Market Insight

Risk Models for Capital and Margin – The Need for Public Standards

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Abstract:

Recent regulatory publications display a need for risk sensitivity for both capital and margin requirements. Risk sensitivity calls for risk models, but the successful application of these for regulatory purposes has been a challenge for the industry. We suggest the adoption of a common framework of risk standards as a mechanism to help ensure the success of risk sensitive regulatory standards.

Why This Matters:

- Recent regulations for both capital and margin requirements point to risk models.
- Recent studies demonstrate great variability in proprietary risk model results.
- The industry is in need of a standard mechanism for comparison across risk models.

Regulatory Publications Spark a Debate

The controversy surrounding the use of risk models was stoked again recently with the publication of the Basel Committee's study of internal capital models,[1] which revealed large disparities in risk assessments on a standard set of trading portfolios. Though the Committee soberly recommends improving public disclosure of risk models for capital, their study raises doubts on the long-term dependence on risk models for capital.

In a related development, the Committee, together with the International Organization of Securities Commissions, just released its "near-final proposal" on margin requirements for non-centrally-cleared derivatives.[2] The proposal confirms a place for risk models in the risk-mitigation process for essentially all derivatives trades.

Regarding risk models then, the industry is at a crossroads, committing to greater reliance on models while revealing model shortcomings. It would be a step backward to abandon the notion of risk sensitivity for margin and capital, and yet the Basel Committee study undermines the trust that regulators and the public might have in the ability of models to adequately reflect risks. To regain this trust, we recommend that the industry collectively establish common framework of transparent risk standards.

Risk Model Standards for Capital

Capital is an obvious place to start. The original Capital Accord of 1988 (referred to now as Basel 1) was motivated by the single global principle of the level playing field. But the result of this level playing field was that capital standards came down to a simple ratio, with little distinction by risk. The clear regulatory arbitrage was to simply take more risk, leading the Basel Committee to adopt a second global principle, risk sensitivity, for the Market Risk Amendment of 1996.

To achieve risk-sensitive capital standards, global regulators authorized banks to use internal risk models, subject to some modeling standards, a model approval process, and ongoing model validation. And along with the use of internal models for capital came the practice of risk disclosure, where banks would communicate its risk according to the same internal models as part of their quarterly or annual public filings.

From a disclosure perspective, the trouble with internal models is that they are internal. With very little disclosure of actual modeling practices, risk disclosures at best seem to permit analysts to assess whether a bank's risk taking has increased or decreased between filings. But it is not clear whether an increase in risk is active (meaning the bank has shifted positions) or passive (meaning the markets in which the bank operates have heated up). Comparisons across banks are close to impossible.

While risk disclosures appear to have fallen short in informing shareholders or analysts, they seem to have given rise to insinuations that some banks, or even some jurisdictions, are lighter on the same risks than others. Strict model validation standards should have assured a common global standard of model prudence, but (as the Basel study points out in another policy recommendation), these have not been sufficient. The effort to apply the second global principle would seem to have undermined the first.

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[1] Basel Committee on Banking Supervision, *Regulatory Consistency Assessment Programme (RCAP) – Analysis of Risk-weighted Assets for Market Risk*, January 2013.

[2] Basel Committee on Banking Supervision and International Organization of Securities Commissions, *Second Consultative Document on Margin Requirements for Non-centrally Cleared Derivatives*, February 2013.

The principles of a level playing field and risk sensitivity are not incompatible, however, and the Committee's recent study points to a solution. As a condition of model approval, in addition to the processes that exist today, we suggest that regulators require banks to disclose their model's assessment of risks on a set of standardized, representative portfolios. These risk standards could help establish the Basel Committee's desired "variation benchmark"—the acceptable degree of variability due to differing modeling assumptions and appetites for risk. At the same time, systematic biases would be revealed, or suspicions of them refuted.

Margin—the New Role for Models

Whereas capital has been regulated internationally for decades, strict reform of how derivatives trade is largely a reaction to the financial crisis of 2008. The most visible piece of reform is the mandate for central clearing of the most standard derivatives. Under central clearing, a derivative that previously would have been a contract between two participants now becomes two offsetting contracts, each between one of the participants and a central counterparty (CCP). The participants no longer have direct credit exposure to each other, but only to the presumably well-capitalized CCP. As long as the CCP is safe, the default of a single derivatives participant cannot pose a threat to the remainder of the system.

Recent reforms are not limited to centrally cleared derivatives, however. Regulators internationally are working to establish principles and requirements for those derivatives that do not fall under the central clearing mandate. The regulatory principles are intended to ensure that the same barricades to systemic risk that central clearing affords are available for non-cleared derivatives as well.

The first barricade is variation margin, a mechanism by which counterparties in a derivative contract post margin to each other on a regular basis according to changes in the valuation of the derivative. Daily posting of variation margin is standard in centrally cleared derivatives, and its requirement for non-cleared derivatives is largely uncontroversial.

The second barricade, initial margin (or independent amount), is intended to protect the surviving counterparty (the CCP in a cleared derivative) from the undesired market exposure on a derivative that results from a counterparty default. Whereas variation margin covers market moves as they are realized, initial margin covers the potential losses incurred from the time of the last variation margin exchange to the time at which the contract is closed out, or replaced. The critical distinction between the two types of margin is between covering realized versus potential losses, and leads to the need for risk models. Initial margin is a standard requirement for cleared derivatives, and the recent "near-final proposal" is that initial margin be required, subject to some minimum threshold on most non-cleared contracts.

To calculate initial margin, derivative participants must consider the market volatility of the contract, its liquidity, how long it will take to close or replace the contract, and how the contract relates to others with which it might be eligible for netting. As with capital, it is clear that an effective initial margin mechanism must be risk sensitive: different contracts will have different potential losses, and the initial margin charged should reflect this.

Finally, where derivatives exposure falls under the minimum threshold, the counterparties bear each other's credit risk, and should reflect this in both the capital they hold against the risk and the pricing they demand for committing this capital. As with initial margin, the capital and pricing should reflect potential exposure that market fluctuations could produce. Risk sensitivity again is a requirement.

And risk sensitivity demands models. But the necessity of models for margin leads to many of the same issues as with models for capital. How can the industry ensure that the models are sound, and that the playing field is level?

One cause for optimism is that, unlike for capital, there is an incentive here for the industry to self-regulate. With capital, a bank has only the incentive to keep its capital levels low, and is never directly exposed to other institution's own capital models. There is no business incentive for a bank to complain that its capital requirements are too low, and thus regulation of the models falls squarely on the regulator.

With margin as well, there is an incentive for a bank to keep its requirements low, to reduce the liquidity need for trading derivatives. But at the same time, if a bank's counterparty demands margin that is insufficient to cover risks, or fails to adequately capitalize for un-margined exposure, and does this systematically, then the counterparty poses a risk to the system. It is in all participants' interests that other derivatives participants charge adequate margin. This is more than wishful thinking, as exemplified by the recent episode where a number of clearing members demanded that a CCP strengthen its risk-based margin standards. It is easy to imagine a comparable case where a group of banks raises questions about the margin model of a competitor, not simply as a sour grapes reaction to losing business, but out of a genuine concern for their own bottom line.

A Future for Risk Models

Finally, in the space of non-cleared derivatives, the potential for every participant to propose, Babel-like, its own initial margin model raises concerns about dispute resolution and fairness. The negotiation of a bilateral derivative contract should include a stipulation for whose risk model determines margin. If the choice is that each party demand margin according to their own model, how can the parties agree that the two models assess risk to the same standard? And if the choice is to have only one party's model drive margin, then how can the other party (who may in fact not even possess a model) get comfortable with the model's independence, let alone quality?

There are three issues, then, with risk models as applied to margin: validation that models produce prudent standards, reconciliation of distinct models in the same transaction, and confirmation of the independence of a single party's proprietary model. For all three, as with capital, risk standards must be part of the solution. For more straightforward transaction types, there may be some evolution to independent standard models for the actual margin calculations, if only to make negotiations and operations simpler. But the power of risk standards extends further. An independent, industry-accepted framework would provide a baseline with which market participants of all levels of sophistication could evaluate counterparty models, and from which parties in a bilateral agreement could define tolerances for their own model results.

The need for risk sensitivity for both capital and margin is indisputable. But risk models for capital have had an uneven history, and models for margin are only now becoming mainstream. A common framework of risk standards is the industry's best hope to salvage risk models for capital, and to ensure their success for margin in the transformed market for derivatives.

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[1]As of March 31, 2012, as published by eVestment, Lipper and Bloomberg in September 2012.

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