a necessity for thriving in an increasingly competitive environment. The simplified diagram summarizes the

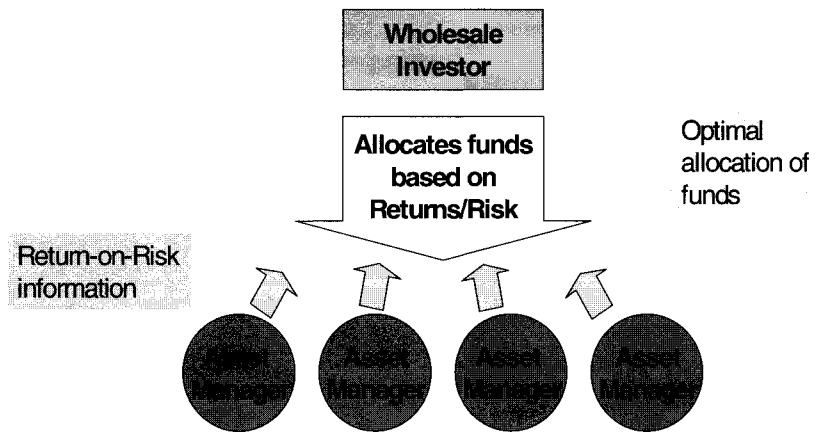


new management structure: Specialized and decentralized trading units take all the risks and report on their performance, the returns, on a risk adjusted basis. Management then allocates limits to the independently operating trading units with an effort to optimize the aggregate Returns-on-Risk. Most of the sophisticated trading organizations have a management information structure incorporating this concept in place today.

Managing investment managers

The growth in the trading industry is being eclipsed by the growth in the asset management industry. The role of money has changed from a transaction medium to a store of value, witness the importance of pension funds and insurance assets. As a consequence, financial assets have grown significantly. As financial assets have grown in size and complexity, a lucrative and powerful industry in asset management has emerged. The store of value is managed increasingly by professionals.

Professional asset managers started by competing on performance. Their marketing pitch was simple: "entrust me your funds and I will make them increase in value over time". As the competition increased and the switching costs decreased, the measurement horizon shrunk. Today, you can measure the performance of mutual funds daily. A standard for measuring financial returns has emerged; it's called Daily Total Return.
The fixation on total returns and the increasing competition has led many managers to take on more risks. In the absence of a common yardstick for risk, transparence disappeared and accidents occurred. They appeared first in the trading community but spread quickly into asset management. The Orange County debacle is a prime example. This is leading to a strong demand for the quantification of risks. Individual risks need to be estimated using standard models. This emerging standard changes the way the performance of managers is measured also in the asset management industry: the new scorecard is Return-on-Risk. Thus, the picture looks similar to what we saw in trading. The difference is that in-



vestors allocate funds to specialized asset managers while trading managers allocate limits to specialized trading units.

The transition from the trading to the investment management industry is happening in steps:

The funds-of-funds managers were the first to embrace the technique of methodically allocating funds to managers with optimal return-on-risk characteristics. The most sophisticated pension fund managers are not far behind; the second tier is following. The general market will take a little longer because it requires a generally accepted open standard to measure risks uniformly across many investment pools. The worldwide acceptance of regulatory standards for model based market risk measures in trading will accelerate this development.