Farmer Mac's Capital Position

by:
Peter J. Barry, Bruce J. Sherrick and Paul N. Ellinger

Government-sponsored enterprises (GSEs) that provide financial services to targeted segments of borrowers in the United States periodically come under scrutiny due to concerns about the size and recipients of their subsidies, the implied government liability if these entities default on their financial obligations, and the need for continued GSE status. Fannie Mae and Freddie Mac have received most of the attention due to their large size and dominant role in residential housing finance.

In the spring of 2002, however, Farmer Mac came under increased scrutiny. Articles in the *New York Times* and the *Washington Post*, as well as industry reports by Gotham Partners, criticized Farmer Mac's business practices and governance, and argued that its capital may be inadequate to withstand potential adversity. Farmer Mac responded vigorously to these criticisms, suggesting that different perspectives on capital adequacy and operational risk would lead to different conclusions. In the meantime, the U.S. Senate Committee on Agriculture, Nutrition and Forestry requested a General Accounting Office (GAO) study of the situation.

These issues have arisen at a time when the finance industry is experiencing rapid advancements in the development and use of risk-based capital management ap-

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proaches that focus on the economic capital needed to backstop an institution's overall risk position. The proposed new Basel Accord (Basel II) is following this path toward refinement in capital requirements and standards for regulatory purposes.

The Basel proposal is offering institutions a menu of options in moving toward improved capital requirements ranging from the use of expanded risk weights to extensive use of internal ratings-based (IRB) approaches to risk measurement. In a similar vein, the Farm Credit Administration (FCA) has developed a risk-based capital test (RBCT) to serve as a tool to aid in setting a regulatory capital requirement for Farmer Mac based on risk.

This article reviews the purposes and properties of the RBCT and discusses its relationships to Farmer Mac's credit, market and operational risk positions. (For detailed descriptions of the RBCT model, see the April 12, 2001, *Federal Register* at 66-FR-19048 and the FCA website: **www.fca.gov.**)

Risk-Based Capital Test

In 2001, FCA adopted a risk-based capital test for Farmer Mac in which the methods and data were largely determined by the statute authorizing the capital standards. By statute, the capital test has three components related to credit risk, market (or interest rate) risk and operational risk. The model uses Farmer Mac's initial portfolio of assets and liabilities, earnings, funding relationships, and the stress-based measures of credit and market risk to project financial performance during a 10-year period.

The test determines the minimum initial capital that would permit the institution to remain solvent for the following 10 years under statutorily prescribed conditions of stress. The test was implemented in the spring of 2002 and is to be applied on a quarterly basis, with changes to the test occurring as needed.

In measuring credit risk, the model conforms with the advanced internal ratings-based option of the proposed Basel II Capital Accord by explicitly determining probabilities of default, loss-given-default and exposure-at-default. However, unlike the Basel II provisions, where default probabilities are to be estimated by the institution, subject to regulatory approval, the measures applied to Farmer Mac are estimated statistically and embodied directly in the RBCT's model (over time, as Farmer Mac's data histories lengthen, the model's credit risk measures could be updated to reflect these experiences).

The statute (the 1971 Farm Credit Act, as amended) specifies that the rates of loan default and the severity of losses in the RBCT reflect the highest rate of default and severity of agricultural mortgage losses that occurred during a historical period of at least two consecutive years. Moreover, the loss rates in the test must be reasonably related to those experienced in a contiguous area of the United States containing at least 5 percent of the total U.S. population.

The probabilities of default on Farmer Mac-eligible real estate loans are benchmarked to loan-level loss histories of the Farm Credit Bank of Texas (the most applicable, available long-term source of loan-level loss data) over the period 1973-1992. This time span includes the significant farm stresses of the 1980s. The two-year worst-case experience in Texas is then extrapolated to other regions based on econometrically estimated relationships between Texas loss rates and changes in land values. The cases of default and non-default are then statistically related to a set of independent factors representing solvency, repayment capacity, liquidity, loan size and land value changes in order to develop a predictive default model that can be applied to individual loans in Farmer Mac's current portfolio.

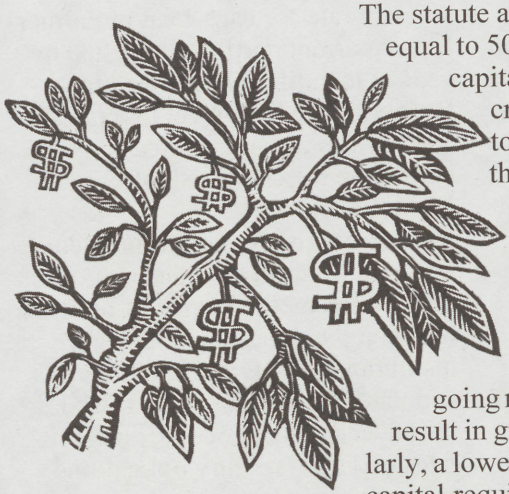
In the RBCT, loss-given-default is measured as the weighted average rate of loss (20.9 percent) on those farm real estate loans experiencing default during 1973 to 1992. In this case, the relatively high recovery rate (79.1 percent) reflects the strong collateral properties of farm real estate. The loan-level probabilities of default are then applied along with the average severity rate for each loan in Farmer Mac's current portfolio, adjusted by year of loan life for seasoned loans, to provide the loan-level loss rates. These rates are aggregated to determine the credit risk of Farmer Mac's portfolio.

Market risk arising from interest rate conditions in financial markets is determined by the degree of match between the durations of the institution's assets and liabilities. As stipulated by statute, market risk is introduced in the model by interest rates on U.S. Treasury obligations increasing or decreasing during the first year of the 10-year period by not more than the lesser of 50 percent of the initial rate or 600 basis points, and remaining at this level for the remainder of the 10-year period. The effects of the interest rate shocks on the market values of assets and liabilities determine the effects on the market value of the

institution's equity capital, and the RBCT then requires that the more severe of the up-rate or down-rate shocks be used in the requirement. Adverse movements of interest rates diminish the market value of equity, thus providing a regulatory incentive to minimize interest rate risk exposure.

The capital test then adds a 30 percent incremental capital charge to cover additional operational risk. The 30 percent operational risk implement is applied to the sum of the capital needed for credit and interest rate risk to determine a total capital requirement. By contrast, Basel II proposes that 20 percent of total capital be attributed to operational risk.

The statute also specifies minimum capital levels of 2.75 percent of the aggregate balance sheet assets and 0.75 percent of off-balance sheet obligations consisting of, for example, outstanding securities guaranteed by Farmer Mac and backed by pools of securitized loans. The statute also defines a critical capital level equal to 50 percent of the total minimum capital requirement. The minimum and critical capital standards are required to be met at all times regardless of the capital required by the RBCT.



Ultimately, the capital levels yielded by the stress test depend on the institution's risk profile and starting capital position. Holding high-risk loans, experiencing large increases in market risk or undergoing rapid growth in loan volume will result in greater capital requirements. Similarly, a lower risk profile will result in a lower capital requirement. The test effectively creates marginal capital requirements based on changes in asset holdings and business growth. Thus, it yields a dynamic capital requirement that is more responsive to change in risk than are the traditional fixed minimum capital ratios.

Farmer Mac's Capital Position

As reported in the April 12, 2001, *Federal Register*, the RBCT determined a regulatory

capital requirement of $64.8 million as of Sept. 30, 2000, compared with the institution's then regulatory capital of $108.4 million. Farmer Mac's statutory minimum capital requirement at that time was $93.6 million. Thus, given its financial position and risk profile at that time, Farmer Mac would not have been required to increase its capital position due to the RBCT requirements. Rather, the minimum requirements would have been binding. Similarly, Farmer Mac reported that, as of June 30, 2002, its minimum and critical capital requirements were $130.4 million and $65.2 million, respectively, and its actual core capital held was $176.2 million, or $45.8 million above the minimum requirement (*Quarterly SEC Report*, Aug. 14, 2002).

Based on the RBCT, Farmer Mac's risk-based capital requirement was $80.1 million as of June 30, 2002. Regulatory capital available to meet this requirement totaled $194.5 million. In general, the current capital levels determined by the risk-based test have been less than 3 percent, and would increase only if the institution takes on greater risk.

Several factors explain why the capital requirement yielded by the RBCT is currently less than the statutory minimum. One is the low risks arising from Farmer Mac's sizeable holdings of cash and cash equivalents, investment securities, and USDA/FSA-guaranteed loans. These holdings represented 51.4 percent of on-balance sheet assets and 30.5 percent of on- and off-balance sheet assets and obligations as of June 30, 2002. Reducing these holdings or shifting to higher risk investments would increase the institution's risk-based capital requirement.

Farmer Mac's underwriting criteria for qualified loans have been largely conservative. For example, qualifying loans must have a loan-to-value ratio no greater than 70 percent, and the borrower's debt-to-asset ratio must be less than 50 percent. The institution can waive these screens when loans have other offsetting strengths.

Farmer Mac's most rapidly growing holding is Long-Term Stand-By Purchase Commitments (LTSPC) on loans held by some Farm Credit System (FCS) institutions, totaling about $2.3 billion as of June 30, 2002. The FCS institutions pay the annual guarantee fee (up to 0.5 percent) to Farmer Mac in order to shift credit risks, reduce their own regulatory capital requirements and use the freed-up capital to support anticipated loan growth. Most of the loans guaranteed to date have been seasoned, thus yielding lower default rates than newly originated loans. Nonetheless, the LTSPC concept provides the potential for increases in credit risk.

The RBCT also allows earnings effects to be reflected differently than the minimum standards versions of required capital. In the case of Farmer Mac, the recent low interest rate environment has resulted in income flows that can help offset some of the losses in a given period. Because the model determines the minimum initial capital that permits solvency over a 10-year period, earning in periods prior to the point at which the minimum occurs are

available to meet capital shortfalls. This effect is consistent with the intended design of the model and with the underlying economic capital concepts.

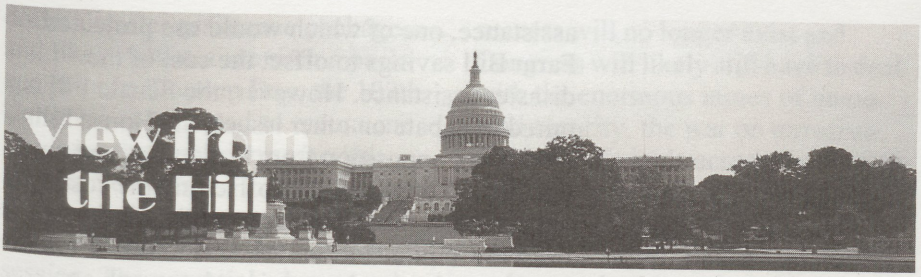
Since Farmer Mac was created in 1988 and binding statutory constraints were relaxed in 1996, its volume of loans held and guaranteed has increased to $5.17 billion on June 30, 2002. Continued rapid loan growth through, for example, acquisitions of loan pools or LTSPC guarantees of sizeable pools of large average-size loans, together with lower proportions of non-loan assets, likely will yield higher capital requirements.

Concluding Comments

While Farmer Mac's capital requirements and capital position appear lower than those of the FCS institutions and commercial banks, the RBCT follows a different risk measurement concept than the risk-weighted approach followed by other regulators.

Moreover, the strong capital positions of the FCS institutions, in particular, reflect in part safety and soundness responses to the farm stresses of the 1980s. These strong capital levels will be challenged, however, by future loan growth, greater patronage refunds to borrowers, potential revisions in capital standards resulting from Basel II, and a continued consolidation of the FCS institutions.

Perhaps the most difficult type of risk to capitalize is operational risk. It refers to losses associated with failed human performance and new technologies. The recent experiences of Enron, WorldCom and other companies are vivid examples of operational risk. Larger financial institutions are compiling frequency and severity data in order to quantify operational risks in a fashion similar to credit and market risk, and Basel II is providing a menu of options for the measurement of operational risk. Further analysis is needed to determine if Farmer Mac's 30 percent increment to capital for operational risk, required by statute, is appropriate. **jal**



Agricultural Disaster Relief in the 107th Congress

by: Robert Fouberg

Essential disaster relief is on its way, or has already been delivered, to farmers and ranchers who are facing low commodity prices and losses due to disease and weather. USDA has authorized emergency haying and grazing on Conservation Reserve Program acres and nearly $1 billion in other assistance for ranchers and over $4 billion will be paid out through the federal crop insurance program.

However, the billion-dollar question in farm and ranch country is whether members of Congress and the president will approve a multi-billion dollar disaster relief package before the 107th Congress finally adjourns. Like so many things in Washington D.C., the answer to that question depends on an infinite variety of factors, for example, the number of legislative days remaining, progress on other significant legislative initiatives, and Election Day results.

To date, the Senate has adopted an amendment to a Department of Interior appropriations bill that would provide nearly $6 billion in emergency financial assistance to farmers and ranchers, and farm-state legislators in the House have introduced bills that would provide similar

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