

Risk Sensitivity in Bank Capital Requirements

Background Note

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Capital provides a means for banks to deal with the risk of economic loss. While in almost all cases loss events simply mean smaller profits, capital can absorb losses in extreme periods when profits are more than offset by losses. Capital thus shields depositors and other creditors from losses they would incur if capital were fully depleted and the bank defaulted. The new Basel rules consider two routes to reducing the potential that losses could fully deplete a bank's capital: a bank can hold more capital or it can take less risk.

It is not trivial to understand the relationship between risk and capital. The key step in assessing whether capital is adequate to cover risk is to quantify risk. The Basel Accord expresses its risk measurement as *required* capital. Safety and soundness can then be assessed by comparing actual capital to required capital. In practice, banks hold actual capital well in excess of required capital.

Risk Sensitivity refers to the degree to which required capital varies with the change in the underlying risk. Said differently, it is the extent to which the regulatory capital system can differentiate high-risk situations from low-risk cases. When the current capital rules were developed, banks were just beginning to develop reliable means of quantifying risk. Consequently, there was almost no risk sensitivity in the Basel I rules, and they were calibrated conservatively to cover the uncertain quantity of risk.

This made sense. When one needs to ensure that something is always above or below some threshold but doesn't know what the need will be, it is natural to maintain a large cushion between the threshold and whatever notion one has about the required quantity. If you were going to spend the day outside but didn't have a forecast for the temperature, it would be prudent to have access to a coat appropriate for a fairly cold day.

Since Basel I was introduced, banks have developed better tools for differentiating risk. It has been important for them to understand how much they could expect, on average, to lose on each loan so that they could be sure to cover those losses in the way they priced the loans. Further, they needed to know how much capital was needed to support each loan, because they had to satisfy investors that they were earning adequate returns on that capital. A healthy banking system is only possible if banks earn an adequate return on the capital investors allow them to have. Holding excess capital spreads profit over a larger base, lowering the return on each dollar of capital. This makes it difficult for banks to earn an adequate return on capital, raising the risk that investors will move their capital to other firms, industries, or countries.

Regulators adapted the developments in bank capital systems to the regulatory rules in Basel II. High-risk loans require more capital under these rules than do low-risk loans. The formulas for required capital effectively differentiate higher-risk situations from

lower-risk ones and can therefore be used to scale the risk side of the risk-to-capital comparison.

Risk sensitivity therefore means increased safety for the same overall level of capital, since one can compare risk to capital. Without a risk sensitive system banks collectively may appear to be well capitalized, but a few high risk banks could be in danger of failing. With risk sensitive capital requirements, any bank with higher risk would have to hold a higher level of capital, mitigating the added risk.

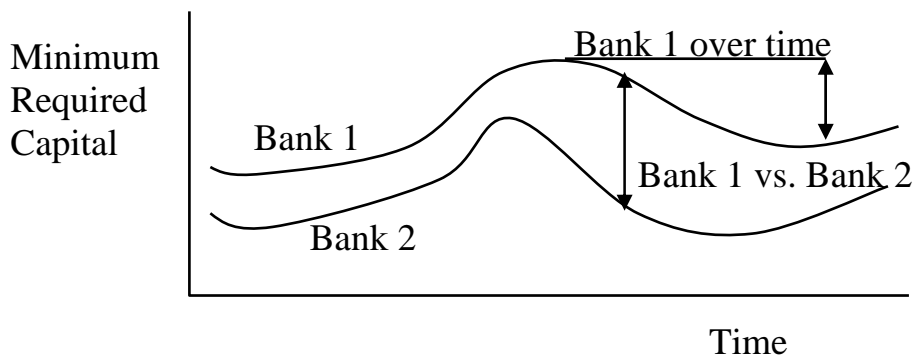
Risk Comparisons Along Two Dimensions

As we think about differences in risk, two comparisons are worth discussion: differences between two firms at the same time and differences in risk for a single firm over time.

At any point in time, one can use minimum required capital to compare the relative risk of two institutions. If, for instance, one institution has minimum capital requirements that are 30 percent higher than another, one can safely say that it has significantly more risk than the other and needs roughly 30 percent more capital than the other to be equally safe (i.e., to have approximately the same extremely small risk of insolvency). The fact that one bank requires more capital than another is no cause for alarm so long as that bank holds more capital than the other. It is reasonable and expected that different institutions would follow different strategies; they should each be capitalized in accordance with their strategy.

The second comparison has slightly more complex implications. Banks operate in an uncertain economy that experiences downturns or recessions from time to time. It follows that banks' portfolios will be riskier in these stress periods than in good times. Each bank's minimum capital requirements can be expected to be higher in stress periods than in other years. This has led some to ask how we can be certain that a bank will have adequate capital in the stress periods if it is permitted to reduce its capital between stresses.

Two key facts should alleviate these concerns. First, banks will not want to raise new capital in a recession and will therefore keep their capital levels high enough in good years that they will remain safely capitalized in periods where minimum capital requirements rise. Second, the Basel rules themselves require banks to consider their capital requirements in stress scenarios and to maintain adequate excess capital to meet the needs of such stress periods. A bank would not be permitted to operate near their reported minimum capital level in a good period even if it wanted to.



Consequently, the effective minimum capital requirement for banks is *not* the amount reported in good periods, since they must also hold capital to cover the additional risk that will appear when their banks undergo the stress of a recession.

Several large U.S. banks have estimated that commercial credit risk capital requirements would have been 20-35 percent higher with their 2000-2001 recessionary portfolios than reported at the time of QIS 4, which occurred in very favorable conditions. Decisions about the calibration of a risk sensitive system should consider the effective requirements rather than numbers reported in other years.

Constraints that Distort a Risk-Sensitive System

Risk sensitive capital requirements have the dual benefits of enhancing the safety and soundness of the banking system and improving the efficiency of the capital invested in banks. Capital efficiency in turn ensures that the industry can continue to attract the capital it needs to be safe and sound.

Adding artificial constraints to such a system will cause distortions and create bad incentives with unintended consequences. For example, consider an artificial floor on the capital requirement. Suppose also that there are three banks of equal size:

- Bank A has a low-risk strategy and requires capital of 3.
- Bank B has a high-risk strategy and requires capital of 7.
- Bank C is a moderate-risk institution with a capital requirement of 5.

Suppose bank A and B operate under rules that say capital requirements will be at least 5, no matter the result of the risk-based computation. So A must hold 5 and B must hold 7. A's returns are spread over 5 units of capital, lowering the return for the capital investor. This gives bank B an opportunity. B can acquire A. The combined firm needs capital of 10. B need only raise 3 in new capital to buy A, but A needs 5 to stay in business.

Alternately, suppose C operates under rules from another jurisdiction that has no artificial constraint. C also has an opportunity. If C were to acquire A, the combined firm would need 8 units of capital. Again, C could raise 3 in capital to acquire A, while A needs 5 to remain in business.

A does have another choice. It can abandon its low-risk strategy, raise 5 in capital, and purchase C. It survives, but not as a low-risk institution.

These cases illustrate that constraining some banks in a risk sensitive system while others are not constrained creates problems. A too-high floor puts banks that pursue a low-risk strategy at a competitive disadvantage. The lower their risk, the greater the disadvantage they suffer. The rule intended to provide an "extra" measure of safety actually discourages banks from pursuing the low-risk strategy that would enhance safety.