



The New Basel Capital Accord: Implications for US Agricultural Lenders

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The first Basel Capital Accord, the current system used for evaluating capital adequacy, was implemented in 1988 by the Basel Committee on Banking Supervision. The accord's objectives are to ensure the soundness and stability of the banking system, to achieve greater uniformity in capital standards across countries, and to provide equitable standards promoting bank competition. The current accord, also known as Basel I, sets the minimum regulatory capital for banks at 8% of the risk-weighted value of their assets. The guidelines proposed in Basel I were accepted by more than 100 countries. Basel I, however, turned out to be too simplistic to address the needs of the banking system in a changing environment of new technology and increased globalization and competition.

The Basel Committee on Banking Supervision has been developing a new accord, Basel II, to address the shortcomings of the current accord and to reflect the new developments in the assessment and management of risk. The Committee has developed several proposals for revising the existing accord and has conducted four quantitative impact studies related to these proposals (posted at the Bank for International Settlements' website, <http://www.bis.org>). Basel II is expected to be implemented by the end of 2006.

Overview of Basel II

Basel II rests on three mutually reinforcing pillars: (1) minimum capital requirements, (2) supervisory review, and (3) market discipline.

Pillar 1 outlines the calculation procedures of the capital requirements for banking organizations. Under Basel I, the minimum required capital ratio (set at 8%) is calculated as the regulatory capital divided by the risk exposure (measured by the risk-weighted assets). The difference under Basel II will be that the risk exposure will be evaluated as the total of the credit risk, market risk, and opera-

tional risk exposure of the bank, where more refined measures will be incorporated to calculate credit and operational risk.

Pillar 2 addresses the supervisory review process in ensuring sound capital management and comprehensive assessment of the risks and the capital adequacy of the banking institutions. This pillar seeks to increase the transparency and accountability of the banking system and to a large extent has already been incorporated in the United States.

Pillar 3 aims at improving market discipline by requiring banks to publicly disclose key information regarding their risk exposures and capital positions. Because Basel II gives banking institutions greater discretion in calculating their own capital requirements, it is anticipated that the disclosure statements will allow market participants to better assess the safety and soundness of the banking environment and thus exert stronger market discipline.

Basel II will include three options for measuring credit risk and another three options for measuring operational risk. The options for calculating credit risk are the *standardized approach* and two internal ratings-based approaches—the *foundation approach* and the *advanced approach*. The standardized approach is similar to the approach currently used for categorizing bank assets according to their risk and then weighing them using fixed weights. Under the internal ratings-based approaches, banks will evaluate key elements of credit risk: the probability of default, the loss given default, the exposure at default, and the remaining maturity of the exposure. Under the foundation approach, banks will estimate the probability of default of their loans, but the regulators will provide the other measures. Finally, under the advanced approach, banks will calculate all key elements of their credit risk exposures.

Likewise, there are three options for calculating operational risk: the *basic indicator approach*, the *standardized approach*, and the *advanced measurement approach*, with varying degrees of bank-provided versus regulator-provided inputs in the calculations of operational risk. As incentives for adopting the more advanced approaches for credit and operational risks, banks are anticipated to experience lower capital requirements.

Basel II Implementation in the United States

The US banking agencies (the Board of Governors of the Federal Reserve System, the Office of Comptroller of the Currency, the Federal Deposit Insurance Corporation, and the Office of Thrift Supervision) have already initiated the process for implementing Basel II. These agencies have recommended that the largest, most complex banks (with total assets of at least \$250 billion or total foreign exposure of at least \$10 billion) be required to implement the advanced measurement approaches of Basel II to assess credit and operational risks (Federal Reserve Board, 2003). Currently, ten banks meet these size requirements, and another ten banks have chosen to adopt the advanced approaches of Basel II. These twenty banks account for 99% of the foreign assets and more than 65% of the total assets held by US lenders. It is expected that over time other large banking and nonbank institutions will also choose to adopt advanced capital calculations.

The banking agencies have identified several areas of concern regarding the implementation of Basel II in the United States (Federal Reserve Board, 2003). The first concern is the equitability of a bifurcated

scheme whereby large banks will be required to adopt Basel II while small banks will continue to operate under the existing Basel I. Small banks that remain under the current capital regime would generally have higher capital requirements, which would also be less sensitive to risk. Thus, these small banks would be at a competitive disadvantage. However, the banking agencies predict that Basel II may not have a large impact on capital holdings, because many small banks currently choose to hold capital in excess of the required minimum. The second concern is that the adoption of advanced approaches for measuring credit and operational risk may be too expensive, especially for smaller banks. The adoption of these approaches, of course, will not reduce losses but rather will better align capital requirements and losses. However, even if not required by Basel II, these approaches may be needed in order to compete effectively in the existing banking environment. The third concern is the way operational risk is treated, either as an explicit capital charge under pillar 1 or on a case-by-case basis under pillar 2.

Basel II and Agriculture

The New Basel Accord does not include any special treatment for agricultural lending. Basel II implies that large agricultural loans would be treated as corporate loans and small agricultural loans as retail loans. The regulators, however, need to take into account the particular characteristics of farm loans when setting capital charges for organizations involved in agricultural lending (Barry, 2001). Farm businesses are characterized by cyclical performance, seasonal production patterns, high capital intensity, leasing of farmland, participation in government pro-

grams, and annual payments of real estate loans. Because of these characteristics, losses in agricultural lending may not be frequent, but could be large due to high correlations among farm performances. At the same time, high capital intensity, especially involving farmland, offers relatively strong collateral positions, thus mitigating the severity of default when default problems do arise.

Katchova and Barry (2005) developed models for quantifying credit risk in agricultural lending. They calculated probabilities of default, loss given default, portfolio risk, and correlations using data from farm businesses. The authors showed that the calculated expected and unexpected losses under Basel II critically depend on the credit quality of the loan portfolio and the correlations among farm performances. These analyses of portfolio credit risk could be further enhanced if segmented by primary commodity and geographical location. Agricultural lenders could adopt similar models to quantify credit risk, a key component in the calibration of minimum capital requirements.

Farm Lending Institutions

Among agricultural lending institutions, commercial banks and the Farm Credit System are the largest providers of credit. Commercial banking in the United States has long been characterized by a large number of smaller community banks, many of which are heavily dependent on agriculture. Deregulation and consolidations are reducing the number of banks, although federal data for 2004 indicate that approximately 2,600 "agricultural" banks still provide more than 50% of bank loans to agriculture. However, the share of agricultural loans held by banks with

more than \$500 million of assets has been growing rapidly. Such larger banks likely have the capabilities to move toward the adoption of the internal ratings-based approaches to risk assessment and capital management, whereas smaller banks serving different market niches will probably remain under the current standardized approach.

The Farm Credit System (FCS) is a federated organization of five mostly wholesale banks lending to 90–100 farmer-owned lending associations, which in turn provide credit and related services to agricultural borrowers. Autonomy of individual units of the FCS has been high, although recent consolidations, business practices, product and service offerings, risk assessment, and capital management have become more uniform over time. Uniformity helps the FCS to present a more understandable, coherent structure to the national and international financial markets. Investors in these markets, in turn, purchase securities issued by the FCS banks, thus providing the loan funds for agricultural borrowers.

In general, the FCS has sufficient size, specialization, and expertise to move toward adopting the internal ratings-based approaches to capital management. Initial steps have involved the design of data systems needed to compile and store loan-level loss data over time and the development of dual rating systems for categorizing the frequency and severity of default by borrowers. The

goals are to achieve greater precision and granularity in risk classifications. These steps will lead to the formulation of economic capital models that combine measures of credit, market, and operational risks to determine capital adequacy, risk-adjusted returns on capital, and risk-adjusted pricing of loans and services.

Essential to the adoption of more advanced internal ratings-based approaches is the acceptance by federal regulatory agencies—the Farm Credit Administration in the case of the FCS and the Fed, Comptroller of the Currency, and the FDIC for commercial banks. Basel II requires a formal approval process for the measurement, modeling, and management of risk-based capital. Thorough documentation, rigorous testing, complete validation, and ongoing use are key elements of gaining and maintaining approval.

In Conclusion

As occurred under Basel I, the new spectrum of choices for capital management under Basel II will be widely reflected throughout the financial system. The scope and depth of Basel II have followed the “best practices” of the top tier of banks worldwide. Such successful practices typically permeate a financial system with modifications to fit institutional size and resource base. Vendors offering fee-based capital services, further consolidations among financial institutions, data sharing arrangements,

and experience gained by the industry and its regulators will hasten the permeation process and enable community banks—as well as the internationally active ones—to utilize internal ratings-based approaches and economic capital concepts in their risk management.

For More Information

Barry, P.J. (2001). Modern capital management by financial institutions: Implications for agricultural lenders. *Agricultural Finance Review*, 61, 103-122.

Basel Committee on Banking Supervision. (2004). The new Basel Capital Accord. Basel, Switzerland: Bank for International Settlements. Available on the World Wide Web: <http://www.bis.org>.

Katchova, A.L., & Barry, P.J. (2005). Credit risk models and agricultural lending. *American Journal of Agricultural Economics*, 87, 195-206.

The Federal Reserve Board. (2003, September). Capital standards for banks: The evolving Basel Accord. *Federal Reserve Bulletin*, Washington, DC. Available on the World Wide Web: <http://www.federalreserve.gov/pubs/bulletin>.

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