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FARMER MAC

Some Progress Made, but Greater Attention to Risk Management, Mission, and Corporate Governance Is Needed

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Highlights

Highlights of GAO-04-116, a report to congressional requesters

FARMER MAC

Some Progress Made, but Greater Attention to Risk Management, Mission, and Corporate Governance Is Needed

Why GAO Did This Study

In the late 1990s, GAO found that the Federal Agricultural Mortgage Corporation (Farmer Mac), a federal government-sponsored enterprise, had significant assets in nonmission investments and analyzed its long-term viability. Recently, Congress asked GAO to report on Farmer Mac's (1) financial condition, (2) mission, (3) corporate governance, and (4) oversight provided by the Farm Credit Administration (FCA).

What GAO Recommends

GAO recommends that Farmer Mac improve its risk management and corporate governance practices, including improve its loan loss estimation model, and develop a contingency funding liquidity plan.

GAO also recommends that FCA improve the model that analyzes Farmer Mac's credit risk and assess Farmer Mac's impact on the agricultural real estate market.

GAO suggests that Congress consider legislative changes that would establish clearer, measurable mission goals for Farmer Mac; amend Farmer Mac's board structure; and allow FCA to adjust capital standards for Farmer Mac.

Farmer Mac agreed with some GAO findings and recommendations and did not address others. FCA agreed with GAO's findings and recommendations.

www.gao.gov/cgi-bin/getrpt?GAO-04-116

To view the full product, including the scope and methodology, click on the link above. For more information, contact Ms. Davi M. D'Agostino or Ms. Jeanette Franzel at (202) 512-8678.

What GAO Found

Farmer Mac's income has increased since 1999, and its capital continues to exceed required levels. At the same time, we identified trends that indicated a more complex risk profile. For example, its off-balance sheet standby agreements have grown 350 percent in 3 years and comprise nearly 50 percent of Farmer Mac's total loans. To date, the underlying loans have been performing better than the on-balance sheet loans. However, if rapid growth in standby agreements continues, and Farmer Mac were to undergo stressful economic conditions, it could face substantial funding liquidity risk. Farmer Mac has risk management systems in place, but certain aspects of its risk management capacity have not kept pace with its increasingly complex portfolio. For example, the loans used in the loss estimation model have characteristics that differ from Farmer Mac's portfolio both with respect to geographic distribution and interest rate terms. In addition, although Farmer Mac has maintained sufficient liquidity to support its loan purchase and guarantee activity, it has lacked a formal contingency plan to address potential liquidity needs under stressful agricultural economic conditions.

Since our 1999 report, Farmer Mac has significantly reduced the ratio of nonmission investments and correspondingly increased its mission activities—providing long-term credit to farmers and ranchers at stable interest rates. These activities include loan purchases, guarantees, and commitments related to agricultural mortgages. However, there is geographic and lender concentration in the loan and guarantee portfolio, and the overall impact of the activities on the agricultural real estate market is unclear. Farmer Mac's enabling legislation lacks specific or measurable mission-related criteria that would allow for a meaningful assessment of its mission achievement. In addition, the depth and liquidity of the current market for agricultural mortgage backed securities (AMBS) is unknown because Farmer Mac's strategy of holding AMBS has been a contributing factor in limiting the development of a liquid, secondary market for these securities.

The Sarbanes-Oxley Act of 2002 and the proposed New York Stock Exchange (NYSE) listing standards are both applicable to Farmer Mac because its securities are publicly traded and listed on the NYSE. However, Farmer Mac's efforts to meet the new standards regarding an independent board could be limited by its statutory board structure. Under its statute, two-thirds of the board's directors are elected by institutions that have a business relationship with Farmer Mac and own the only two classes of voting stock. Since 2002, FCA enhanced oversight of Farmer Mac by performing a more thorough annual safety and soundness examination, and by proposing liquidity standards and regulatory limits for nonmission investments. However, FCA still faces challenges, including limitations in its tools to analyze capital and credit risk, as well as the lack of criteria and procedures to assess and report on Farmer Mac's mission achievement.

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Abbreviations

ACA	Agricultural Credit Association
AMBS	agricultural mortgage-backed securities
CEO	chief executive officer
Fannie Mae	Federal National Mortgage Association
Farmer Mac	Federal Agricultural Mortgage Corporation
FCA	Farm Credit Administration
FCBT	Farm Credit Bank of Texas
FCS	Farm Credit System
FHA	Federal Housing Administration
FHESSA	Federal Housing Enterprises Financial Safety and Soundness Act
FHFB	Federal Housing Finance Board
FLCA	Federal Land Credit Association
Freddie Mac	Federal Home Loan Mortgage Corporation
GAAP	generally accepted accounting principles
GSE	government-sponsored enterprise
HUD	Housing and Urban Development
IRR	interest rate risk
LIBOR	London Interbank Offered Rate
LTV	loan-to-value
MTN	medium term-notes
MVE	market value of equity
NII	net interest income
NYSE	New York Stock Exchange
OFHEO	Office of Federal Housing Enterprises Oversight
OSMO	Office of Secondary Market Oversight
QRM	Quantitative Risk Management
ROA	return on assets
ROE	return on equity
SAB	staff accounting bulletin
SEC	Security Exchange Commission
SFAS	Statement of Financial Accounting Standard
SPI	subordinated participation interest
USDA	U.S. Department of Agriculture

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United States General Accounting Office
Washington, D.C. 20548

October 16, 2003

The Honorable Thad Cochran
Chairman
The Honorable Tom Harkin
Ranking Minority Member
Committee on Agriculture, Nutrition, and Forestry
United States Senate

The Honorable Richard G. Lugar
United States Senate

Farmer Mac is a government-sponsored enterprise (GSE)[1] established by Congress to create a secondary market in agricultural real estate and rural housing loans, and improve the availability of agricultural mortgage credit. In 1998 and 1999, we found that a significant amount of Farmer Mac's assets were in nonmission investments and we discussed issues surrounding the long-term viability of Farmer Mac.[2] Recently, you asked us to conduct a comprehensive review of Farmer Mac. This report discusses (1) Farmer Mac's current financial condition and risk management practices; (2) the extent to which Farmer Mac has achieved its statutory mission; (3) Farmer Mac's corporate governance as it pertains to board structure and oversight, and executive compensation; and (4) the Farm Credit Administration's (FCA) oversight of Farmer Mac.

To address these objectives, we analyzed trends in Farmer Mac's key indicators of financial performance and condition for fiscal year 2002—including measures of earnings and profitability, capital, liquidity, and its asset and liability mix—and determined how Farmer Mac has managed and

[1]As used in this report, a GSE is a federally chartered, privately owned corporation established by Congress to provide a continuing source of credit nationwide to a specific economic sector.

[2]U.S. General Accounting Office, *Government Sponsored Enterprises: Federal Oversight Needed for Nonmortgage Investments*, GAO/GGD-98-48 (Washington, D.C.: Mar. 11, 1998). U.S. General Accounting Office, *Farmer Mac: Revised Charter Enhances Secondary Market Activity, but Growth Depends on Various Factors*, GAO/GGD-99-85 (Washington, D.C.: May 21, 1999). In this report, we reviewed the progress that Farmer Mac had made in achieving its statutory mission and examined its future viability.

measured the risks it faces—credit, liquidity, and interest rate risk.[3] We reviewed documents and interviewed representatives from Farmer Mac, FCA, other market participants, and individuals with expertise in the agricultural real estate market. We analyzed Farmer Mac's loan portfolio growth. We obtained and reviewed FCA's previous examinations and its most recent examination of Farmer Mac and other consultants' studies related to Farmer Mac. We did not report specific details of Farmer Mac's investment and loan portfolio nor details of reports of auditors, consultants, and examiners because of the proprietary nature of such information.

We conducted our work in California, Indiana, New York, Virginia, and Washington, D.C., between August 2002 and May 2003 in accordance with generally accepted government auditing standards. Appendix I contains a detailed description of the scope and methodology of our work.

Background

Farmer Mac, a GSE, was chartered by Congress in the Farm Credit Act of 1971, as amended by the Agricultural Credit Act of 1987 (the 1987 Act).[4] It is a federally chartered and privately operated corporation that is publicly traded on the New York Stock Exchange. Farmer Mac is also an independent entity within the Farm Credit System (FCS), which is another GSE. As an FCS institution, Farmer Mac is subject to the regulatory authority of FCA. FCA, through its Office of Secondary Market Oversight (OSMO), has general regulatory and enforcement authority over Farmer Mac, including the authority to promulgate rules and regulations governing the activities of Farmer Mac and to apply its general enforcement powers to Farmer Mac and its activities. According to the 1987 Act, Farmer Mac, in extreme circumstances, may borrow up to $1.5 billion from the U.S. Treasury to guarantee timely payment of any guarantee obligations of the corporation.[5]

Under the 1987 Act, Farmer Mac's mission is to provide for a secondary marketing arrangement for agricultural real estate and rural housing loans subject to its underwriting standards. A secondary market is a financial

[3]See Background section for definitions.

[4]Pub. L. No. 100-233.

[5]Id.

market for buying and selling loans, individually or by securitizing them. When loans are securitized, they are repackaged into a "pool" by a trust in order to be sold to investors. By returning cash to primary lenders in exchange for their loans, theoretically, a secondary market would generate additional funds for the lenders to lend and enhance the lenders' ability to manage credit and interest rate risk. Ideally, a Farmer Mac-sponsored secondary market would increase liquidity to lenders by providing the lenders access to national capital markets. This in turn would reduce regional imbalances in loanable funds and possibly increase the overall availability of credit to the primary agricultural real estate market and lower interest rates for borrowers.

To relieve structural impediments that had limited Farmer Mac's ability to function efficiently, Congress passed the Farm Credit System Reform Act of 1996 (the 1996 Act), which significantly revised Farmer Mac's statutory authority and had significant impact on Farmer Mac's operations.[6] Among other things, the 1996 Act allowed Farmer Mac to (1) purchase agricultural mortgage loans directly from lenders, "pool" the loans, and issue and sell securities that are backed by these pools to investors and (2) eliminate the mandatory requirement for loan originators and poolers to retain 10 percent, first-loss subordinated participation interest (SPI) with each securitized loan pool.[7]

Farmer Mac operates a cash window program where Farmer Mac purchases mortgages directly from lenders for cash and purchases bonds from agricultural lenders. (See app. II for Farmer Mac's programs and products.) Periodically, Farmer Mac transfers its purchased loans into trusts that it uses as vehicles for the securitization of those loans. Securitization is the transfer of assets (in this case, loans) to a third party or trust. In turn, the third party or trust issues certificates to investors. Farmer Mac refers to the certificates sold to investors as "guaranteed securities" or as agricultural mortgage-backed securities (AMBS). The cash flow from the transferred loans supports repayment of the AMBS. Farmer Mac guarantees timely payments to investors holding the certificates,

[6]Pub. L. No. 104-105.

[7]SPI is the right to receive a portion of the principal and interest payments on a loan or pool of loans, but only after other investors in the Farmer Mac-guaranteed securities backed by these pools have received all payments due to them. Originators could have retained SPIs in the loans they sold to Farmer Mac or they could have sold SPIs to a pooler.

regardless of whether the trust has actually received such scheduled loan payments.

Farmer Mac loan programs are divided into two main groups referred to as Farmer Mac I and Farmer Mac II. Farmer Mac I consists of agricultural and rural housing mortgage loans that do not contain federally provided primary mortgage insurance. For loans underlying pre-1996 Act Farmer Mac I AMBS, 10-percent first-loss subordinated interests mitigate Farmer Mac's credit risk exposure. Before Farmer Mac incurs a credit loss, losses are first absorbed by the poolers' or originators' subordinated interest. As of December 31, 2002, Farmer Mac had not experienced any credit losses related to the pre-1996 Act Farmer Mac I AMBS, and the first-loss subordinated interests are expected to exceed the estimated credit losses on those loans. Current risks in Farmer Mac's loan and guarantee portfolio, such as those discussed later in this report, are generated primarily by post-1996 guaranteed securities.

Farmer Mac receives an annual guarantee fee from the third party or trust involved based on the outstanding balance of the Farmer Mac I post-1996 guaranteed securities. During 2002, all AMBS sold were to Zions Bank, a related party of Farmer Mac, and totaled $47.7 million. Guarantee fees earned from Zions Bank were $1.0 million in 2002.[8]

Farmer Mac II consists of agricultural mortgage loans containing primary mortgage insurance provided by the U.S. Department of Agriculture (USDA). USDA-guaranteed loans collateralizing Farmer Mac II AMBS are backed by the full faith and credit of the United States. Similar to the pre-1996 Act securities, as of December 31, 2002, Farmer Mac had experienced no credit losses on any Farmer Mac II AMBS and did not expect to incur any such losses in the future.

Farmer Mac's long-term standby purchase commitments (standby agreements), introduced in 1999, represent a commitment by Farmer Mac to purchase eligible loans from financial institutions at an undetermined

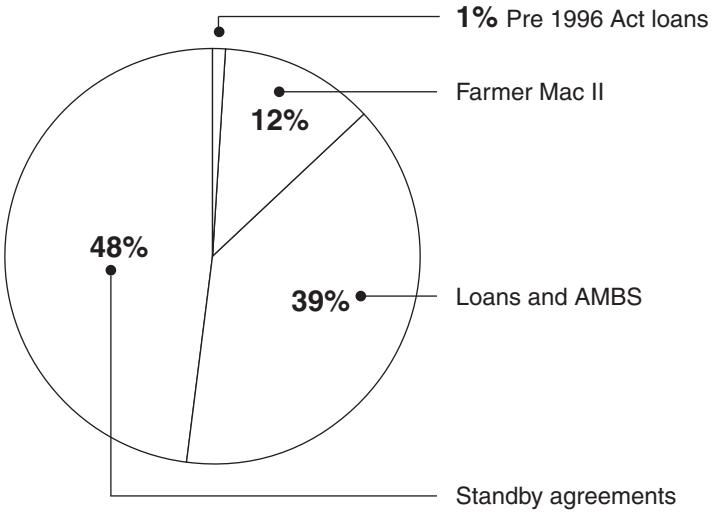
[8]Zions Bank, a national bank chartered by the Office of the Comptroller of Currency, is referred to as a related party of Farmer Mac's because it is the largest holder of Farmer Mac's Class A voting Common Stock and a major holder of Class C nonvoting Common Stock. In addition, Zions Bank's Executive Vice President is on Farmer Mac's Board of Directors, and Zions Bank sells loans to Farmer Mac and serves as a Central Servicer of loans for Farmer Mac. Zions Bank also acted as an underwriter, agent, and dealer regarding Farmer Mac's discount and medium-term notes.

future date when a specific event occurs. This commitment represents a potential obligation of Farmer Mac that does not have to be funded until such time as Farmer Mac is required to purchase a loan. The specific events or circumstances that would require Farmer Mac to purchase loans under a standby agreement include when (1) an institution determines it will sell some or all of the loans under the agreement to Farmer Mac or (2) a borrower fails to make installment payments for 120 days on a loan covered by a standby agreement. Financial institutions effectively transfer the credit risk on the loans covered by a standby agreement to Farmer Mac. Consequently, these institutions' regulatory capital requirements and loss reserve requirements would then be reduced. To date, FCS institutions have been the only participants in standby agreements. In exchange for Farmer Mac's commitment under the standby agreement, Farmer Mac receives an annual commitment fee from institutions entering into these agreements, based on the outstanding balance of the loans covered by the standby agreement. In 2002, these fees represent a significant portion of Farmer Mac's total revenues.

Farmer Mac funds its loan purchases primarily by issuing debt obligations of various maturities. As of December 31, 2002, Farmer Mac had outstanding $2.9 billion of short-term discount notes and $1.0 billion of medium-term notes. To the extent the proceeds of the debt issuances exceed Farmer Mac's need to fund program assets, those proceeds are used to purchase assets for the nonmission investment portfolio.

As of December 31, 2002, loans held by Farmer Mac and loans that either back Farmer Mac AMBS or are subject to standby agreements totaled $5.5 billion. Nearly $3 billion of the $5.5 billion loan and guarantee portfolio is not on Farmer Mac's balance sheet. See figure 1 for a breakdown of the $5.5 billion loan and guarantee portfolio. As of December 31, 2002, Farmer Mac employed 33 persons.

Figure 1: Percentage of Outstanding Balance of Loans, AMBS and Standby Agreements, as of December 31, 2002



Source: GAO analysis of data from Farmer Mac 2002 SEC 10-K filing.

Like any other private financial firm, Farmer Mac faces credit, liquidity, interest rate, and operations risks when conducting its secondary market operations. Farmer Mac is exposed to the following risks:

- **Credit risk**—the possibility of financial loss resulting from default by borrowers on farming assets that have lost value or other parties' failing to meet their obligations. Credit risk occurs when Farmer Mac holds mortgages in portfolio and when it guarantees principal and interest payment to investors in the AMBS it issues. Farmer Mac is also exposed to credit risk for the approximately $2.7 billion of loans under Farmer Mac standby agreements, which represent unconditional commitments to purchase performing loans at a market price, and to purchase120 day delinquent loans at par.

- **Liquidity risk**—the possibility or the perception that Farmer Mac will be unable to meet its obligations as they come due because of an inability to liquidate assets or obtain adequate funding (referred to as "funding liquidity risk") or will not be able to easily unwind or offset specific exposures without significantly lowering market prices because of inadequate market depth or market disruptions ("market liquidity risk").

- **Interest rate risk**—the potential that changes in prevailing interest rates will adversely affect on-balance sheet assets, liabilities, capital, income or expenses at different times in different amounts.

- **Operations risk**—the possibility of financial loss resulting from inadequate or failed internal processes, people and systems, or from external events.

As a GSE, the structure of Farmer Mac's board of directors was congressionally established. Its 15-member board of directors includes 5 members elected by Class A stockholders that are banks, insurance companies, and other financial institutions, 5 members elected by Class B stockholders that are FCS institutions, and 5 members appointed by the president of the United States. Farmer Mac has a third class of common stock that is held by the general public, Class C, which does not have voting rights.

The federal government's creation and continued relationship with Farmer Mac has created the perception in financial markets that the government will not allow the GSE to default on its debt and AMBS obligations, although no such legal requirement exists. As a result, Farmer Mac can borrow money in the capital markets at lower interest rates than comparably creditworthy private corporations that do not enjoy federal sponsorship. During the 1980s, the federal government did provide limited regulatory and financial relief to Fannie Mae when the GSE was experiencing financial difficulties; and in 1987, Congress provided financial assistance to FCS.

Results in Brief

Since 1999, Farmer Mac's financial condition has improved, but its risk management practices have not kept pace with its more complex risk profile. Farmer Mac's net income has steadily increased from $4.6 million in 1997 to $22.8 million in 2002, for a total increase of 392 percent. On the other hand, Farmer Mac's off-balance sheet standby agreements, which are commitments to purchase loans under specific circumstances, such as when a loan becomes 120 days delinquent, have grown 350 percent in 3 years to $2.7 billion and represent nearly 50 percent of the total loans included in Farmer Mac's programs. Regarding the credit quality of the loans underlying current standby agreements, those loans have been performing better than the loans on Farmer Mac's balance sheet. While these standby agreements have fueled revenue growth, going forward, if this rapid growth continues, standby agreements could generate

substantial funding liquidity risk under stressful economic conditions. Further, nonperforming, or impaired, loans have been increasing for Farmer Mac and totaled $75.3 million at the end of 2002 as compared to zero at the end of 1997. While Farmer Mac has substantially increased its allowance for loan losses and reserve for losses (loan loss allowance), the ratio of its allowance to its impaired loans has gone down by over 50 percent since December 31, 1998. This indicates that Farmer Mac's impaired loans have increased at a faster rate than the increases in its loan loss allowance and may also indicate increasing credit risk. Nevertheless, forensic accountants retained by Farmer Mac Board's outside counsel concurred with Farmer Mac's methodology for estimating loan loss allowance.

Farmer Mac has risk management systems in place, such as underwriting standards for purchasing and guaranteeing loans (including loans underlying standby agreements), and has generally sound processes in place for estimating credit losses. However, Farmer Mac has not (1) consistently well documented the exceptions made to its loan underwriting and servicing procedures, (2) included the current characteristics of its loan portfolio in the loan loss estimation model, and (3) adequately documented the results of the model compared to actual portfolio and economic conditions, resulting in the increased possibility that management's objectives of minimizing credit risk have not been met. We make recommendations to Farmer Mac designed to enhance its loan loss estimation model and to improve its documentation of policies and procedures, and management's actions that relate to reducing credit risk. Regarding liquidity risk, Farmer Mac has maintained sufficient liquidity to support its loan purchase and guarantee activity through continued access to the capital markets. However, Farmer Mac lacks a formalized contingency plan to address its potential liquidity needs that could potentially be created by the standby agreements under stressful agricultural economic conditions. Although Farmer Mac issues debt securities for liquidity purposes, it is not required and it has decided not to obtain a credit rating from a nationally recognized statistical rating agency. As for interest rate risk, the methods employed by Farmer Mac to measure interest rate sensitivity appeared reasonable but we identified limitations with some elements of its prepayment methodology. In terms of capital, Farmer Mac exceeded the capital levels required by its statute and regulator but could improve its plan for capital adequacy. Specifically, it lacked a test for sufficiency in assessing its capital adequacy, other than its stated goal of meeting its statutory minimum and regulatory risk-based capital requirements. We make recommendations to Farmer Mac to

develop a contingency funding liquidity plan, improve the quality of its prepayment model, and enhance its analysis of capital adequacy. Finally, Farmer Mac also faces some uncertainty involving its line of credit with the Department of the Treasury (Treasury). Specifically, while the legal opinion of Farmer Mac's outside counsel disagrees, Treasury has taken the position that it is not obligated to cover losses on AMBS held in Farmer Mac's portfolio.

Farmer Mac has increased its agricultural mortgage loan purchase and guarantee activity since our 1999 report, and has reduced the relative size of its nonmission portfolio. Nevertheless, its enabling legislation contains broad mission purpose statements and lacks specific or measurable mission-related criteria that would allow for a meaningful assessment of whether Farmer Mac had achieved its public policy goals. Farmer Mac's strategy of holding AMBS for profitability reasons has been a contributing factor in limiting the development of a liquid secondary market for these securities. As a result, the depth and liquidity of the demand for AMBS in the current market are unknown. Farmer Mac introduced the standby agreement program to provide greater lending capacity for agricultural real estate lenders. However, FCS institutions' increased use of standby agreements potentially reduces the sum of capital required to be held by FCS and Farmer Mac. Such a reduction in capital could be consistent with a reduction in risk if there were diversification at the secondary market level. However, as of December 31, 2002, 10 financial institutions generated 90 percent of Farmer Mac's business, and over 70 percent of the outstanding balance of Farmer Mac's loan portfolio was located in the Southwest and Northwest. Finally, the size of Farmer Mac's nonmission investment portfolio has decreased as a percentage of its total on- and off-balance sheet portfolio. Still, the composition and criteria for nonmission investments could potentially lead to investments that are excessive in relation to Farmer Mac's financial operating needs or otherwise would be inappropriate to the statutory purpose of Farmer Mac. We make recommendations to Farmer Mac to reevaluate its current strategy of holding AMBS in its portfolio and issuing debt to obtain funding. We also suggest that Congress consider legislative changes to establish clearer mission goals for Farmer Mac.

Like other publicly traded companies, Farmer Mac is in the process of taking actions to ensure that it complies with provisions of the Sarbanes-Oxley Act of 2002 (Sarbanes-Oxley) requirements, the Security Exchange Commission (SEC) rules, and proposed changes in the New York Stock Exchange (NYSE) listing standards. In accordance with these new

requirements, Farmer Mac has reaffirmed its audit committee charter and has hired internal and external auditors that are from different firms. Sarbanes-Oxley requires that members of audit committees of listed companies be independent and proposed NYSE listing standards require that a majority of the board of directors of listed companies be independent. Since Farmer Mac's Class A and Class C stock are listed on the NYSE, Farmer Mac is currently subject to the auditor independence requirements of Sarbanes-Oxley and, unless waived, the listing standards. Farmer Mac has taken steps to update its corporate governance practices, but its statutory board structure, which is set by law, could make it difficult to comply with the board independence requirements proposed in the NYSE listing standards. Moreover, since Farmer Mac shareholders include both institutions that utilize its services (Class A and Class B common stock) and public investors (Class C common stock), and because all members of the board of directors are chosen by the cooperative investors or by the President of the United States, the board may face difficulties in representing the interests of all shareholders. Additionally, since Farmer Mac is a publicly traded company, the nonvoting structure of Farmer Mac's Class C common stock may not be appropriate in today's corporate governance environment. In most respects, Farmer Mac's board policies and processes appear reasonable, but the process to identify and select nominees, director training, and succession planning could be further developed and formalized. Finally, Farmer Mac's total executive compensation was within its consultants' recommended parameters; however, its vesting program appears more generous than industry practices, given Farmer Mac's maturity. We make recommendations to Farmer Mac designed to provide more transparency to the nomination process and succession planning and more consistency in training for directors. We also recommend that Farmer Mac reevaluate the vesting period for stock options. We further suggest that Congress consider legislative changes to amend the structure of the Farmer Mac board and the structure of Farmer Mac's Class C common stock.

Since 2002, FCA took several steps to enhance supervisory oversight of Farmer Mac but faces significant challenges that could limit the effectiveness of its oversight. FCA's June 2002 annual safety and soundness examination was more comprehensive than previous examinations. FCA also has taken some actions to improve its regulatory framework for Farmer Mac by developing proposed regulations regarding liquidity standards and nonmission investments. Although FCA has increased its efforts to help oversee and examine Farmer Mac's operations, our review identified weaknesses in FCA's off-site monitoring process regarding call

reports. As it continues to oversee Farmer Mac, FCA faces five significant challenges related to Farmer Mac's risk-based capital model as well as regulatory management. First, limitations exist in FCA's model used to estimate Farmer Mac's credit risk for calculation of the risk-based capital requirement. Individually, each limitation may under or over estimate the risk-based capital for Farmer Mac's credit risk, but overall, the relative magnitude of these effects is unclear. Second, FCA's risk-based capital regulation does not capture credit risk on Farmer Mac's liquidity investments, AgVantage bonds, and counterparty risk on derivatives. Third, FCA's market risk and income models may understate estimated levels of required risk-based capital. Fourth, FCA does not have criteria and procedures to assess and report on the relationship of Farmer Mac's activities to the achievement of its mission. Finally, being the single regulator for both FCS institutions and Farmer Mac could cause potential conflicts of interest because FCA may, in times of stress, attempt to support one type of participant at the expense of the other. We make recommendations to FCA designed to enhance the risk-based capital model, improve off-site monitoring of Farmer Mac, and assess and report on how Farmer Mac is achieving its mission. We also suggest that Congress consider a legislative change to allow FCA more flexibility in setting minimum capital requirements for Farmer Mac.

We provided a draft of this report to the heads or their designees of the Farmer Mac, FCA, SEC, and Treasury. We received written comments from Farmer Mac and FCA that are reprinted in appendixes VII and VIII respectively. SEC did not provide comments. Farmer Mac, FCA, and Treasury also provided technical comments that we have incorporated as appropriate. Farmer Mac stated that it agreed with the report's findings and conclusions on Farmer Mac's risk management practices and has taken a number of steps toward implementing the majority of the recommendations. While Farmer Mac seemed to agree with the report's recommendations to improve its analysis of capital adequacy, develop a contingency funding plan, and improve documentation of management exceptions to its eight major underwriting standards, it did not address the rest of our recommendations. Farmer Mac commented that the uncertainty regarding the Treasury line of credit is a moot point because a legal opinion by its outside counsel stated that the Treasury line of credit would be available in the circumstances noted. Our position is that this issue may remain unresolved until Farmer Mac approaches Treasury for assistance. Farmer Mac appeared to disagree with our concern about funding liquidity risk that might arise from standby agreements. However, we noted that Farmer Mac seems to believe that liquidity funding risk is captured and

accounted for in the risk-based capital model, whereas it is not. Moreover, Farmer Mac has not fully recognized all loan amounts that could be presented to Farmer Mac for funding as part of its liquidity funding needs. FCA generally concurred with the report's findings and conclusions that are focused on FCA's work to oversee the safety and soundness of Farmer Mac and agreed to implement the report's recommendations. FCA does not agree that additional data and modeling would add value to the risk-based capital model, although FCA stated that it is studying the possibility of updating the data used in the model. We discuss Farmer Mac and FCA's comments and our response in greater detail at the end of this letter.

Farmer Mac's Financial Condition Has Improved, but Risk Management Practices Have Not Kept Pace with Its More Complex Risk Profile

Farmer Mac's net income has steadily increased from $4.6 million in 1997 to $22.8 million in 2002, for a total increase of 392 percent. At the same time, we identified trends that increased the complexity of Farmer Mac's risk profile, such as rapid growth in its standby agreement program, certain weaknesses in its risk management practices, and an uncertainty involving Treasury's line of credit.

Farmer Mac's Income Has Increased, and Risk Profile Has Become More Complex

Two primary revenue sources contributed to the growth of Farmer Mac's net income—interest income and commitment fees. Interest income earned on Farmer Mac's portfolio of loans, guaranteed securities, and investments has more than doubled due to substantial growth in Farmer Mac's portfolios over the same period. Interest income was Farmer Mac's principal source of revenue in 1997. But recently, a new source of revenue—commitment fees earned on standby agreements— has grown since the product's inception in early 1999, amounting to over 25 percent of Farmer Mac's total revenues for 2002. See appendix III for further discussion of trends and comparisons of Farmer Mac's financial condition.

High Growth in Standby Agreements Fuels Revenue, but Could Generate Funding Liquidity Risk Under Stressful Conditions

Although Farmer Mac's net income has been increasing since 1997, there could be indicators of increasing funding liquidity risk due to high levels of growth in Farmer Mac's standby agreement program. Farmer Mac's earnings growth has principally been driven by its off-balance sheet standby agreements. First offered in early 1999, the standby agreement program grew rapidly. As shown in table 1, the balance of loans covered by

standby agreements grew from zero in 1998 to $2.7 billion at December 31, 2002, with high rates of growth in recent years.

Table 1: Loans Covered by Standby Agreements

	1998	1999	2000	2001	2002
Loans covered by standby agreements	$0	$0.6 billion	$0.9 billion	$1.9 billion	$2.7 billion
Percentage increase from previous year	N/A	N/A	50%	111%	42%

Source: Farmer Mac 2002 SEC 10K filing.

Corresponding with the growth in loans covered under the standby agreement program is an increase in Farmer Mac's revenues. For instance, revenues from commitment fees were $1.6 million in 1999 or 7 percent of Farmer Mac's total revenues that year. By 2002, revenues from commitment fees had increased to $11.0 million, representing 22 percent of total revenues. During economic times when agricultural land values have been rising and interest rates have been relatively low, Farmer Mac has, in 2002, purchased about $3.3 million of the eligible agricultural mortgage loans placed under standby agreements.

Farmer Mac stated that since the program began in 1999, the relatively few defaulted loans they have had to purchase reflect the credit quality of the loans underlying standby agreements. Further, those loans are underwritten and required to be serviced to the same standards used for all other loans backing Farmer Mac's AMBS. Between 1999 and 2002, the standby agreements had no net credit losses. At December 31, 2002, loans that were at least 90 days delinquent under standby agreements were $3.5 million or 0.13 percent of the total amount of loans under standby agreements. This was well below the $54.7 million or 2.21 percent of Farmer Mac's on-balance-sheet loans and guarantees. The lower delinquencies and losses under the standby agreement program indicate that the program through December 31, 2002, experienced lower credit risk than Farmer Mac's other programs.

However, guidance from financial regulators indicates rapid growth of programs or assets is thought to be an increased risk factor. Many financial institution failures of past decades were blamed, in part, on unchecked growth particularly in new and innovative products with complicated risk characteristics. The rapid growth of the standby agreements could result

in increased funding liquidity risk to Farmer Mac because Farmer Mac's commitment under these agreements differ from its off-balance sheet AMBS. For AMBS, if an underlying loan becomes 90 days delinquent, Farmer Mac has the option of purchasing the loan, or just making installment payments. Under its standby agreements, if an underlying loan is 120 days delinquent, the lender can require Farmer Mac to buy the loan. Therefore, standby agreements represent a potential future obligation of Farmer Mac, which does not have to be funded until such time as Farmer Mac is required to purchase an impaired loan.[9] In other words, going forward, if the rapid growth of standby agreements continue, at a time when either the agricultural sector is severely depressed or interest rates are adversely changing, Farmer Mac could be required to purchase large amounts of impaired or defaulted loans under the standby agreements, thus subjecting Farmer Mac to increased funding liquidity risks and the potential for reduced earnings. (See liquidity section for further discussion.)

Additionally, because of its rapid growth and recent implementation, there is limited historical information to project the number of loans covered by standby agreements that Farmer Mac may need to purchase in the future. As a result, management has limited quantitative data on which to base risk management and other operating decisions.

Similar to Farmer Mac's other guaranteed obligations, when Farmer Mac is required to purchase an impaired or defaulted loan under its standby agreement obligation, it may adversely affect its earnings in four ways: (1) it requires an earning asset to be sold or a liability to be incurred in exchange for an asset that might not be an earning asset; (2) it increases administrative expenses for monitoring, collection, and recovery efforts; (3) the annual commitment fees Farmer Mac receives on the loan would cease; and (4) under economically stressful conditions, Farmer Mac could incur losses on the disposal of impaired loans it is required to purchase under the standby agreements if the net proceeds from the sale of collateral on the loan is insufficient.

Increase in Impaired Loans and Charge-offs May Indicate Increasing Credit Risk

Farmer Mac has established an allowance for loan losses and reserve for losses (a loan loss allowance) to cover estimated, probable loan losses for its current portfolio of loans, commitments, and guarantees. The loan loss allowance has increased substantially from $1.6 million at December 31,

[9]These off-balance sheet obligations were disclosed in Farmer Mac's SEC filings.

1997, to $19.4 million at December 31, 2002. On the other hand, the ratio of loan loss allowance to impaired loans has decreased from a high of 59.1 percent at December 31, 1998, to 27.8 percent at December 31, 2002. This ratio, a primary credit risk indicator, shows that the balance of Farmer Mac's impaired assets has increased at a faster rate than the increases in its loan loss allowance. (We further discuss management's monitoring and assessment of credit risk in a later section of this report.)

Farmer Mac's increase in impaired loans, real estate owned, and write offs of bad loans as well as the growth in its on- and off-balance sheet loans, guarantees, and standby agreements is indicative of increasing credit risk. Impaired loans totaled $75.3 million at December 31, 2002, compared to zero at December 31, 1997.[10] Since Farmer Mac only began purchasing loans after the 1996 Act was passed, the loan and guarantee portfolio is relatively new. As loan portfolios age, delinquencies typically increase, eventually peak, and then taper off, establishing a track record of performance often referred to in the industry as a "seasoned" portfolio. According to Farmer Mac, its loans are just becoming seasoned, so the losses and delinquencies are increasing. Farmer Mac's write offs of impaired loans have been limited to date but delinquencies are increasing. During 2002, Farmer Mac wrote off $4.1 million of bad loans, or 8 basis points[11] of post-1996 Act loans and guarantees, which was a significant increase over the $2.2 million, or 6 basis points, written off in 2001.[12]

Farmer Mac's Controls Over Credit Risk Were Generally Sound but Had Certain Weaknesses

Although Farmer Mac has underwriting standards for purchasing and guaranteeing loans (including loans underlying standby agreements), and has processes for estimating credit losses, Farmer Mac's implementation of its standards and its processes need improvement to enhance its overall controls over credit risk. One of its underwriting standards permits

[10]Per Farmer Mac's 2002 Annual Report, impaired assets are loans that are 90 days or more past due, in foreclosure, loans performing in bankruptcy, either under their original loans terms or a court-approved bankruptcy plan, and real estate owned, which is real estate acquired through foreclosure.

[11]A basis point is equal to one hundredth of a percent.

[12]Loans written off are losses on the outstanding balance of the loan, any interest payments previously accrued or advanced, and expected collateral liquidation costs. The post-1996 Act loans and guarantees are post-1996 Act loans held and loans underlying the guaranteed securities and standby agreements, which represent the credit risk on loans and guarantees assumed by Farmer Mac.

management to override one or more of the other eight standards when, in management's opinion, other factors compensate for certain loan weaknesses. Farmer Mac has made use of this provision without consistently and thoroughly documenting the basis for the exceptions made. For loans it has purchased, including loans under standby agreements, Farmer Mac's process for estimating credit losses is generally sound but has certain weaknesses. In estimating losses, Farmer Mac uses a risk model based on loans that differ from those in its own portfolios and under its standby agreements with respect to geographic distribution and interest rate terms. This lack of comparability and other limitations of the model may affect the reasonableness and accuracy of Farmer Mac's estimated losses resulting from credit risk either upward or downward. In estimating the credit risk of loans under standby agreements, a complicating factor is that Farmer Mac lacks the historical experience with the long term standby agreements needed to accurately estimate the types of loans and amount of loans it may ultimately be obligated to purchase, along with any associated losses. In addition, for estimating and allocating loan losses, Farmer Mac reverses the order of the methods called for in accounting guidance and does so without quantifying the effects of its approach. Finally, recent reviews have shown weak documentation describing Farmer Mac's use of its loan loss estimation model, its quantification process, management's judgment and key decisions, and the summary results of the loss estimation process.

Farmer Mac's Loan Underwriting and Servicing Procedures Were Clear, but Exceptions Were Not Consistently Well Documented

Farmer Mac uses underwriting standards and processes for monitoring the loans it purchases and guarantees (including those loans under its standby agreements). It also has standards for "sellers" and loan "servicers." Farmer Mac's underwriting process includes identifying and analyzing potential risks of loss associated with its loan purchases and guarantees prior to entering into such agreements. A key element of Farmer Mac's system of internal control in underwriting is the use of established, written standards (for both internal use and for external loan sellers and servicers) that require analysis of numerous qualitative and quantitative borrower and property characteristics for loans, prior to purchase or prior to inclusion in a standby agreement. These standards help streamline the process for buying and guaranteeing loans, lower transaction costs, and increase efficiency while providing criteria and controls over the process of accepting loans for purchase or for inclusion in standby agreements. For example, Farmer Mac has underwriting standards as documented in its *Seller/Servicer Guide* (the guide) to (1) assess whether a borrower has sufficient income and a good credit history and (2) set a maximum loan-to-value ratio (LTV) limit. Farmer Mac monitors its credit risk through

periodic monitoring of the borrower's and seller/servicer's performance by reviewing the payment history, visiting borrower and servicers' facilities, and in the case of seriously delinquent loans with expected loss in collateral value, obtaining updated property inspections and valuations.

As shown in appendix IV, Farmer Mac has nine underwriting standards to which all loans must conform, in order for Farmer Mac to purchase or guarantee the loans. Underwriting standard number nine allows management to override one or more specific underwriting criteria when, in management's opinion, other factors compensate for certain loan weaknesses. For example, in cases when the borrower's debt-to-asset ratio may not meet standards but the LTV ratio is better than requirements, then credit risk could be balanced by the LTV ratio. As of December 31, 2002, a total of $1.4 billion (30 percent) of the outstanding balance of loans held and loans underlying standby agreements and post-1996 Farmer Mac I Guaranteed Securities were approved based upon compensating strengths. Further, during 2002, $327.7 million (28 percent) of the loans purchased or added under standby agreements were approved based upon compensating strengths.

However, recent reviews noted that management's assessments supporting the override of underwriting criteria, including quantification and evaluation of compensating risk factors, was often not well-documented. Without consistently well-documented reasons for exceptions to the underwriting standards, Farmer Mac increases the risk that management's objectives of balancing risk have not been met. During 2003, Farmer Mac has begun gathering related data, but has not yet developed a process for fully utilizing the data in its management decision process for making future overrides and for estimating credit risk and allowance for losses on those specific loans.

Weaknesses Exist in Farmer Mac's Monitoring and Assessment of Changes in Credit Risk

As part of the financial monitoring and reporting process, Farmer Mac's management is responsible for assessing the current level of risk associated with individual loans and loan portfolios that have been purchased or guaranteed by Farmer Mac, including loans under its standby agreements that are off-balance sheet, and estimating credit losses on those loans for financial reporting purposes. Farmer Mac records its estimated losses on loans held in an "allowance for loan losses" account, which serves to reduce the balance of Farmer Mac's loans. Farmer Mac estimates credit losses on loans backing its guaranteed securities and loans covered by its standby agreements and records those losses in "reserve for losses," which appears as a liability on Farmer Mac's balance sheet. When

Farmer Mac records estimated losses in the allowance for loan loss and reserve for losses accounts, Farmer Mac's pretax income, and therefore its core capital, is reduced.

Farmer Mac uses a credit risk modeling tool called the Loan Pool Simulation and Guarantee Fee Model (the model) as a basis for estimating loan losses each quarter. This model, developed by an outside consultant, uses equations to estimate the probability, amounts, and distribution of losses over a period of time based upon loss experience from the Farm Credit Bank of Texas (FCBT) from 1979 to 1992. Because Farmer Mac does not have adequate historical experience from its own portfolio for estimating losses on loans, data from FCBT are used as a proxy. According to Farmer Mac management, this was the best data available for estimating Farmer Mac's future losses on loans. The resulting projections of losses were reviewed by Farmer Mac management prior to being recorded to the financial statements. While this was the best data available, we did find a number of limitations in Farmer Mac's loan loss estimation model, its data, and application of the results to estimate losses, which may impact the reasonableness of the allowance and reserve amounts, and related losses recorded in the company's financial statements. We further discuss the data limitation in the FCA oversight section of this report since FCA also used FCBT data in its model to estimate Farmer Mac's credit risk.

The model used by Farmer Mac to estimate credit risk has some limitations. The primary limitation of the model is that Farmer Mac's loan and guarantee portfolios and the loans included under standby agreements have different characteristics from the loan characteristics of FCBT loans used in the model. Although the loans used in the model have similar characteristics with respect to key underwriting variables, they differ from Farmer Mac's portfolio both with respect to geographic distribution and interest rate terms. Specifically, the data supporting Farmer Mac's loan loss estimation process include loans issued in the 1970s and 1980s by FCBT, which were adjustable-rate mortgages, tied to a farm credit cost of funds index that changed slowly over time. In contrast, the loans now held and guaranteed by Farmer Mac are either rapidly changing adjustable-rate mortgages, or fixed-rate mortgages with financial penalties to the borrowers that eliminate the incentive to refinance when interest rates drop. Additionally, the FCBT loans were limited to Texas, while Farmer Mac may purchase loans in any state.

There are other complicating factors. First, Farmer Mac's current portfolio has a high geographic concentration in the Western part of the United

States and is dominated by three lenders. Moreover, Farmer Mac's estimation of credit risk for the loans under standby agreements is limited by Farmer Mac's lack of historical experience for estimating the amount of loans it may ultimately be obligated to purchase under the standby agreements.

Farmer Mac has not quantified the impact of its current approach for estimating and allocating loan losses versus the approach set forth in accounting standards as the preferred methodology. SEC Staff Accounting Bulletin (SAB) No. 102 (July 6, 2001), states that "A registrant's loan loss allowance methodology generally should…identify loans to be evaluated for impairment on an individual basis under SFAS No. 114 and segment the remainder of the portfolio into groups of loans with similar risk characteristics for evaluation and analysis under SFAS No. 5."[13] This same approach is also set forth in a current American Institute of Certified Public Accountants proposed Statement of Position on Allowance for Credit Losses dated June 19, 2003.

Farmer Mac's calculation of its estimated loan loss allowances uses the reverse order of the approach set forth in the accounting standards as clarified in SAB 102. Farmer Mac's model calculates an overall loss result, from which management allocates portions to the allowance for losses (related to loans held by Farmer Mac) and the reserve for losses (related to loans guaranteed by Farmer Mac and included in its standby agreements). From the overall loss amounts calculated, Farmer Mac deducts specifically identified loan loss estimates and considers the remaining amount to be sufficient to cover the remainder of the portfolio. Farmer Mac's management stated that its methodology does not result in a materially different loss estimate than if it followed the preferred methodology of the accounting standards. However, Farmer Mac has not quantified the effects of using this methodology.

Documentation on the Loan Loss Estimation Model Was Weak

Reviews of Farmer Mac conducted in 2002 concluded that Farmer Mac had weak documentation describing (1) how its loan loss estimation model works, (2) its quantification process, (3) management's judgment and key decisions, and (4) the summary results of the loss estimation process. Although Farmer Mac received an unqualified ("clean") opinion on its 2002

[13]Statement of Financial Accounting Standard 5: Accounting for Contingencies, issued March 1975. Statement of Financial Accounting Standard 114: Accounting by Creditors for Impairment of a Loan, an amendment of FASB Statements No. 5 and 15, issued May 1993.

annual financial statements, Farmer Mac received several recommendations as a result of recent reviews to improve the loan loss estimation process, such as applying the model's results consistently with management's policies and improving documentation. During 2002, management took a number of actions in response to these recommendations to improve the data used for estimating losses as well as the disclosure of the risks inherent in its portfolio. In addition, to assess the reliability of Farmer Mac's estimated losses on loans, the Board of Directors' outside counsel retained a forensic accounting firm in 2002 to review management's processes and controls for estimating these losses. Nevertheless, it suggested improvements for Farmer Mac's SEC annual and quarterly filings and for internal documentation. Similarly, reports of recent reviews noted that management should document (1) the similarities and differences of using the model for both loans and guarantees recorded on the balance sheet as well as standby agreements that were not recorded on the balance sheet; (2) management's reconciliation of the model's loss projections to actual amounts recorded in the financial statements; and (3) the results of updated collateral evaluations and reviews of impaired loans, and the results' effect on the recorded allowance and reserve amounts.

Farmer Mac Maintained Access to Capital Markets, Its Primary Source of Liquidity, but It Lacked a Formal Liquidity Contingency Plan

Farmer Mac maintained access to the capital markets, which are its primary source of liquidity, to support its loan purchase and guarantee activity, despite the lack of a credit rating that would make Farmer Mac's debt more comparable to other firms' debt issuances. Farmer Mac's reserve of liquid assets was a secondary source of liquidity, which as of September 30, 2002, was adequate to pay off current on-balance-sheet liabilities for close to 30 days.[14] However, Farmer Mac lacked a formal contingency plan for potential liquidity funding needs under stressful agricultural economic conditions, including unexpected demands for additional liquidity that the standby agreements may create.

[14]Liquid assets are primarily cash and cash equivalents on the balance sheet. Farmer Mac refers to these as the Liquidity Investment Portfolio.

Farmer Mac Issued Debt Securities for Liquidity, but Has Not Pursued a Credit Rating To Date

Our analysis indicated that Farmer Mac had been able to maintain access, at stable interest rates, to the discount note market, even during several periods of market stress and company exposure to public criticism in 2001 and 2002.[15] However, these events temporarily affected the interest rates on medium-term notes.[16] Farmer Mac obtained cash for its loan purchase activities primarily through periodic sales of debt securities at varying maturities. Referring to publicly traded firms, Moody's Investors Service (Moody's) said that Farmer Mac was the largest issuer of unrated debt in the United States.[17] Yet, Farmer Mac has issued discount notes at virtually the same interest rates as Fannie Mae, which obtains an annual "risk to the government" or financial strength rating from a nationally recognized rating agency.[18] Broker-dealers who trade agency securities said that a cause was that (1) Farmer Mac has a GSE charter just as Fannie Mae and Freddie Mac do and, therefore, investors tend to conclude that they have a similar risk profile and (2) investors purchase Farmer Mac's discount notes to diversify portfolios that also held Fannie Mae and Freddie Mac short-term debt.[19] Farmer Mac officials noted that the spreads on debt issuances are driven by the relatively small size of Farmer Mac issuances relative to the other GSEs, and at this time, the financial and human resources required to obtain a rating would not be justifiable. While having a credit rating may not have an effect on the interest rates on Farmer Mac's debt, such a rating would provide investors and creditors with information to assess Farmer Mac's financial soundness without government backing. This would facilitate investors and creditors comparing Farmer Mac with other entities and might also broaden the population of potential purchasers of Farmer Mac's debt securities, in particular municipalities,

[15]Discount notes are unsecured general corporate obligations that are issued at a discount but mature at face value. Their maturities range from overnight to 1 year.

[16]Medium-term notes (MTN) are debt securities that may be issued with floating or fixed interest rates with maturities ranging from 9 months to 30 years or longer. An advantage of MTNs over corporate bonds is that they tend to be more flexible in terms of maturities and interest rates.

[17]There is no statutory or regulatory requirement for Farmer Mac to obtain a credit rating.

[18]A rating agency, such as Moody's or Standard and Poors, provides its opinion on the creditworthiness of an entity and the financial obligations issued by an entity, using a credit rating system. The ratings may range from AAA (high quality) to D (in default). Bonds rated "BBB" or higher are widely considered "investment grade." This means the quality of the securities is high enough for a prudent investor to purchase them.

[19]Agency papers are short-term debt securities that are predominantly issued by GSE and federal agencies.

who purchase debt securities, due to internal policies that prohibit purchasing unrated financial instruments.

Farmer Mac Has Maintained Close to 30 Days of Liquidity

Farmer Mac's liquidity investment portfolio was a secondary source of liquidity and provided for close to 30 days of funds should access to capital markets be temporarily impaired. As a comparison, Farmer Mac's reserve was larger than FCA's requirement that FCS institutions maintain a liquidity reserve of at least 15 days, although FCA officials said that they were evaluating the adequacy of a 15-day liquidity reserve.[20] On the other hand, Farmer Mac's liquidity reserve of 15 days is considerably less than the stated liquidity goals of Fannie Mae, which maintained 3 months of liquidity to ensure that it could meet all of its obligations in any period of time in which it did not have access to the capital markets.[21] As of September 30, 2002, Farmer Mac's liquidity portfolio was worth $1.4 billion and consisted primarily of high-quality, short-term investments. However, according to our review of SEC filings, the range of permissible investments set by the board has expanded to include investments that do not have characteristics of traditional liquidity investments. For example, Farmer Mac's investment in a significant amount of unrated preferred stock of two FCS institutions represents fixed-rate investments that carry the potential for increased return, but also increased risk.

Farmer Mac Lacked a Formal Contingency Plan for Liquidity

Farmer Mac does not yet have a formal contingency plan to maintain liquidity should its access to the capital markets be impaired, although as previously discussed, it does maintain a large liquidity portfolio to temporarily meet liquidity needs. In addition, management has standard written repurchase agreements with large investment banks, which it could use to pledge or sell its assets as a temporary source of liquidity.[22] As of early 2003, Farmer Mac was in the process of developing a liquidity policy. Because Farmer Mac primarily relies on external sources of funds, Farmer Mac is exposed to funding liquidity risk and its access to these external

[20]For purposes of this report, we define liquidity as both the capacity and the perceived capacity to meet obligations as they come due without a material increase in the cost to the institution.

[21]We did not include Freddie Mac's liquidity reserve since at the time of this report, Freddie Mac was in the process of restating its financial position.

[22]A repurchase agreement is a form of secured, short-term borrowing in which a security is sold with a simultaneous agreement to buy it back from the purchaser at a future date.

funds could potentially be impaired by external or internal events.[23] For example, in 2002, Farmer Mac increasingly relied on issuing discount notes for liquidity, as discount notes in combination with interest rate swaps would provide the lowest interest costs.[24] According to financial regulatory guidance, for safety and soundness purposes, an effective plan for managing liquidity risk should not necessarily employ the cheapest source of funding. In addition, each institution's liquidity policy should include a contingency plan for liquidity, which would address alternative funding sources if initial projections of funding sources and uses were incorrect. The contingency plan would clearly identify any back-up facilities (lines of credit), and note the conditions where they might be used.

Off-balance Sheet Standby Agreements Can Potentially Create Unexpected Demands for Additional Funding Liquidity

In addition to meeting liquidity demands from expected obligations, Farmer Mac may face unexpected demands on funding liquidity should lenders that participate in the standby agreements exercise their contracts. To date, Farmer Mac has not experienced material demands for additional liquidity that might arise from standby agreements and under current circumstances, Farmer Mac appears to have adequate liquidity to fund purchases of those underlying loans. However, the risk exists that if standby agreements continue to grow and their risks are not closely managed, during an economic downturn, Farmer Mac could experience a large and sudden increase in the exercise of standby agreements by lenders. In the event that Farmer Mac would be required to purchase large amounts of impaired or defaulted loans underlying the standby agreements, Farmer Mac management said that its strategy would be to rely on the capital markets for additional cash by either issuing more debt or selling its AMBS. However, since Farmer Mac did not sell AMBS to independent third party investors in 2002, the depth and liquidity of the demand for these securities in the current market are unknown.[25] Broker-dealers with whom we spoke, stated that a Farmer Mac entrance into the debt markets to sell a significant amount of debt (in addition to what they

[23]Funding liquidity risk is the potential that an institution would be unable to meet its obligations as they come due because of an inability to liquidate a sufficient quantity of assets or to obtain a sufficient quantity of new liabilities.

[24]See Interest rate risk section and appendix III for further discussion of interest rate swaps.

[25]Farmer Mac noted that between 1996 and 2000, $553 million of AMBS were sold. In addition, Farmer Mac noted that traders advised management that they believed Farmer Mac could re-enter the AMBS market and achieve pricing relative to comparable Fannie Mae securities at least as favorable as that achieved in 1996–1998.

currently issue) would require substantial investor education by Farmer Mac to generate additional interest in their debt securities.

Farmer Mac Managed Its Interest Rate Risk, but Elements of Its Prepayment Model Have Limitations

Our discussions with Farmer Mac officials, reviews of Farmer Mac and FCA documents, and analysis of data from SEC filings indicated that as of December 31, 2002, Farmer Mac effectively managed its interest rate risk through a combination of yield maintenance clauses in loan contracts and through asset-liability matching; however, we found that prepayment model limitations could affect Farmer Mac's interest rate risk measurement.[26] We observed that Farmer Mac has placed reliance on its ability to issue discount notes matched to interest rate swap transactions. Because discount notes are short-term liabilities and the majority of Farmer Mac's assets are longer term, a potential mismatch of interest rates could occur. Moreover, the retained portfolio strategy has increased the amount of interest rate risk that Farmer Mac must manage.[27] By holding AMBS on its balance sheet, Farmer Mac retains and therefore must manage the interest rate risk in addition to the credit risk associated with AMBS. If Farmer Mac sold the AMBS to investors, it would only retain and have to manage the credit risk associated with AMBS. However, much of the concern relating to interest rate risk is mitigated through Farmer Mac's use of callable debt and interest rate swaps, which have the effect of adjusting the net interest payments to closely match the interest characteristics of Farmer Mac's assets. (See appendix V for further discussion.)

Farmer Mac measured and reported interest rate risk based on parameters set by board policy as follows. Farmer Mac's principal metrics for analyzing interest rate risk are

- market value of equity (MVE)-at-risk calculation, which represents the current economic value of the firm;[28]

[26]Yield maintenance is a penalty paid by borrowers to lenders when a loan is paid off before its scheduled maturity. It is calculated so that the lender is at least made whole in a time of falling interest rates.

[27]As discussed later in this report, Farmer Mac has chosen to retain the majority of the loans it has purchased and securitized as AMBS.

[28]The MVE is the difference between the present values of cash flows associated with assets, minus the present value of cash flows associated with liabilities and obligations. MVE represents the current economic or financial value of the firm as opposed to the accounting-based value represented on the balance sheet.

- net interest income (NII) forecast, which represents the change in earnings relative to changes in interest rates; and

- duration gap calculation, which measures the interest rate mismatch between Farmer Mac' assets and liabilities. [29]

For further discussion of Farmer Mac's interest rate risk measurement process, see appendix V.

During 2002 Farmer Mac managed its MVE within board-approved limits, with one exception. NII was also managed within the board-approved range. The duration gap, which is measured in months, widened from—0.8 months in December 2001 to—3.6 months in December 2002, as loan prepayments increased as interest rates declined, and these figures were still within the range of the board-approved parameters.

We found that Farmer Mac had a reasonable process and tools to measure interest rate risk, but the quality of its risk measurement is potentially limited by elements of its prepayment model. Prepayment models are an important component of interest rate risk measurement. Since Farmer Mac has prepayment penalties or yield maintenance terms on 57 percent of its outstanding balance of loans and guarantees, including 91 percent of its loans with fixed interest rates, Farmer Mac's exposure to interest rate risk stemming from prepayments is limited. But, Farmer Mac does hold some loans that are subject to interest rate risk caused by prepayments, such as fixed-rate loans with less than full yield maintenance acquired through bulk purchase transactions, or Part Time Farm loans, which generally allow prepayment without penalty. Farmer Mac's prepayment risk model was developed internally based on models that predict prepayment behavior for residential (housing) mortgage borrowers. But, agricultural real estate borrowers may behave differently than residential mortgage borrowers. Farmer Mac management said that they followed this approach due to the unavailability of external data on agricultural mortgage prepayments. They also said that Farmer Mac backtests, that is, compares its prepayment model's prediction to the prepayment rates actually observed in the recent past, and finds a close correspondence between the model's predictions and the experience of its portfolio. A consultant to Farmer Mac has

[29]Duration gap is the difference between the average timing of the cash flows of the assets and the average timing of the cash flows of the liabilities. For a further description of duration, see the Glossary.

indicated that Farmer Mac's current practice of incorporating proportional adjustment factors in single family prepayment models is consistent with practices at other agricultural lenders. Farmer Mac has begun the process of estimating prepayment functions based directly on agricultural real estate mortgages. Farmer Mac management noted that they are currently working with the consultant to develop an agriculture mortgage prepayment model so that it can better model prepayment risk. For further information regarding prepayment risk, see appendix V.

Farmer Mac Exceeded Statutory and Regulatory Capital Requirements, but Could Improve Its Planning for Capital Adequacy

As of December 31, 2002, Farmer Mac had capital in excess of its statutory and regulatory requirements. Its core capital was $184 million, exceeding its statutory minimum capital requirement of $137.1 million. Its regulatory capital was $204 million, compared to the regulatory risk-based capital requirement of $73.4 million. Although Farmer Mac met statutory and regulatory capital requirements, Farmer Mac's analysis of capital adequacy could be improved.[30]

Pursuant to Farmer Mac's risk-based capital regulation, it is the responsibility of the Farmer Mac board to ensure that Farmer Mac maintains total capital at a level sufficient for continued financial viability and to provide for growth, in addition to ensuring sufficient capital to meet statutory and regulatory capital requirements.[31] In projecting Farmer Mac's capital needs in the 2002 Business Plan, the Farmer Mac board established a capital goal, based on Farmer Mac's current circumstances and needs, at a certain fixed amount above the higher of the statutory leverage minimum capital requirement or the required risk-based capital level. In doing so, Farmer Mac has not performed a test of sufficiency for financial viability and growth other than exceeding the statutory and regulatory requirements. Farmer Mac officials said that, in their view, FCA's regulatory risk-based capital requirement was set at a very conservative level and noted that the statutory minimum is higher than the risk-based capital requirement. However, regulatory requirements are only minimums and financial institutions often find it prudent to keep capital in excess of minimum requirements. Moreover, Farmer Mac's minimum statutory

[30]Farmer Mac is required to comply with the higher of the minimum capital requirement or the risk-based capital requirement.

[31]12 C.F.R.§650.22(a).

capital requirement,[32] which is not risk-based, is set in law and may not be sufficiently responsive to Farmer Mac's emerging risks to serve as a proxy for capital sufficiency. In particular, the statutory minimum requirement of 0.75 percent capital for off-balance-sheet obligations applies to Farmer Mac's $2.7 billion of standby agreements, a program that did not exist when the statute was enacted. Whenever Farmer Mac is obligated under a standby agreement to purchase a delinquent loan, it must also increase the capital held against the loan from 0.75 to 2.75 percent, nearly a 270 percent increase. As noted in our discussion of liquidity risk, Farmer Mac's potential problem is that multiple loans would likely be sold to Farmer Mac during times of agricultural economic stress or under other adverse conditions. Bringing these loans onto Farmer Mac's balance sheet would increase Farmer Mac's required capital level, and in the current environment, Farmer Mac's current capital is able to absorb this increase. However, if standby agreements or off-balance-sheet assets continue to grow, Farmer Mac may need to raise capital to withstand such a shock under stressful economic conditions. By comparison, for capital requirement purposes, bank regulators' risk-based capital standards treat similarly structured, off-balance-sheet financial standby arrangements, such as guarantees, financial letters of credit, and other direct credit substitutes, as if they were on the balance sheet.

Moreover, Farmer Mac's annual filings with SEC illustrate the limitations of using the regulatory and/or statutory minimum capital as a proxy for having an internal capital adequacy standard. According to Farmer Mac's 2002 annual filing with SEC, based on the minimum capital requirements, Farmer Mac's current capital surplus of $46.9 million could ultimately allow Farmer Mac to carry the risk of an additional $15.2 billion of off-balance-sheet guarantees through a combination of selling on-balance sheet program assets and adding guarantees.

[32]The minimum capital requirement is an amount of core capital equal to the sum of 2.75 percent of Farmer Mac's aggregate on-balance-sheet assets, as calculated for regulatory purposes, plus 0.75 percent of the aggregate off-balance-sheet obligations of Farmer Mac.

Disagreements about the Extent of Coverage of Treasury's Line of Credit Could Generate Uncertainty

We identified an issue involving Farmer Mac's $1.5 billion line of credit with Treasury that could impact Farmer Mac's long-term financial condition. Treasury has expressed serious questions about whether Treasury is required to purchase Farmer Mac obligations to meet Farmer Mac-guaranteed liabilities on AMBS that Farmer Mac or its affiliates hold.[33] On the other hand, a legal opinion from Farmer Mac's outside counsel states that Treasury would be required to purchase the debt obligations whether the obligations are held by a subsidiary of Farmer Mac or by an unrelated third party. This disagreement could create uncertainty as to whether Treasury would purchase obligations held in Farmer Mac's portfolio in times of economic stress. This uncertainty also relates to statements made by Farmer Mac to investors concerning Treasury's obligation to Farmer Mac, which in turn, could affect Farmer Mac's ability to issue debt at favorable rates. Ultimately, this uncertainty could impact its long-term financial condition.

Farmer Mac's subsidiary, Farmer Mac Mortgage Securities Corporation, holds the majority of AMBS that Farmer Mac issued. Farmer Mac's charter (the 1987 Act) gives it the authority to issue obligations to the Secretary of the Treasury to fulfill its guarantee obligations. According to the 1987 Act, the Secretary of the Treasury may purchase Farmer Mac's obligations only if Farmer Mac certifies that (1) its reserves against losses arising out of its guarantee activities have been exhausted and (2) the proceeds of the obligations are needed to fulfill Farmer Mac's obligations under any of its guarantees.[34] In addition, Treasury is required to purchase obligations issued by Farmer Mac in an amount determined by Farmer Mac to be sufficient to meet its guarantee liabilities not later than 10 business days after receipt of the certification. However, Treasury has indicated that the requirement to purchase Farmer Mac obligations may extend only to obligations issued and sold to outside investors.

[33]Both Treasury and Farmer Mac are in agreement that the authority of Treasury to purchase obligations to enable Farmer Mac to fulfill its guarantee obligations does not extend to the standby agreements because they do not involve Farmer Mac's guarantee liabilities.

[34]12 U.S.C.2279aa-13.

In a comment letter dated June 13, 1997, and submitted to FCA in connection with a proposed regulation on conservatorship and receivership for Farmer Mac (1997 Treasury letter),[35] Treasury stated "…we have 'serious questions' as to whether the Treasury would be obligated to make advances to Farmer Mac to allow it to perform on its guarantee with respect to securities held in its own portfolio---that is, where the Farmer Mac guarantee essentially runs to Farmer Mac itself." The 1997 Treasury letter indicated that if the purchase of obligations extended to guaranteed securities held by Farmer Mac this would belie the fact that the securities are not backed by the full faith and credit of the United States, since a loan to Farmer Mac to fulfill the guarantee would benefit holders of Farmer Mac's general debt obligations. The 1997 Treasury letter stated "Treasury's obligation extends to Farmer Mac only in the prescribed circumstances, and is not a blanket guarantee protecting Farmer Mac's guaranteed securities holders from loss. Nor is the purpose of the Treasury's obligation to protect Farmer Mac shareholders or general creditors." According to Treasury, the 1997 letter remains its position concerning Farmer Mac's line of credit.

Meanwhile, the opinion of Farmer Mac's outside counsel is that the guarantee is enforceable whether AMBS are held by a subsidiary of Farmer Mac or by an unrelated third party. Farmer Mac's legal opinion also states that Treasury could not decline to purchase the debt obligations issued by Farmer Mac merely because the proceeds of the obligations are to be used to satisfy Farmer Mac's guarantee with respect to AMBS held by a subsidiary. According to Farmer Mac, if the conditions set forth in the 1987 Act are met—required certification and a limitation on the amount of obligations of $1.5 billion—then there is no exception in the 1997 Act that authorizes Treasury to decline to purchase the obligations. Farmer Mac states that discriminating among Farmer Mac guaranteed securities based on the identity of the holder in determining whether Farmer Mac could fulfill its guarantee obligations would lead to an anomalous situation in the marketplace and thereby hinder the achievement of Congress' mandate to establish a secondary market for agricultural loans.

[35]Letter dated April 13, 1997, from then-Under Secretary for Domestic Finance, John D. Hawke, Jr., to Marsha P. Martin, then-Chairman of the Farm Credit Administration.

Mission-Related Activities Have Increased, but Impact of Activities on Agricultural Real Estate Market Is Unclear

Our analysis of Farmer Mac's impact on the agricultural real estate loan market indicated that Farmer Mac has increased its agricultural mortgage loan purchase and guarantee activity since our last report in 1999. At the same time, its enabling legislation contains broad mission purpose statements and lacks specific or measurable mission-related criteria that would allow for a meaningful assessment of whether Farmer Mac had achieved its public policy goals. For example, the statute does not contain specific mission criteria for Farmer Mac to make credit available for specific clientele such as small, beginning, and disadvantaged farmers. In assessing whether Farmer Mac has made available long-term credit to farmers and ranchers at stable interest rates, we found that its long-term interest rates were similar to the rates of agricultural real estate lenders. In addition, Farmer Mac's strategy of holding AMBS to lower funding costs and increase profitability may have limited the development of a secondary market for these securities. Farmer Mac introduced the standby agreement program to provide greater lending capacity for agricultural real estate lenders, but growth in standby agreements, as with other guarantee obligations, could potentially result in reducing the sum of capital required to be held by the Farm Credit System and Farmer Mac without corresponding mitigating factors such as lender and geographic diversification. We found that Farmer Mac's business activities are largely concentrated among a small number of business partners and its portfolio is concentrated in the West. Finally, the size of Farmer Mac's nonmission investment portfolio has decreased as a percentage of its total on- and off-balance sheet portfolio. Still the composition and criteria for nonmission investment could potentially lead to investments that are excessive in relation to Farmer Mac's financial operating needs or otherwise be inappropriate to the statutory purpose of Farmer Mac.

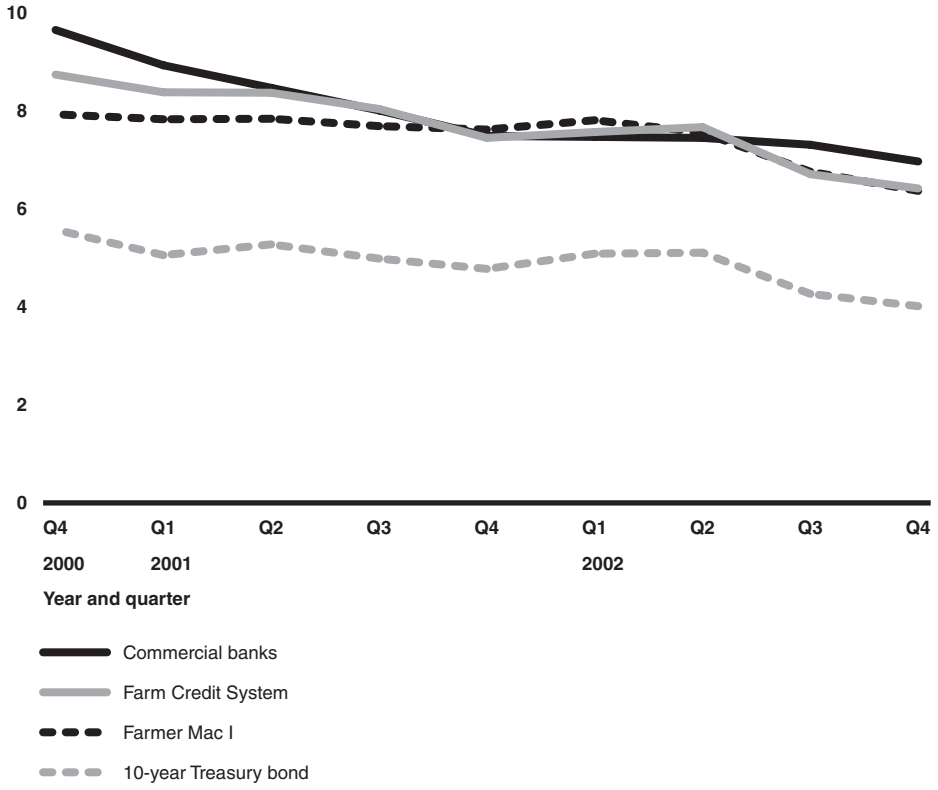
Farmer Mac Has Continued to Grow, but Mission Criteria Are Lacking

Farmer Mac's loan and guarantee portfolio has continued to grow since 1999, but purchase activity notwithstanding, the extent to which Farmer Mac has met its public policy mission is difficult to measure. Farmer Mac's enabling legislation contains only broad mission related guidance; therefore, measurable criteria are not available. The 1987 Act stated that Farmer Mac was to provide for a secondary marketing arrangement for agricultural real estate mortgages in order to (1) increase the availability of long-term credit to farmers and ranchers at stable interest rates; (2) provide greater liquidity and lending capacity in extending credit to farmers and ranchers; and (3) provide an arrangement for new lending to facilitate

capital market investments in providing long-term agricultural funding, including funds at fixed rates of interest.

Farmer Mac stated that as a secondary market institution, it faced significantly lower economic risks than primary lenders, such as FCS institutions and commercial banks, given its ability to attain geographic and commodity diversification, access to national and international capital markets, and the ability to borrow at lower costs due to its agency status. It also noted that the lower capital requirements provided to primary lenders through the Farmer Mac I program created the potential for increased lending capacity, higher profitability, and potentially lower interest rates for farmers and ranchers. Notwithstanding these claims, and with respect to the mission related guidance, over the past 2 years, the long-term interest rates that Farmer Mac offered to agricultural real estate lenders, through the Farmer Mac I program have decreased along with the rates of the primary agricultural real estate lenders (see fig. 2). We found that agricultural mortgage yields have not declined over time relative to 10-year Treasury securities and that long-term fixed interest rates on Farmer Mac I loans were similar to those offered by commercial banks and FCS institutions (see fig. 2).

Figure 2: Long-term Interest Rates on Loans Secured by Agricultural Real Estate



Sources: GAO analysis of Farmer Mac data and USDA's *Agricultural Income & Finance Outlook*, AIS80, March 11, 2003, p.63.

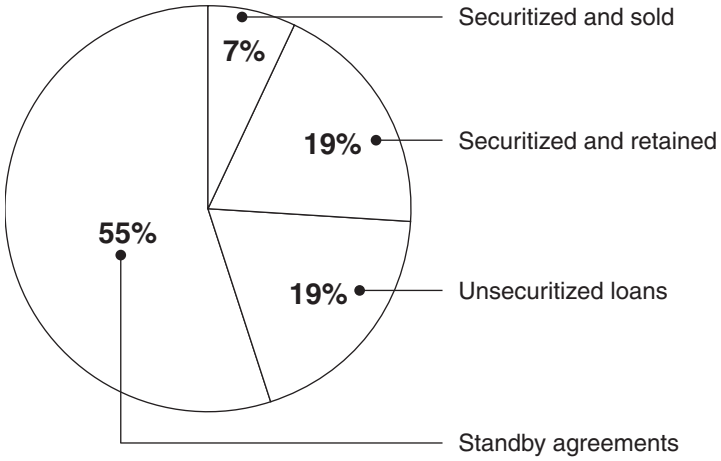
Farmer Mac's Strategy of Retaining AMBS Has Been a Contributing Factor in Limiting the Development of a Liquid Secondary Market for AMBS

Farmer Mac's strategy of holding the loans it purchases and securitizes as AMBS has been a contributing factor in limiting the development of a liquid secondary market for AMBS. This retained portfolio strategy was initially announced in Farmer Mac's 1998 third quarter filing with SEC. The explanation given at the time for retaining AMBS was that market volatility resulted in lower rates on Treasury securities but wider spreads on AMBS. These conditions lowered potential gains on issuance of AMBS but facilitated Farmer Mac's retention of AMBS at favorable spreads; therefore, Farmer Mac would hold the AMBS until market conditions changed.[36] According to USDA, holding AMBS has typically been more profitable but

[36]A spread is the difference between two prices or two rates.

also more risky than selling AMBS to investors. During 2002, Farmer Mac did not make any sales of AMBS to unrelated parties.[37] Farmer Mac noted that the economics of retention have proven superior, and Farmer Mac's growth, profitability, and greater capital market presence should facilitate future AMBS sales. As of December 31, 2002, Farmer Mac had securitized and sold 7 percent of its entire Farmer Mac I portfolio (see fig. 3).

Figure 3: Securitization Status of Farmer Mac I Portfolio, as of December 31, 2002



Source: GAO analysis of Farmer Mac data.

Farmer Mac's Business Activities Are Largely Concentrated

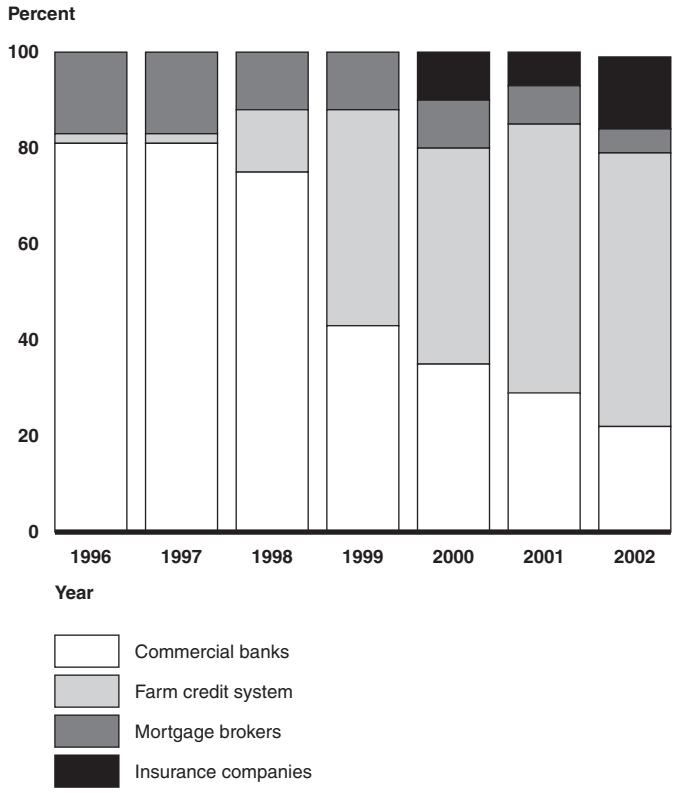
With the development of the standby agreement program, Farmer Mac has continued to provide products to facilitate capital market investments in order to provide long-term agricultural funding, which in turn, could result in additional agricultural lending. This is consistent with its mission to provide an arrangement for new lending to facilitate capital market investments in providing long-term agricultural funding, including funds at fixed rates of interest. The additional lending would be a result of the lower amount of capital that lending institutions would be required to hold, provided their products were guaranteed or in a standby agreement with Farmer Mac. The risks associated with lower capital requirements would

[37]The single AMBS transaction made by Farmer Mac that year was a $47.7 million sale to a related party, which represented only 2 percent of Farmer Mac's loan purchase, guarantee, and commitment activity for the year.

be in part mitigated through sufficient diversification relating to participating lenders and geography. However, Farmer Mac's activities have been largely concentrated in a small number of financial institutions. According to Farmer Mac's 2002 annual filing with SEC, Farmer Mac purchased eligible loans from 63 financial institutions, and provided standby agreements to 16 entities. During 2002, 10 institutions generated 90 percent of Farmer Mac's business, and 3 FCS institutions represented 47 percent of the outstanding balance of the standby agreement program as of December 31, 2002.

Moreover, Farmer Mac's portfolio does not represent the nationwide distribution of general farm-related real estate indebtedness across commercial banks and FCS institutions. As shown in figure 4, FCS institutions were the source for approximately 2 percent of Farmer Mac I program loans in 1996, but by December 2002, they accounted for more than 55 percent. In contrast, commercial banks participation rate has dropped from 80 percent of Farmer Mac I program loans in 1996 to 22 percent as of December 2002. This compares to FCS institutions holding 36 percent and commercial banks holding 32 percent of nationwide farm-related real estate debt, as of 2002. Representatives from USDA and a bank association noted that the banking industry strongly supported the creation of Farmer Mac in 1987 because they viewed Farmer Mac as a new source of competitively priced funding. While commercial banks' relative share of Farmer Mac's business has been falling, bank-held farm mortgage volume has doubled since Farmer Mac was created. Farmer Mac management said that the decline in the commercial banks' participation in Farmer Mac's programs was due to the falling interest rate environment and a general desire of the commercial banks' to retain loans in portfolio. Management anticipated that when interest rates begin to rise in the near future, as is forecasted by USDA, commercial banks and mortgage brokers will begin to take advantage of Farmer Mac's longer-term products.

Figure 4: Farmer Mac Portfolio Exposure by Loan Origination Type



Source: GAO analysis of Farmer Mac data.

By shifting credit risk exposure from FCS institutions to Farmer Mac, standby agreements, as with other guarantee obligations, potentially lower the overall capital required to be held by FCS (see table 2). Whereas the total capital for an unguaranteed loan is $7, the total capital for a loan under a standby agreement or swap is only $2.15.

Table 2: Comparison of Total Minimum Capital Levels Per $100 of Loans

Transaction	FCS institution	Farmer Mac	Total capital
FCS loan	$7.00	N/A	**$7.00**
Standby agreement	$1.40	$0.75	**$2.15**
Loan sale	$0.00	$2.75[a]	**$2.75**
Swap for AMBS	$1.40	$0.75	**$2.15**

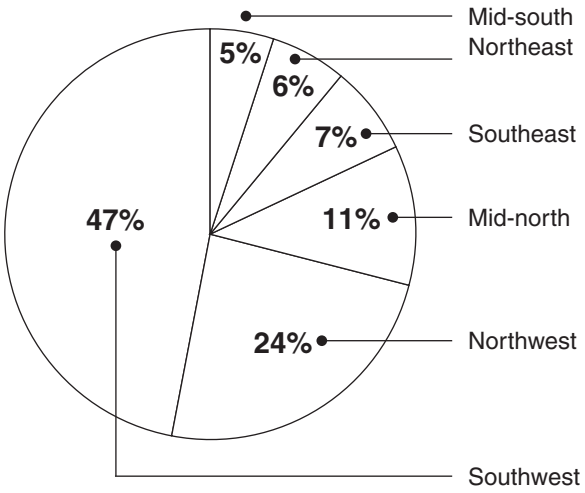
Source: Farm Credit System.

[a]This assumes that Farmer Mac retains the loan or securitizes the loan and holds the AMBS on its balance sheet.

Farmer Mac's absorption of FCS institutions' credit risk through the standby agreement program might be consistent with a lower capital requirement if concentration of credit risk was reduced by geographic diversification. However, Farmer Mac's risk exposure is concentrated in the western part of the United States. As of December 31, 2002, over 70 percent of the outstanding balance of Farmer Mac's loan portfolio was located in the Southwest and Northwest (see fig. 5). For comparative purposes, the corresponding percentage of general farm debt in those regions was only 31 percent of nationwide farm debt.[38] Greater geographic diversification of Farmer Mac loans would lower risks of concentration and mitigate risks associated with the lower capital requirements.

[38]General farm debt includes more than agricultural real estate mortgages; however, it is a proxy for the relative proportion of farm borrowing in a region (USDA, Economic Research Service).

Figure 5: Farmer Mac I Geographic Concentration of Exposure by Region, as of December 31, 2002



Source: GAO analysis of Farmer Mac data.

Proportion of Nonmission Investments Has Declined, but Issues Remain about Composition and Potential Growth

When analyzing Farmer Mac from a mission perspective, an excessively large nonmission investment portfolio in relation to Farmer Mac's business needs could potentially lead to charges that Farmer Mac is misusing its status as a GSE. As of December 31, 2002, the nonmission investments that have $830.4 million combined with $723.8 million in cash and cash equivalents equaled 37 percent of total balance sheet assets at Farmer Mac. This figure is down from 66 percent in 1997, when we last reported on GSE nonmission investments, reflecting an increase in Farmer Mac's assets resulting from loan purchase and guarantee activity since that time.[39] Included in Farmer Mac's nonmission investments, as reported in SEC filings as of December 31, 2002, were $93 million in unrated, preferred stock of CoBank, which is an FCS institution. This investment is one of Farmer Mac's top five holdings of nonmission assets and represents 6 percent of its liquidity portfolio. Also in 2002, Farmer Mac's board approved a change to the limit of its nonmission investment portfolio. As an alternative to the fixed-dollar amount, the Board approved a percentage

[39]U.S. General Accounting Office, *Government Sponsored Enterprises: Federal Oversight Needed for Nonmortgage Investments*, GAO/GGD-98-48 (Washington, D.C.: Mar. 11, 1998), p.17.

limit of 30 percent of the total portfolio, including on-balance sheet assets and off-balance sheet commitments. This is the same maximum that FCA allows its institutions (other than Farmer Mac). The effect of this change was to remove absolute limits on the size of the nonmission investment portfolio. FCA officials with whom we spoke said that FCA neither endorsed nor objected to the policy change. FCA officials noted that they would monitor the portfolio growth to ensure that the potential incentive to growing the nonmission investment portfolio was balanced with appropriate growth in the loan and guarantee portfolio.

Farmer Mac's Statutory Governance Structure Does Not Reflect Interests of All Shareholders and Some Corporate Governance Practices Need to Be Updated

Similar to other publicly traded companies, Farmer Mac is in the process of taking actions to ensure that it complies with recent legislative and regulatory requirements and proposed changes in NYSE listing standards. In accordance with the new requirements, Farmer Mac has reaffirmed its audit committee charter and has recently hired internal and external auditors who are from different firms. The Sarbanes-Oxley Act requires that members of audit committees of listed companies be independent and requires that SEC issue and adopt rules directing the national securities exchanges to prohibit listing any securities of a company that is not in compliance with the audit committee requirements. Proposed NYSE listing standards stress the oversight role of boards of directors and the independence of the directors. Since Farmer Mac's securities are registered with SEC and Farmer Mac's Class A and Class C stock are listed on NYSE, Farmer Mac is currently subject to the requirements of Sarbanes-Oxley and implementing SEC rules, and, absent a waiver, the proposed listing standards as they become effective. We noted that Farmer Mac's board has taken steps to update its corporate governance practices, but its board structure, which is set by law, could make it difficult to comply with the board independence requirements proposed in NYSE listing standards. Moreover, Farmer Mac's governance structure contains elements of a cooperative and elements of an investor-owned, publicly traded corporation. Because Farmer Mac shareholders include both institutions that utilize its services and public investors, and because all members of the board of directors are chosen by the cooperative investors or by the President of the United States, the board may face difficulties in representing the interests of all shareholders. The interests and loyalties of directors of publicly traded corporations, including publicly traded GSEs, should be clearly focused on serving the interests of all shareholders. However, we found that the statutory structure of Farmer Mac's board and the voting structure of its common stock hamper Farmer Mac's ability to have such a focus. In addition, although discussed to some degree in its

proxy statement, we found from our discussions with Farmer Mac's 15 board members that (1) Farmer Mac's process for identifying and selecting board nominees was not transparent to them, (2) training for directors was inconsistent, and (3) executive management succession planning was not well documented. When assessing Farmer Mac's compensation for its executive management, we found that Farmer Mac's total executive compensation was within its consultants' recommended parameters; however, its vesting program appears more generous than industry practices, given Farmer Mac's maturity.

Farmer Mac's Governance Structure Contains Elements of a Cooperative and Elements of an Investor-Owned Corporation

Like other Farm Credit System institutions, Farmer Mac resembles a cooperative controlled by institutions that utilize its services. Under the 1987 Act, Farmer Mac has three classes of common stock. Class A voting common stock is owned by banks, insurance companies, and other financial institutions. Class B voting common stock is owned by FCS institutions, but ownership of Class C nonvoting common stock is not restricted. According to the background of Farmer Mac's charter act, Class C nonvoting common stock was created as a means for Farmer Mac to raise capital and to preserve equal distribution of voting stock between Farm Credit System and non-Farm Credit System Institutions.[40] However, unlike ownership interests in the other FCS institutions, but like the common stock of Fannie Mae and Freddie Mac, Farmer Mac's Class A and Class C stock is publicly traded on the NYSE. Farmer Mac, through the sale of the stock and the issuance of debt securities, depends on the capital markets for funding. Unlike the other GSEs, including Fannie Mae and Freddie Mac, Farmer Mac is subject to the securities laws, and files disclosure documents with respect to its securities issuances. In compliance with the requirements of the securities laws, Farmer Mac files quarterly and annual reports, proxy statements, and other documents that provide information to investors about financial condition and management.

[40]The authority to issue Class C common, nonvoting stock was added as an amendment to the proposed legislation that became the 1987 Act by Senator Leahy, who explained the purpose of the amendment as follows: "….amendments establish that while the initially issued stock is voting and fairly distributed between the Farm Credit System and non-Farm Credit System participants, the corporation has the authority to issue additional nonvoting common and preferred stock if it is determined by the mortgage corporation that the corporation should raise additional capital."

Farmer Mac's board of directors is not elected by all of its shareholders. Under the 1987 Act, Farmer Mac's board of directors consists of 15 members, 5 of whom are to be elected by holders of the Class A voting common stock, 5 are to be elected by holders of Class B voting common stock, and 5 are appointed by the President of the United States, with the advice and consent of the Senate. The five members appointed by the President (1) could not be, or have been officers and directors of any financial institutions or entities and (2) were to be representatives of the general public—not more than three of whom could be members of the same political party and at least two were to be experienced in farming or ranching. According to statements made at the time of consideration of the 1987 Act, this structure was to protect the interests of both the Farm Credit System and commercial lenders by providing for equal representation on the board by FCS, commercial lenders, and the public sector.[41]

Compliance with the disclosure requirements of the 1934 Act provides investors with information about Farmer Mac, including information that enables investors to compare Farmer Mac with other publicly traded companies that participate in the capital markets. However, unlike most other publicly traded corporations, Farmer Mac is controlled not by investors but by institutions that have a business relationship with Farmer Mac. Farmer Mac's board of directors has a fiduciary responsibility to act in the best interests of the institution and its shareholders; Farmer Mac shareholders included businesses that are users of Farmer Mac's financial services and investors in nonvoting Class C stock. This structure requires that directors act in the best interests of shareholders that may have widely divergent interests. Class A and Class B shareholders are concerned with the use of Farmer Mac services, while Class C shareholders are generally investors concerned with maximizing their profits. Good corporate governance requires that the incentives and loyalties of the board of directors of publicly traded companies reflect the fact that the directors are to serve the interests of all the shareholders. Shareholders of public companies can contribute to the governance of corporate conduct with a view to enhancing corporate responsibility. Shareholders who exercise the

[41]Statement of Congressman Bereuter, H11869-01, Congressional Record. In addition, the conference report cites testimony given in hearings held prior to enactment of the bill that indicate that FCS spokepersons argued that the secondary market mechanism should operate as an arm of the FCS and private lenders believed that the FCS should have a much more limited involvement in the secondary market and that additional control over a large secondary market operation would give the FCS an unfair competitive advantage.

power to elect and remove directors can influence corporate policy through governance proposals and nominations to the boards of directors.

Class C Common Stock Does Not Have Voting Rights

Farmer Mac's Class C shareholders cannot vote on significant matters that generally require shareholders' votes—such as nominating the board of directors, executive compensation policies, and the selection of the independent auditor. We explained Farmer Mac's nonvoting structure to some shareholder advocacy groups, who stated that shareholders should be able to vote and voice their opinion on governance and management issues. These investor groups advocate "one share, one vote." According to Farmer Mac management, the provisions of Farmer Mac's charter intended that the agricultural lending industry control the board and stockholder voting issues while the company developed, which is a process that they believe is still under way. Further, they said that holders of Class C common stock acquire the stock with that information clearly disclosed to them and implicitly accept the representation of their interests by the board and, to a large degree, by Class A and Class B stockholders as surrogates representing their economic interest, since all classes have the same dividend and liquidation rights. However, given Farmer Mac's rapid growth and today's corporate governance environment, this nonvoting structure may no longer be appropriate.

Eliminating statutory control of the Farmer Mac's board by Class A and Class B shareholders and providing an equal voice to Class C shareholders, as well as eliminating the statutory requirement that the President appoint members of Farmer Mac's board would provide for a board elected by all Farmer Mac shareholders. We note however, that holders of Class A and Class B stock also hold a significant proportion of the Class C shares. According to Farmer Mac's 2003 proxy statement, the company's executive officers and directors are the "beneficial owners" of 29.8 percent of Farmer Mac's outstanding nonvoting common stock, as defined by SEC rules. Almost half this amount is shares owned by Zion's Bancorporation, one of whose officers is on Farmer Mac's board of directors. SEC's beneficial owners definition includes stock options that are exercisable within 60 days; in Farmer Mac's case, unexercised options comprise most of the executive officers' and directors' beneficially held shares. Consequently, even if Class C shareholders were allowed to vote, the Farmer Mac board of directors would be elected by many shareholders that currently hold the right to vote. In contrast, the executive management and directors of Fannie Mae and Freddie Mac have combined beneficial ownership of less than 1 percent of their respective companies' outstanding common stock.

Farmer Mac Is Subject to NYSE Listing Standards on Corporate Governance

Farmer Mac is subject to NYSE listing requirements, and will be subject to proposed listing standards on corporate governance, as well as statutory and regulatory requirements. Recent reforms have prompted Farmer Mac's board to reassess its oversight role of Farmer Mac and take actions to comply with new requirements within the bounds set by its statute. Based on our interviews with Farmer Mac's 15 board directors, its board committees are taking actions to comply with the provisions of the Sarbanes-Oxley Act of 2002 (Sarbanes-Oxley), SEC rules, and the proposed NYSE listing standards. For example, Farmer Mac's board has revised its audit committee's written charter to include the committee's responsibilities, and has recently hired internal and external auditors who are not from the same firm. However, because Farmer Mac's board structure is established by its charter act, it may encounter difficulties in complying with the new standards, which require that a majority of the board be independent and that key committees (audit, nominating, and compensation) consist entirely of independent directors.

In response to recent corporate scandals, corporate governance policymakers have focused on the importance of an independent board of directors who act in the best interest of the corporation. The Sarbanes-Oxley Act contains new requirements concerning the composition and duties of the audit committee, including a requirement that all audit committee members be independent, which means that the committee member cannot accept any consulting, advisory, or other compensatory fees from the company (other than compensation for serving as director), or be affiliated with the company or any of its subsidiaries. Sarbanes-Oxley also requires that SEC adopt rules requiring national securities exchanges to prohibit listing any company that does not satisfy these requirements.

The NYSE has submitted proposed corporate governance listing standards to SEC. To increase the quality of board oversight and lessen the potential for conflicts of interest, the proposed listing standards require that a majority of the board of directors of listed companies be independent. No director qualifies as independent unless the board of directors affirmatively determines that the director has "no material relationship" with the listed company, either directly or as an officer or director of an organization that has a relationship with a company. Material relationships can include commercial, banking, consulting, legal, and accounting relationships.[42] It is not clear, however, whether Farmer Mac directors' business relationships with Farmer Mac would prevent these individuals from serving as independent directors under the NYSE proposed rules. Farmer Mac's 2002 annual proxy statements indicated that 6 of 15 directors were listed as having certain relationships or having conducted related transactions with Farmer Mac. In comparison, in their 2002 annual proxy statements, Fannie Mae reported that 4 of their 18 directors and Freddie Mac reported that 3 of their 18 directors as having business relationships. Because the Class A and Class B directors are from institutions that have financial relationships of varying degrees with Farmer Mac, they may not be independent, thus the statutory structure of Farmer Mac's board could make it difficult for Farmer Mac to adopt corporate governance practices and policies that may be required or recommended by authorities on corporate governance issues. When commenting on our report, Farmer Mac officials stated that Farmer Mac was in compliance with existing and proposed NYSE standards. Further, they said that 12 out of the 15 Farmer Mac directors were "independent" in the opinion of the board's corporate governance consultant.

[42]Listed companies are required to disclose these determinations. The proposed standards also contain descriptions of relationships in which a director is presumed not to be independent until 5 years after the relationship ceases. These relationships are as follows: (1) The director or an immediate family member receives more than $100,000 per year in direct compensation from the listed company, other than director and committee fees and pensions. (2) The director or an immediate family member is affiliated with or employed in a professional capacity by a present or former internal or external auditor of the company. (3) The director or an immediate family member is employed as an executive officer of another company where any of the listed company's present executives serves on that company's compensation committee. (4) The director or immediate family member is an executive officer of another company that accounts for (a) at least 2% or $1 million, whichever is greater, or the listed company's consolidated gross revenues, or (b) for which the listed company accounts for at least 2% or $1 million, whichever is greater of the other company's gross revenues.

Consistency and Transparency of Some Board Processes Could Be Improved

Regarding board processes, we found that Farmer Mac's board nomination process, director training, and management succession planning were not as concise, formal, or well documented as best practices would suggest. For example, during our interviews with existing directors, we received inconsistent responses regarding Farmer Mac's criteria for identifying and selecting directors and the process for nominating directors, raising concerns about consistency and transparency in the nomination process. To further demonstrate the significance of having a transparent process for nominating directors, SEC has proposed new rules requiring expanded disclosure of companies' nomination process and specific disclosure of procedures by which shareholders may communicate with directors. The new rules are to enable shareholders to evaluate a company's board of directors and nominating committee. The proposals include disclosure of the nominating committee's process for identifying and considering nominees, including criteria used to screen nominees and including the minimum qualifications and standards the nominating committee believes company directors should have.

Regarding the training for directors, from our interviews with the directors, we found that some directors were provided with in-depth training, while others were given a brief orientation to Farmer Mac's operations. Finally, at the time of our review, most directors informed us that they were uncertain if Farmer Mac had an executive management succession plan. Farmer Mac's corporate governance consultant confirmed that an executive management succession plan did exist, but had not been communicated to the entire board. According to Farmer Mac officials, an executive management succession plan was presented and approved at the June 2003 annual board meeting.

Farmer Mac's Total Executive Compensation Was Within Consultants' Recommended Parameters, but Its Vesting Program Appears Generous

Farmer Mac's total executive compensation package was within the parameters provided by two compensation consultants, although Farmer Mac is not readily comparable to private companies or GSEs due to its small size, business complexity, and cooperative board structure. Farmer Mac has considered itself a start-up company—using 1996 as the initial year although it has been in business since 1987—and has compared itself to a technology company model because of its daily operational risks and demonstrated growth. Generally, start-up companies have aggressive compensation packages to attract highly qualified employees, paying a higher proportion of compensation in the form of equity incentives, such as stock options premised on future growth and earnings. Farmer Mac's total

compensation has included an annual salary, an annual bonus, and stock options, which are included in its vesting program.

In 1995, the board retained a compensation consultant to establish a compensation package for its staff. Farmer Mac's total executive compensation was based on a number of factors—the compensation consultant's suggestions, the board's business plan targets, and the value of stock options granted. The consultant assesses the compensation package annually, and on a multiyear basis, takes into account pay levels and rate of increase at Farmer Mac and similar private companies and GSEs. In 2002, FCA retained an independent compensation consultant to determine if Farmer Mac's total executive compensation package was reasonable. We reviewed both Farmer Mac and FCA consultant reports. Both consultants provided a range of benchmarks to compare Farmer Mac's compensation, but used different assumptions that may not be entirely applicable to Farmer Mac. Specifically, we question whether the "start-up" assumption—used as an industry benchmark by Farmer Mac's consultant to develop its compensation package—was still valid, given the maturity of Farmer Mac. Further, Farmer Mac's consultant heavily weighted the housing GSEs as comparable peer organizations to ensure that Farmer Mac's compensation structure was competitive enough to attract and retain qualified executives. FCA's consultant also used the housing GSEs as benchmarks, in addition to mortgage banking organizations and financial service organizations because the various organizations more closely represented the positions from which executive management would be recruited. We question whether putting such heavy emphasis on housing GSEs as a benchmark is appropriate because they are so much larger and more complex than Farmer Mac, in terms of size and structure, earnings, portfolio, and operations. For example, Farmer Mac has 33 employees compared to Fannie Mae and Freddie Mac's 4,700 and 3,900 employees, respectively. As shown in table 3, Farmer Mac's compensation and options granted fell below the much larger housing GSEs.

Table 3: Annual Compensation and Options Granted for CEO's of Farmer Mac and Housing GSEs

Dollars in millions

	Annual salary	Annual compensation bonus	Options grant date present value	Value of unexercised in-the-money options at year-end exercisable
President & CEO, Farmer Mac Loan & Guarantee Portfolio: $5.5 billion Employees: 33	$447,480	$344,195	$1,150,783	$9,511,068
CEO and Chairman, Fannie Mae Loan & Guarantee Portfolio: $1.8 trillion Employees: 4,700	992,250	3,300,000	6,680,395	1,441,600
CEO and Chairman Freddie Mac (A) Loan & Guarantee Portfolio: $1.1 trillion Employees: 3,900	1,132,500	2,123,438	3,899,741	17,227,372

Source: Compensation information from Farmer Mac and Fannie Mae proxy statements as of April 2003, and Freddie Mac's proxy statement as of April 2002. Portfolio size and employee data from Farmer Mac 2002 Annual Report and Fannie Mae 2002 Annual Report, and Freddie Mac 2001 Annual Report. Freddie Mac's 2002 and 2001 financial results subject to restatement.

Notes: Freddie Mac's loan and guarantee portfolio size is an estimate from its 2001 financial statements because Freddie Mac was in the process of restating its 2000 to 2002 financial statements. Freddie Mac was not expected to complete the restatement until November 30, 2003.

This table excludes long-term compensation, restricted stock awards, other annual compensation, securities underlying options, LTIP payouts, and all other compensation, which includes life insurance premiums, defined contribution pension plans, and Retirement Savings Plans for Employees.

However, when benchmark issues are set aside, and Farmer Mac is compared to public companies or GSEs, its total executive compensation was within the consultants' recommended parameters but its stock option vesting program appears generous compared to general industry practices. Under Farmer Mac's 1997 Stock Option Plan, Farmer Mac employees and directors have been granted options in stages, with one-third of the options vested immediately on the date being granted, one-third vested at the end

of the following year, and the remainder vested in the second year. According to current practices of public and private companies with a public mission, these companies have average vesting periods of 4 to 5 years, with employees vesting 25 percent annually for 4 years after 1 year of employment. Generally, companies structure their vesting schedules to attract and to retain employees. Additionally, according to researchers, start-up companies use vesting programs to attract an important group of intellectual capital employees, and vest sooner to bolster income levels so that the employees can be compensated for their contributions. In these cases, more generous vesting programs serve the need to quickly develop the company to profitability, which may no longer be suitable for Farmer Mac's needs.

FCA Has Taken Steps to Enhance Oversight of Farmer Mac, but Faces Challenges That Could Limit the Effectiveness of Its Oversight

FCA has recently taken several steps to strengthen its oversight of Farmer Mac, including instituting a more comprehensive safety and soundness examination and undertaking initiatives to expand its regulatory framework. However, as it continues to improve its oversight of Farmer Mac, FCA faces five major challenges. First, limitations exist in the model used to estimate Farmer Mac's credit risk. Second, FCA's regulation does not include a component to measure credit risk on liquidity investments held by Farmer Mac. Third, FCA's market risk and income models may understate estimated levels of required risk-based capital. Fourth, lack of criteria defining Farmer Mac's mission limits FCA's ability to effectively oversee Farmer Mac's mission achievement. Finally, FCA is challenged by regulating both a primary and secondary market.

FCA Has Expanded Its Farmer Mac Examination and Is Taking Actions to Improve Oversight

FCA's June 2002 annual safety and soundness examination had a larger scope and employed more resources than its past examinations. The examination included a comprehensive review of Farmer Mac's financial condition, portfolio activity, risk management, and a review of board governance and executive compensation. FCA officials said that this CAMELS-based examination would serve as a guide for future Farmer Mac examinations.[43] In addition, FCA was closely monitoring Farmer Mac's corrective actions to address identified weaknesses.

[43]CAMELS refer to six components of a financial institution's performance – capital adequacy, asset quality, management, earnings, liquidity, and sensitivity to market risk.

As part of its increased focus on Farmer Mac oversight, FCA formed a working group in 2002 that prepared a white paper on Farmer Mac's nonmission investments and liquidity requirements. FCA was developing regulations in this area to ensure that Farmer Mac's nonmission investments would be appropriate in both quality and quantity and that Farmer Mac's use of its GSE status to issue debt would be appropriate. According to FCA representatives, to date, FCA has not placed a regulatory limit on the level or quality of Farmer Mac's nonmission investments, nor has it regulated specific liquidity standards.

FCA also formed another working group in 2002 to study the implications of regulatory capital arbitrage between FCS institutions and Farmer Mac. The regulatory capital arbitrage working group provided a white paper to the FCA board that contained an in-depth analysis of the causes and sources of capital arbitrage. The white paper presented several options for how FCA could reduce potential safety and soundness issues that might arise when FCS institutions and Farmer Mac engaged in capital arbitrage activities to reduce capital required to be held. FCA said that the agency is still studying the issue and has made no decisions on any specific actions.

Notwithstanding these positive developments, FCA has not been updating and reformatting Farmer Mac's call reports, a tool used for off-site monitoring. Our review of yearend 2001 and 2002 call report schedules and corresponding instructions indicated that in some cases, they do not fully conform to FCA regulations nor have these documents been updated to reflect recent accounting changes. One of the discrepancies we noted was FCA's acceptance of Farmer Mac's inaccurate reporting of the amount of one of three categories in which Farmer Mac was required to maintain its minimum core capital. Although to date the amount of capital affected was very small, this discrepancy raises questions on FCA's oversight of this part of Farmer Mac's capital requirement. FCA officials responded that they do not believe this discrepancy weakens FCA's oversight of Farmer Mac's capital requirement. Further, FCA officials recognized that the call report instructions need to be revised and said that they have plans to update them but that resources were currently not available due to other priorities associated with their oversight of Farmer Mac. FCA officials said that outdated call reports were not a primary concern because they augment the call report information with various other sources, including SEC filings and risk-based capital supporting data obtained from Farmer Mac.

FCA Faces Challenges as It Enhances Farmer Mac Oversight

FCA has begun to strengthen its oversight of Farmer Mac, but the agency still faces a number of technical and supervisory challenges. These include deficiencies in the estimation and measurement of risk and regulatory management issues.

Limitations Exist in the Model Used to Estimate Farmer Mac's Credit Risk

The model FCA used to estimate the amount of risk-based capital that is required to cover Farmer Mac's credit risk, utilizes the same data that are used in Farmer Mac's loan loss estimation model. As we discussed earlier, this model is limited by the poor data quality. We identified limitations related to using FCBT data and issues such as not modeling changes in interest rates, loan terms, or property values. For example, the model uses FCBT data to estimate loan losses even though Texas did not have the highest rates of default and severity of agricultural mortgage losses as required under Farmer Mac's statutory risk-based levels.[44] Legislation on Farmer Mac's risk-based capital requirements requires FCA to stress test the model, based upon the worst experience for defaults and loss severities for a period of not less than 2 years for agricultural real estate loans in contiguous areas comprising at least 5 percent of the U.S. population.[45] Analysis by FCA's consultants indicates that Minnesota, Iowa, and Illinois experienced the greatest decrease in farmland prices in 1983 and 1984. However, the loans in FCA's database are limited to Texas, which experienced the fourth greatest decrease in farmland prices. FCA's consultants found that FCBT had the only usable loan database for the purpose of building the credit risk model to estimate Farmer Mac's credit risk. Since the loan data were limited, it may not provide all data elements that would be desirable in a stress test. For example, the sample was small and it did not fully reveal the extent of restructuring of loans that could affect default estimates and losses. Additionally, the FCBT loan files did not show the extent to which loan terms had been changed to forestall foreclosures. Consequently, if some of these loans did have losses, which were not recorded in the database, the frequency of credit losses may be understated in the credit risk analysis. As we explained earlier, the loans in Farmer Mac's current portfolio tend to adjust for changes in interest rates more quickly than the loans issued by FCBT in the 1970s and 1980s. As

[44] 12 U.S.C. §2279bb-1.

[45] Stress tests are computer simulations that demonstrate how a firm's financial holdings and obligations would perform under adverse economic conditions. Generally, stress tests simulate an economic environment considered to be a worst-case scenario for the type of business a firm runs.

such, loans in the current portfolio may be exposed to credit risk longer than were the FCBT loans used in estimating the credit risk model and therefore, the FCBT loans would not be representative of Farmer Mac's current risks.

We also identified limitations in the structure of FCA's model. One limitation is that FCA's credit risk model was constructed so that the expected losses in a stressed environment are the same no matter what appreciation or depreciation in farmland prices occurred over the life of the loan in any period other than the period of maximum stress. The model also does not consider the effect that interest rate changes may have on the probability of default, such as the increased default risk of fixed-rate loans with yield maintenance in times of falling interest rates, or the increased risk of adjustable rate loans at times of rising interest rates. Another limitation of this model is that it does not differentiate between loans with short- and long-amortization periods, although loans with shorter amortization periods are likely to have lower credit risk, holding other loan underwriting terms constant. Because these variables are not included in the credit risk model, by varying its mix of fixed-rate and adjustable-rate loans, or short- versus long-amortization loans, Farmer Mac could change its credit risk profile with no resultant change in the regulatory capital for credit risk as measured by the FCA model. A more detailed discussion of the limitations of FCA's credit risk model is presented in appendix VI.

FCA's Regulation Does Not Capture Credit Risk on Farmer Mac's Liquidity Investments and AgVantage Bonds

FCA's regulation for calculating Farmer Mac's risk-based capital does not assess the amount of capital that must be held against credit risk associated with assets in Farmer Mac's liquidity investment portfolio. As such, there is no credit risk capital charge against approximately 37 percent of Farmer Mac's total balance sheet assets, which consist of liquidity investments such as commercial paper or corporate bonds. Although corporations with investment-grade ratings have relatively high credit quality, there is a possibility that they will default and fail to make all interest and principal payments in full and on schedule. In contrast, other financial regulators, including the Federal Housing Finance Board (FHFB), Federal Reserve Board, Office of the Comptroller of Currency, Office of Thrift Supervision, and Office of Federal Housing Enterprises Oversight (OFHEO), calculate the capital that must be held for the credit risk on investment securities, loans, and other assets, and also capital for the risk that a counterparty in a derivative transaction would fail to perform.

In addition, FHFB calculates required risk-based capital for advances that Federal Home Loan Banks make to their members. Farmer Mac's

Agvantage bond program is structured similarly to the FHLB advances, in that both require overcollateralization using borrower mortgage assets as collateral.[46] However, unlike FHFB, FCA does not include AgVantage bonds in its risk-based capital calculation.

Market Risk and Income Models May Understate Estimated Levels of Required Risk-based Capital

FCA uses results from Farmer Mac's interest rate risk model to measure the level of market risk to which Farmer Mac is exposed and determine corresponding levels of risk-based capital. As discussed previously, the Farmer Mac interest rate risk model has limitations with regard to prepayment modeling and the effect of prepayment penalties. These limitations could lead to errors in measuring the prepayment risk to which Farmer Mac is exposed and weaken FCA's oversight of risk-based capital, in addition to affecting Farmer Mac's risk management.

Farmer Mac uses the estimated behavior of single-family residential mortgage benchmarks to estimate the prepayment risk of commercial agricultural mortgages. Using one type of mortgage as a benchmark for another may lead to an underestimate of the extension risk in Farmer Mac's commercial agricultural mortgage holdings. Extension risk is the tendency for expected lifetimes of a mortgage to lengthen when interest rates rise. Most single-family residential mortgages have due-on-sale clauses, which compel borrowers to pay off their loan balances when selling their property. However, commercial agricultural mortgages are more easily assumed when it is advantageous to do so, often in the form of a "wrap," in which the property is sold as part of a long-term contract, so that the title to the property does not formally change hands for several years. The result is, at times of rising interest rates, the average life of commercial agricultural mortgages will increase more than will the average life of residential mortgages.

Additionally, FCA has chosen to incorporate an estimate of Farmer Mac's earnings into its income model, that assumes the level of new business activity and profitability for Farmer Mac per year will be unchanged in a 10-year period (steady state approach). In effect, even in the stress test scenario, by holding new business activity level constant, losses can be compensated for with profits from new business. By not including specific instructions on this issue, the 1991 amendments to the 1971 Act establishing Farmer Mac's risk-based capital standards gave FCA the

[46]With the AgVantage program Farmer Mac, in effect, purchases bonds from agricultural lenders with the lenders' using agricultural mortgages as collateral.

choice of including or excluding an estimate of Farmer Mac's earnings over a 10-year stress period when calculating Farmer Mac's risk-based capital requirements.[47] FCA officials said that they made a judgment to use the steady state approach because it allowed them to treat Farmer Mac as a going concern business, which they interpreted to be the intent of the statute. Further, FCA officials said that in developing the model, they found that using a steady state approach resulted in their use of fewer assumptions than would have been required by other approaches. In contrast, we have previously reported on the serious problems involved in estimating future income for GSEs since it is hard to determine what a reasonable level of activity, profits, or losses would be during a stressful period.[48]

Consistent with our concerns, other regulators such as OFHEO and FHFB do not use an estimate of earnings on new business when calculating their regulatory capital requirements.[49] In addition, OFHEO assumes that as Fannie Mae and Freddie Mac refinanced their short-term debt to support outstanding business, they could face higher interest rates caused by increasing risks of borrowing during a stressful period. Recently, OFHEO modified its stress test by increasing the short-term rates, which the model assumes will be paid by the housing enterprises by 10 basis points.[50] If FCA were to make a similar adjustment to future borrowing costs for Farmer Mac in a stress environment, the effect would be to reduce the estimated amount of future income earned by Farmer Mac, hence increasing the level of capital required to be held.

[47]Pub. L. No. 102-237 states that the risk-based capital test must determine the amount of regulatory capital for Farmer Mac that is sufficient for Farmer Mac to maintain positive capital during a 10-year period.

[48]U.S. General Accounting Office, *OFHEO's Risk-based Capital Stress Test: Incorporating New Business Is Not Advisable*, GAO-02-521 (Washington, D.C.: June 28, 2002).

[49]12 U.S.C. § 4611 required the Congressional Budget Office and us to study whether OFEHO should incorporate new business assumptions into the stress test used to establish risk-based capital requirements for the housing GSEs. The Director of OFHEO may, after consideration of these studies, assume that the GSE conducts additional new business during the stress period.

[50]12 C.F.R. 1750.

Lack of Criteria and Procedures Limit FCA's Ability to Effectively Oversee Farmer Mac's Mission Achievement

Although FCA has general regulatory authority over Farmer Mac for both safety and soundness oversight and mission regulation, FCA has focused primarily on safety and soundness.[51] We recognize that balancing these two goals—safety and soundness oversight and mission regulation—is difficult and could create tensions. However, if FCA is to oversee Farmer Mac's mission achievement, a lack of criteria and processes to measure how Farmer Mac's activities and products have contributed to mission achievement will limit its effectiveness. As discussed earlier, Farmer Mac's enabling legislation does not establish specific mission obligations that include specific or measurable goals; rather, Farmer Mac's mission is broadly stated. FCA officials said that FCA's authority to establish specific and measurable goals is fact specific and would depend on the particular nature of the proposal. Further, unlike the Department of Housing and Urban Development (HUD), FCA has received no congressional direction to undertake an analysis to determine the net public policy benefit of Farmer Mac's actions.

FCA officials said that the continued combined effect of FCA's supervisory efforts and regulatory development plans would bring greater focus on Farmer Mac's accomplishment of its public policy purpose. The officials also said that FCA has taken various steps to indirectly monitor Farmer Mac's mission achievement, including looking at Farmer Mac's book of business to see how it has grown over time and to identify inappropriate activities and products.

Overseeing Both FCS Banks and Farmer Mac Is a Regulatory Challenge

FCA's role as regulator of Farmer Mac and the FCS institutions raises a concern about regulatory conflict of interest. FCS is a primary market for agricultural real estate loans, while Farmer Mac is the secondary market for these loans. We have previously reported that to carry out oversight responsibilities effectively, a GSE regulatory structure must separate regulation of primary and secondary market participants.[52] This criterion posits that a regulator overseeing both a GSE and its primary business partners could be subject to conflicts of interest. For example, if an FCS institution was in danger of failing, the regulator might be tempted to

[51]Under the Farm Credit Act of 1971, FCA has general authority to examine and supervise the safety and sound performance of the powers, functions, and duties of Farmer Mac and its affiliates (12 U.S.C.§2279aa-11(a)).

[52]U.S. General Accounting Office, *Options for Federal Oversight of GSEs*, GAO/GGD-91-90 (Washington D.C.: May 22, 1991). Other criteria for effective oversight are independence and objectivity, prominence, economy and efficiency, and consistency.

pressure a healthy GSE into increasing the price it pays the bank for loans. Or, if a GSE was in poor financial health, the regulator might be tempted to encourage the GSE counterparties to discontinue their relationships. On the other hand, we recognize that a single regulator could offer some benefits such as knowledge of the market and its participants, and the opportunity to observe the transactions and trends between the primary and secondary markets.

Congress recognized this potential regulation problem and it attempted to mitigate this by creating OSMO, a separate office within FCA to regulate Farmer Mac. As required by the 1987 Act, the director of OSMO is selected by and reports to the FCA Board.[53] Yet, the 1987 Act directs FCA examiners, who also examine FCS institutions, to examine Farmer Mac's financial transactions. The 1987 Act also charges FCA with ensuring that OSMO is adequately staffed to supervise Farmer Mac's secondary market activities; although, to the extent practicable, the personnel responsible for supervising the powers, functions, and duties of the corporation should not also be responsible for supervising the banks and associations of the Farm Credit System. While this regulatory structure provides for a degree of separation between FCA's responsibilities for FCS institutions and its responsibilities with respect to Farmer Mac, in practice, the FCS institutions and Farmer Mac are still subject to oversight by the same FCA board and reviewed by some of the same FCA examiners and analysts. Consequently, FCA could be subject to potential conflicts of interest. In our discussions with FCA officials, they said that they were aware of the need to maintain the proper balance in their oversight roles to avoid such potential conflicts.

Conclusions

Government sponsorship of a financial institution, such as Farmer Mac, can generate a number of public benefits and costs, which are difficult to quantify. To the degree that lower funding costs and other benefits are passed on to borrowers in the affected financial sector, public benefits are generated. However, government sponsorship also generates potential public costs. One potential cost is the risk that taxpayers will be called upon if a GSE is unable to meet its financial obligations. In Farmer Mac's case, it would be the need to draw on its $1.5 billion line of credit with Treasury and the possibility that the federal government might appropriate

[53] 12 U.S.C. §2279aa-(11)(a)(3)(C).

further funds in the event that Farmer Mac faces financial difficulties. GSE status inherently weakens market discipline, which heightens the importance of internal and external oversight by the GSE's board of directors, auditors, and regulators, as well as transparency through financial reporting and credit ratings to the creditors and investors.

Farmer Mac's financial condition has improved since we last reported in 1999; specifically, its income has increased and its capital continues to exceed required levels. Farmer Mac's risk profile has become more complex as a result of the growth in size and complexity of its loan and guarantee portfolio. Although the company has made progress over the past few years to enhance its credit controls, asset management, and reduction of asset liability mismatch, its efforts to measure and monitor its risks have not kept pace and could be improved. As its loan and guarantee portfolio ages and delinquencies increase, it is key for Farmer Mac to continue to manage its credit risk by improving its loan loss estimation model and documentation of policies, procedures, and management judgments related to loan purchases and guarantees. More importantly, the rapid growth of standby agreements has generated a need for Farmer Mac to consider a funding strategy that would allow it to meet unexpected demands to fund purchases of underlying impaired or defaulted loans, in the event of stressful economic conditions. A funding strategy would entail a comprehensive contingency funding liquidity plan and a detailed analysis of capital adequacy. As noted, a strategy that consists of selling AMBS to obtain funding would potentially be limited by the lack of knowledge of the depth and liquidity of the secondary market for AMBS.

Farmer Mac has increased its mission-related activities since we last reported on this in 1999, but it is still not apparent if sufficient public benefits are derived from these activities. The lack of specific or measurable mission goals in its statute beyond providing a secondary market and stable long-term financing does not allow for a meaningful assessment of whether Farmer Mac's activities are having the desired impact on the agricultural real estate market. Further, because Farmer Mac has elected to retain nearly all its AMBS in portfolio for profitability reasons, the depth and liquidity of the secondary market for AMBS is unknown.

Similar to other publicly traded companies, Farmer Mac is faced with the challenges of updating its corporate governance practices to comply with Sarbanes-Oxley, SEC rules, and proposed NYSE listing standards as they become effective. As a GSE, Farmer Mac, however, has a board structure

set in statute, which hampers its efforts to comply with the stricter independence requirements in proposed NYSE listing standards, specifically those requirements calling for a fully independent and competent audit committee. Moreover, Farmer Mac's statutory governance structure has elements of a cooperative and investor-owned publicly traded company, which does not reflect the interest of all shareholders. While we did not draw conclusions on Farmer Mac's overall executive compensation, we would no longer consider Farmer Mac a start-up company and the assumptions used to set its executive compensation may no longer be valid. Changes are needed to Farmer Mac's vesting program for stock options to bring them more in line with general industry practices and other GSEs. Farmer Mac could improve its training for directors, provide more transparency to its directors on the nomination process, and better document its succession plan for its executive management. These actions, along with obtaining a credit rating to provide transparency to the market, could also help Farmer Mac respond to criticisms and increased expectations in today's market environment.

In addition to Farmer Mac's internal management of risks, as a GSE, it is required to have regulatory oversight to ensure that it operates in a safe and sound manner. Beginning in 2002, FCA had improved its oversight of Farmer Mac, but continues to face significant challenges in sustaining and further enhancing its oversight. While FCA has improved its examination approach, more remains to be done to improve its assessment of risk-based capital and mission oversight. We discussed a number of issues related to the data and structure of FCA's risk-based capital model, but the overall impact these issues have on the estimate of risk-based capital for Farmer Mac's credit risk is uncertain. Some concerns, such as the potential undercounting of loans that experienced credit losses, or greater prepayment of FCBT loans relative to Farmer Mac loans, may result in the FCA credit risk model underestimating the credit risk capital requirement. Other issues, such as the lack of a variable to track land price changes for any but the most stressed year, may cause the model to overestimate the credit risk capital requirement. Augmented data and more analysis could better determine the relative magnitudes of these effects. While FCA's oversight of Farmer Mac typically has focused on safety and soundness, it lacks criteria and procedures to effectively oversee how well Farmer Mac achieves its mission. At the same time, Farmer Mac's enabling legislation is broadly stated and does not include any measurable goals or requirements to assess progress toward meeting its mission. More explicit mission goals or requirements would help FCA in improving its oversight of Farmer Mac.

Recommendations

To help ensure that Farmer Mac's management can properly identify, manage, and control risks, we recommend that Farmer Mac management ensure that it has adequate staff resources and technical skills to oversee the following actions:

- Address weaknesses in its loan loss estimation model, which could affect the reasonableness and adequacy of the loan loss allowance, through the following actions:
  - Include current data on farm loan payment, delinquency, and valuation for the loans included in the estimation model so that the estimation process reflects current loan and economic conditions;
  - Explore other data sources that are relevant to Farmer Mac's current portfolio for estimating probability, amounts, and distribution of credit losses in its estimation model; and
  - Improve documentation of the results of the model compared to actual portfolio and economic conditions, and of the reconciliation to the amounts recorded in the financial statements.
- Continue to reduce its credit risk by improving its documentation of policies and procedures, and management's actions and judgments through the following actions:
  - Continue to gather documentation supporting management's assessment of loans approved using underwriting standard 9, including quantification and evaluation of compensating risk factors, and develop a process for utilizing such information in the management decision process for future exceptions and for estimating credit losses, and
  - Improve documentation supporting and quantifying the effect of extracting specific loan loss estimates from the overall loss estimate to determine whether this approach differs materially from estimating specific loan losses separately.
- Reevaluate its current strategy of holding agricultural mortgage-backed securities in portfolio and issuing debt to obtain funding.

- Develop a contingency funding liquidity plan to address potential vulnerabilities in less favorable capital markets conditions and liquidity needs arising from the rapid growth of standby agreements.

- Improve the quality of its prepayment model to ensure accurate interest rate risk measurements.

- Improve its analysis of capital adequacy to help ensure that capital would meet the needs of increasing and potential credit risks and growth.

Although the Farmer Mac board has taken steps to strengthen its corporate governance practices, we recommend that the Chairman, Farmer Mac, further enhance those practices by

- reevaluating stock option levels and vesting period to ensure that they are not excessive in relation to comparable industry standards for vesting and waiting period for stock options;

- better communicating the criteria for identifying and selecting director nominees and the process to nominate directors among the directors;

- formalizing executive management succession plan and communicate plan with all board members to provide transparency; and

- providing consistent training on governance and Farmer Mac related topics to all board members to increase directors' understanding of risks facing the corporation.

Finally, to improve the quality and effectiveness of FCA's oversight of Farmer Mac, we recommend that FCA implement the following steps:

- Continue to obtain more relevant and current data on farm loan behavior used in the risk-based capital model and consider more flexible modeling approaches to credit risk, such as those used by OFHEO for regulatory purposes or the Federal Housing Administration (FHA) for evaluating actuarial soundness;

- Continue to improve and formalize off-site monitoring of Farmer Mac, including reviews of Farmer Mac's regulatory reporting;

- Create a plan to implement actions currently under consideration to reduce potential safety and soundness issues that may arise from capital arbitrage activities of Farmer Mac and FCS institutions;

- Examine how other secondary market regulators developed regulations to require the GSEs to obtain a government risk credit ratings from nationally recognized statistical rating agencies; and

- Assess and report on the impact Farmer Mac's activities has on the agricultural real estate lending market.

Matters for Congressional Consideration

Congress may wish to consider the following legislative change:

- Establish clearer mission goals for Farmer Mac with respect to the agricultural real estate market to allow for a meaningful assessment of whether Farmer Mac had achieved its public policy goals;

- Allow FCA more flexibility in establishing capital standards that are commensurate with Farmer Mac's changing risk profile and in setting minimum capital requirements;

- If Congress intends for Farmer Mac to operate in a cooperative manner and maintain its current board structure of Class A and Class B stock, it may wish to consider making Farmer Mac a true cooperative entity like the Federal Home Loan Bank System, and rescind Farmer Mac's authority to issue Class C stock. However, if Congress intends for Farmer Mac to operate as a publicly traded company, it should consider amending (1) Farmer Mac's board structure to ensure an independent board and independent and competent audit committee and (2) the structure of Farmer Mac's Class C common stock to include a one share, one vote principle to provide the opportunity to better reflect all shareholder interests.

Agency Comments and Our Evaluation

We requested comments on a draft of this report from the heads or their designees of the FCA, Farmer Mac, SEC, and Treasury. We received written comments from Farmer Mac and FCA that are summarized below and reprinted in appendixes VII and VIII, respectively. SEC did not provide comments. FCA, Farmer Mac, and Treasury also provided technical comments that we have incorporated as appropriate.

In commenting on this report, Farmer Mac stated that it agreed with the report's findings and conclusions on Farmer Mac's risk management practices and has taken a number of steps toward implementing the majority of the recommendations. While Farmer Mac seemed to agree with the report's recommendations to improve its analysis of capital adequacy, develop a contingency funding plan, and improve documentation of management exceptions to its eight major underwriting standards, Farmer Mac's comments did not address our recommendations to reevaluate its strategy of holding AMBS in its portfolio, improve the quality of its prepayment model, better communicate the criteria for selecting director nominees and provide consistent training to the board of directors.

Farmer Mac commented that in discussing the availability of the Treasury line of credit relative to AMBS that Farmer Mac or its affiliates hold, the report acknowledged that Farmer Mac has a legal opinion by its outside counsel stating that the Treasury line of credit would be available in those circumstances; therefore, the question is moot. In fact, the report discussed the line of credit because Treasury has expressed serious questions about whether Treasury is required to purchase Farmer Mac obligations to meet Farmer Mac-guaranteed liabilities on AMBS that are held by Farmer Mac or its affiliates, and therefore, this issue remains unresolved until that time when Farmer Mac approaches Treasury for assistance. Farmer Mac commented that if it were coming under pressure to fund its guarantee obligations, it could sell AMBS it held to third parties long before it needed to use the line of credit. As we stated in the report, however, the depth and liquidity of the demand for these securities in the current market is unknown. Therefore, Farmer Mac would be selling AMBS at the same time that it was coming under pressure to fund its guarantee obligations, which would most likely affect Farmer Mac's ability to sell these securities and the price at which it could sell them.

Farmer Mac seems to disagree with our concern on funding liquidity risk that might arise from standby agreements. Farmer Mac commented that the report posits a situation in which loan defaults go far beyond the default rate peak for agricultural loans within the Farm Credit System in 1986. We do not provide an estimate of the level of default rate at which Farmer Mac would need additional funding. The report stated that if rapid growth continues, standby agreements could generate substantial funding liquidity risk under stressful economic conditions. By using the default rate peak, Farmer Mac is alluding to the stressful conditions incorporated in the risk-based capital model. However, this model addresses credit risk, not liquidity risk. Under standby agreements, Farmer Mac would need to

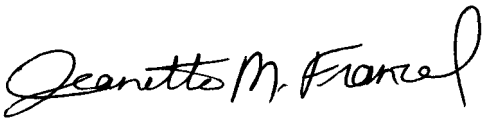
fund not only the net losses from foreclosures that were used in estimating the risk-based capital requirement but must fund the gross amount of loans that enter foreclosure and seriously delinquent loans presented for purchase to Farmer Mac. Other more technical comments provided by Farmer Mac and our detailed response is discussed in appendix VII.

Finally, FCA overall concurred with our report's findings and conclusions that are focused on FCA's work to oversee the safety and soundness of Farmer Mac. FCA also agreed to implement the recommendations for improving FCA's oversight of Farmer Mac contained in this report through current regulatory and examination work that is in process, and as necessary, new initiatives. In response to our recommendation regarding the risk-based capital model, FCA does not agree that additional data and modeling would add value, although FCA is studying the possibility of updating the data used in its model. As we stated in the report, the data used by FCA do not include all the components of credit losses, may not capture all the loans that experienced losses, and the loans used in the model have different interest rate characteristics than those currently purchased by Farmer Mac. Also as stated in the report, the key independent variable used in FCA's model—land price decline—is defined in such a way that the model will produce a biased estimate of the impact of land price declines on credit losses. FCA's technical comments and our detailed response are discussed in appendix VIII.

We are sending copies of this report to the Chairmen and Ranking Minority Members of the Senate Committee on Banking, Housing, and Urban Affairs; the House Committee on Financial Services; and the House Committee on Agriculture. We are also sending copies of this report to the President and Chief Executive Officer of Farmer Mac; the Chairman and Chief Executive Officer of the Farm Credit Administration, the Chairman of SEC, the Secretary of Treasury, and other interested parties. This report will also be available at no charge on GAO's Internet homepage at http://www.gao.gov.

Please contact us at (202) 512-8678 if you or your staff have any questions concerning this work. Key contributors are ackknowledged in appendix IX.

Davi M. D'Agostino
Director, Financial Markets and
Community Investment



Jeannette M. Franzel
Director, Financial Management
and Assurance

Objectives, Scope, and Methodology

As requested by the Senate Committee on Agriculture, Nutrition, and Forestry, we conducted a review of the Federal Agricultural Mortgage Corporation (Farmer Mac). Our objectives were to (1) assess Farmer Mac's current financial condition and risk management practices, (2) determine the extent to which Farmer Mac has achieved its statutory mission, (3) evaluate Farmer Mac's corporate governance as it pertains to board structure and oversight and executive compensation, and (4) evaluate the Farm Credit Administration's (FCA) oversight of Farmer Mac.

The focus of our review on Farmer Mac's secondary market activity in agricultural mortgages was on the Farmer Mac I Program because it is the primary program through which Farmer Mac conducts its secondary market activity. However, we included Farmer Mac II Program activity in our overall analysis of Farmer Mac's financial condition. To address our objectives overall, we reviewed the legislative history and statutory authorities governing Farmer Mac. We also reviewed relevant Farmer Mac public filings with the Securities and Exchange Commission (SEC) and regulatory reporting to the Farm Credit Administration (FCA), FCA regulatory reporting instructions, and examined copies of reports from Farmer Mac's regulator, external auditors, internal auditors, and held discussions with its external counsel and forensic accountants. Further, we held numerous discussions with Farmer Mac management and staff; FCA officials and examiners; and interviewed representatives of the American Bankers Association, the Farm Credit Council, and former FCA and Farmer Mac management.

To assess Farmer Mac's financial condition and risk management practices, we performed three major steps. First, we reviewed Farmer Mac's trends for earnings, capital, and asset (credit) quality, including return on average assets, return on common stockholders' equity, capital to assets ratio, nonperforming loans as a percentage of total loans, and the ratio of allowance for loan losses to nonperforming loans. In performing our trend analysis and cost of funds analysis, we did not verify the data provided by Farmer Mac. In addition, we did not audit Farmer Mac's financial statement or its loan loss allowance balances nor did we review any transactions or loan files.

Second, we determined how Farmer Mac compares to other entities. To do so, we identified appropriate measures of rates of return, capital, and asset quality for Farmer Mac and comparable entities. Because of its unique role, Farmer Mac does not have any direct peers. However, for purposes of our analysis, we determined that the following entities had similar

characteristics that could be compared to Farmer Mac: Federal National Mortgage Association (Fannie Mae), Agricultural Credit Association (ACA), Federal Land Credit Association (FLCA), and commercial agriculture banks.[1] While these organizations share some similar characteristics with Farmer Mac, distinct differences exist between each of these entities and Farmer Mac. For instance, while Fannie Mae is a government-sponsored entity (GSE) and publicly traded like Farmer Mac, Fannie Mae deals primarily with residential housing mortgages, which are less risky than the agriculture mortgages held by Farmer Mac. Farmer Mac's agricultural mortgages are commercial loans that fund a wide variety of agriculture activity (for example, poultry farms or orange groves), while Fannie Mae's single-family mortgages represent a fairly homogeneous asset. As a result, in the event of foreclosure, farm properties can be harder to appraise and more difficult to liquidate than single-family residences.

Like Farmer Mac, ACA and FLCA are both Farm Credit System (FCS) institutions and their business is farm related. However, unlike Farmer Mac, they originate loans instead of purchasing loans. Also, Farmer Mac is a publicly traded institution and therefore subject to SEC oversight, whereas ACA and FLCA are not publicly traded institutions. Also included in our comparisons are commercial agriculture banks, which are banks that have a higher proportion of farm loans to total loans than other commercial banks. Commercial agriculture banks originate a range of farm-related loans, unlike Farmer Mac, which buys or guarantees only agricultural mortgage loans, and does not originate loans.[2] Due to the significant impact of the 1996 Act on Farmer Mac's operations, we analyzed Farmer Mac's financial performance for calendar years 1997 through 2002 and used that same period for our comparison of Farmer Mac's financial measures to other entities.

Third, we assessed Farmer Mac's risk management practices and exposure to credit, liquidity, interest rate, and legal risks. We (1) obtained Farmer Mac's written and oral responses to questions on measurement, analysis,

[1]Federal Home Loan Mortgage Corporation (Freddie Mac) was not included in the analysis because it was in the process of restating its 2000 to 2002 financial statements. Freddie Mac was not expected to complete the restatement until November 30, 2003.

[2]For purposes of this study, Commercial Agriculture Banks reflect the combined performance of banks "that have a proportion of farm loans to total loans that is greater than the unweighted average at all banks" and were obtained from the fourth quarter 2002 and first quarter 2003 *Board of Governors of the Federal Reserve System Agricultural Finance Databook*.

and mitigation of those risks; (2) reviewed Farmer Mac Board-approved policies and standards related to those risks; (3) reviewed methodologies for determining loan loss reserves, examined existing studies of loan performance and research on agricultural loan performance conducted by contractors working for FCA and Farmer Mac, and interviewed the contractors; (4) received a demonstration of the model used by Farmer Mac to measure market risk; (5) analyzed financial data relating to the liquidity portfolio, outstanding debt, derivatives and total loan portfolio (on- and off-balance sheet); (6) interviewed representatives from the investment community; and (7) examined copies of reports from FCA, external auditors, and internal auditors and held discussions with external counsel and forensic accountants.

To assess Farmer Mac mission accomplishment, we gained general background related to agricultural secondary markets and obtained a regulatory perspective on Farmer Mac activities from meetings with representatives from the U.S. Department of Agriculture (USDA) Economic Research Service, FCA's Office of Secondary Market Oversight (OSMO), and the Department of the Treasury's Office of Financial Institutions. To gain an understanding of the lenders' perspective on Farmer Mac's programs, we interviewed agricultural real estate lenders and banking associations. We also compared lending institutions' market share in the agricultural real estate market with their percentage of participation in Farmer Mac's programs. We measured the amount of Farmer Mac's secondary activity by analyzing Farmer Mac's portfolio growth by identifying growth by product type and the ratio of retained agricultural mortgage-backed securities (AMBS) to AMBS that are sold to investors. In addition, we compared average long-term fixed interest rates offered by Farmer Mac with average rates offered by agricultural real-estate lenders. To the extent possible, we relied on publicly available data; therefore, there could be some inconsistencies with some of the characteristics of the data sets used to compare interest rates.

To evaluate Farmer Mac's corporate governance practices, we reviewed Farmer Mac's enabling legislation to understand the legal authority, oversight, and structure of Farmer Mac and its Board of Directors. We analyzed the Sarbanes-Oxley Act of 2002, the recently proposed New York Stock Exchange (NYSE) listing standards, and spoke with NYSE representatives to identify the requirements that Farmer Mac would need to meet. We reviewed relevant GAO reports and other related literature, and attended relevant seminars to gain a better understanding of corporate governance best practices. We conducted structured interviews with all 15

members of Farmer Mac's current Board of Directors to obtain their perspectives on board governance and communication with management. Further, we reviewed selected information packages prepared for board members and board minutes. To evaluate Farmer Mac's executive compensation, we obtained, compared, and analyzed two consultant reports on Farmer Mac's compensation and stock option and vesting program policies. We compared Farmer Mac's executive packages to the housing GSEs. We also reviewed compensation policies for senior officers. In addition, we interviewed the corporate governance consultant retained by Farmer Mac to obtain her views on Farmer Mac's governance structure and practices.

To evaluate FCA's oversight of Farmer Mac, we reviewed examination scope and reports on Farmer Mac from 1999 through 2002. We reviewed Farmer Mac year-end 2001 and 2002 call reports and compared the instructions to the schedules and its legal requirements. We examined a copy of the spreadsheet model used by FCA to measure Farmer Mac's credit risk, examined the computer programs and data, which produced FCA's credit risk model, and interviewed the FCA contractors who built the model. Additionally, we examined regulations promulgated by other GSE regulators, such as Office of Federal Housing Enterprise Oversight (OFHEO) and the Federal Housing Finance Board, and we met with officials from OFHEO and the Department of Housing and Urban Development (HUD) to understand their examination programs.

We conducted our work in California, Indiana, New York, Virginia, and Washington, D.C., between August 2002 and May 2003 in accordance with generally accepted government auditing standards.

Farmer Mac's Programs and Products

Program	Program description	Product feature
Farmer Mac I [a]		
Cash Window Program	Sellers receive cash by selling 100 percent of qualifying first mortgage agricultural real estate loans directly to Farmer Mac.	Terms and rates are described below under the Full-Time Farm, Part-Time Farm, and AgVantage Programs.
Full-Time Farm Program	Designed for borrowers who live on agricultural properties and derive a significant portion of their income from farm employment.	Types of agricultural loans offered include: • 15-year fixed rate, 15-year maturity with 15- or 25-year amortization and partial open prepayment available (annual, semiannual, or monthly payments); • 10-year fixed rate, 10-year maturity fully amortizing (semiannual or monthly payments); • 5-year reset loan with a 5-year term (renewable twice); 5-, 10-, 15-, or 25-year amortization (annual, semiannual, or monthly payments); • 30-day, 1-, 3- and 5-year ARMs (convertible to long-term, fixed rate), 15-year maturity, 15- or 25-year amortization, (semiannual or monthly payments); and • facility loans,10- or 15-year fixed rate maturity, and fully amortized.
Part-Time Farm Program	Designed for borrowers who live on agricultural properties with a valuable residence and derive a significant portion of their income from off-farm employment.	Farmer Mac offers a 15- and 30-year loan for single-family, detached residences; 3/1, 5/1, 7/1 and 10/1 ARMs and 15- and 30-year fixed rate mortgages (monthly payments).
AgVantage Program	Farmer Mac purchases and guarantees timely payment of principle and interest on mortgage-backed bonds.	AgVantage bonds may range in maturity from short-term to 15 years and have low fixed or variable rates of interest.
Swap Program	Farmer Mac acquires eligible loans from sellers in exchange for Farmer Mac Guaranteed Securities backed by those loans.	Security terms, rates, etc., are negotiated with the seller on the basis of the characteristics of the loan.
Long-Term Standby Purchase Commitments	Farmer Mac commits to purchase loans from a segregated pool of loans on one or more undetermined future dates.	Terms are negotiated with institution based on the characteristics of the underlying loan.

(Continued From Previous Page)

Program	Program description	Product feature
Farmer Mac II [b]		
Cash Window Program	Lenders receive cash by selling 100 percent of the guaranteed portion of USDA loans directly to Farmer Mac.	• 7-year fixed rate and 15-year fixed rate based on full amortization; • 5- or 10-year fixed rate based on full amortization with 5- or 10-year rate reset periods—which are tied to the Farmer Mac 5- or 10-year Reset Cost of Funds Index Net Yield; and • floating rate is tied to Farmer Mac 3-month Cost of Funds Index's "Net Yield" with calendar quarter rate adjustments or The Wall Street Journal's Prime Rate.
Swap Program	Lenders receive Farmer Mac-guaranteed securities in return for the guaranteed portion of USDA loans.	Security terms, rates, etc., are negotiated with the seller on the basis of the characteristics of the loan.

Sources: Farmer Mac and FCA.

[a]Farmer Mac I operates as a secondary mortgage market for high-quality agricultural real estate and rural home mortgages. Participation is limited to financially healthy farmers as established in the Agricultural Credit Act of 1987.

[b]In the 1990 Act, Farmer Mac was authorized to serve as the pooler for secondary sales of agricultural and rural development loans that are guaranteed by USDA. This program benefits borrowers who are unable to get commercial credit at affordable rates because of financial problems.

Financial Trends and Comparisons with Other Entities

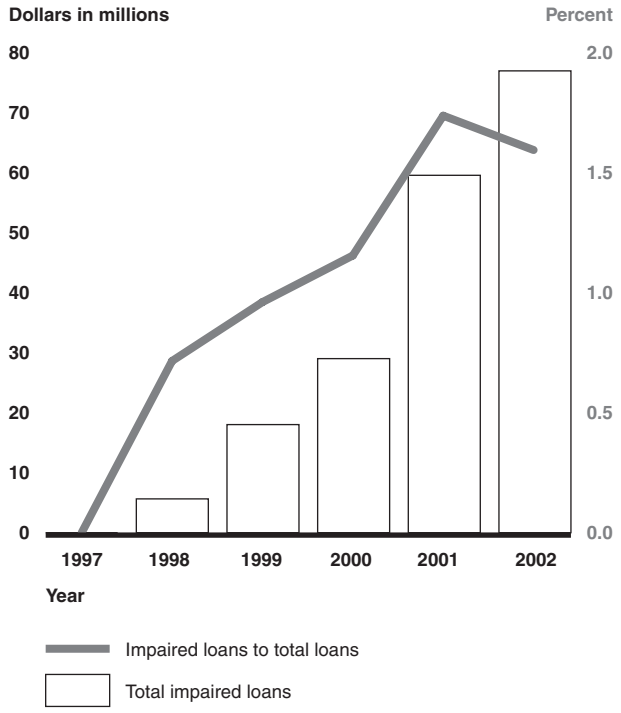
Farmer Mac's increase in impaired loans and in write offs of bad loans is indicative of increasing credit risk. Farmer Mac's percentage of impaired loans[1] to total outstanding post-1996 Act loans, AMBS, and standby agreements increased each year from 1997 through 2001, and then decreased slightly, by 14 basis points[2] from 1.70 percent at December 31, 2001, to 1.56 percent at December 31, 2002.[3] (See fig. 6) On a comparative basis, the proportion of Farmer Mac's nonperforming loans to total loans is higher than other comparable entities. For instance, Agricultural Credit Associations' (ACA) and Federal Land Credit Associations' (FLCA) nonperforming loans to total loans at December 31, 2002, were .89 percent and .57 percent, respectively. See fig. 7.

[1]Post-1996 Act loans and guarantees are Farmer Mac I loans and guarantees that Farmer Mac acquired or guaranteed after the 1996 Farm Act was passed.

[2]A basis point is equal to one hundredth of a percent. It is used to measure changes in or differences between yields or interest rates.

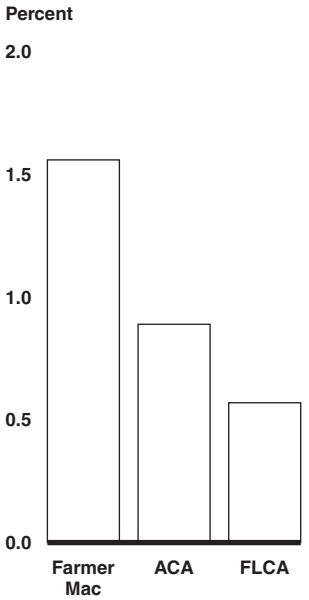
[3]Impaired loans are analyzed on a loan-by-loan basis to measure impairment on the current value of the collateral for each loan relative to the total amount due from the borrower. Farmer Mac specifically determines an allowance for the loan for the difference between the recorded amount due and its current collateral value, less estimated costs to liquidate the collateral.

Figure 6: Farmer Mac's Impaired Loans from 1997 to 2002



Source: GAO's analysis of Farmer Mac's data.

Figure 7: Farmer Mac's Nonperforming to Total Loans Compared to Other Entities, as of December 31, 2002



Source: GAO's analysis of Farmer Mac and FCA data.

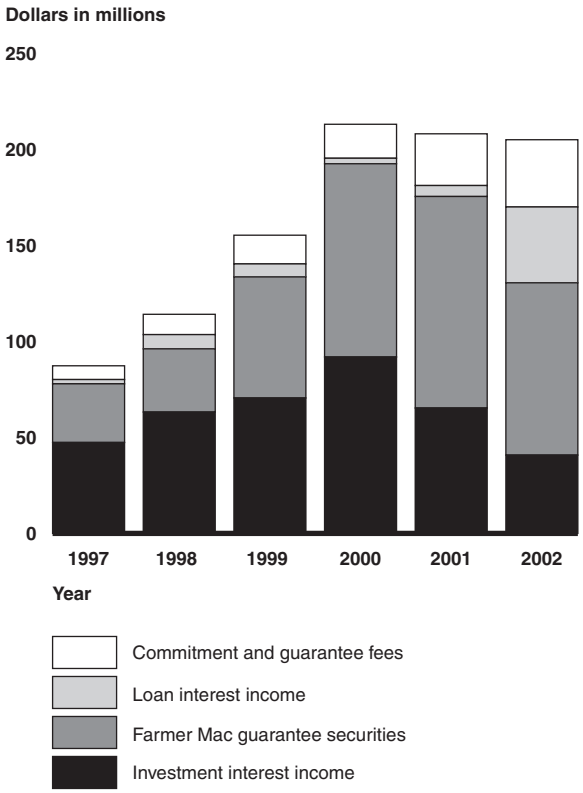
Farmer Mac's write offs of impaired loans have been limited to date, but delinquencies are increasing. During 2002, Farmer Mac wrote off $4.1 million of bad loans, or 8 basis points of post-1996 Act loans and guarantees,[4] which was a significant increase over the $2.2 million, or 6 basis points, written off in 2001.

[4]Loans written off are losses on the outstanding balance of the loan, any interest payments previously accrued or advanced, and expected collateral liquidation costs. The post-1996 Act loans and guarantees are post-1996 Act loans held and loans underlying the guaranteed securities and standby agreement, which represent the credit risk on loans and guarantees assumed by Farmer Mac.

Revenue Has Increased, but Some Financial Performance Indicators Lag Comparative Entities

Farmer Mac's net interest income grew from $7.1 million in 1997 to $35.0 million in 2002. Net interest income is interest income generated from Farmer Mac Guaranteed Securities, loans, and investments, less interest expense, which Farmer Mac pays on its debt. Interest rates Farmer Mac earned on Farmer Mac Guaranteed Securities and loan products declined 177 basis points from 7.41 percent in 1997 to 5.64 percent in 2002. During the same period, the weighted average interest rates that Farmer Mac paid on its debt decreased 216 basis point from 5.75 percent to 3.59 percent. The growth in Farmer Mac Guaranteed Securities and loans from $442 million and $47 million at year-end 1997 to $1.6 billion and $966 million at year-end 2002, respectively, caused Farmer Mac's interest income to increase. See fig. 8.

Figure 8: Income by Program Assets

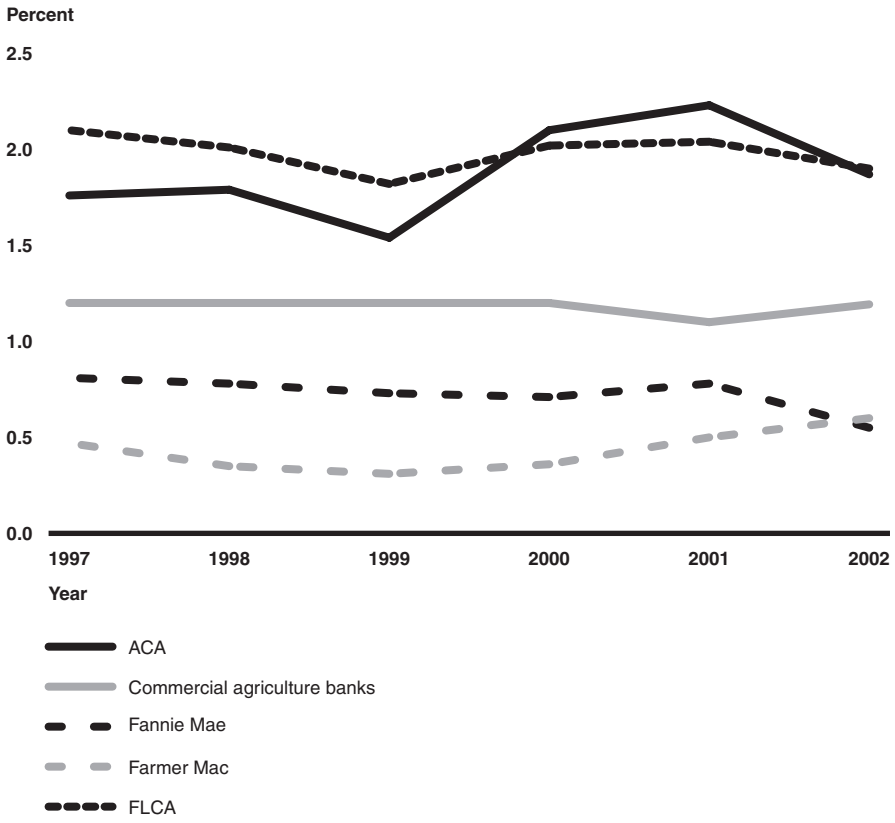


Source: GAO's analysis of Farmer Mac's data.

Farmer Mac's return on assets (ROA) generally increased between 1997 and 2002, but continued to lag behind other comparative entities. During this period, Farmer Mac's performance as measured by percentage return on average assets fluctuated from a low of .31 percent in 1999 to a high of .60 percent in 2002. The increase in 2002 was driven by continued growth in the off-balance sheet standby agreement product, which experienced 42 percent growth in 2002 and 118 percent growth in 2001. As previously mentioned, Farmer Mac earns and recognizes income from the standby agreements as commitment fees. The standby growth caused Farmer Mac's net income growth rate between 2001 and 2002 to exceed its average asset growth rate.

During the period 1997 to 2002, Farmer Mac's ROA was consistently lower than the ROA of the following comparative banking institutions: Fannie Mae (except in 2002), commercial agriculture banks, ACA, and FLCA. This indicates that Farmer Mac is using its assets differently than comparative banking entities. For instance, of its total assets, Farmer Mac had 17.1 percent in cash and 19.7 percent in investments at December 31, 2002, while Fannie Mae had 0.2 percent in cash and 6.7 percent in investments. ACA and FLCA held even lower portions of their assets as cash and investments. See fig. 9.

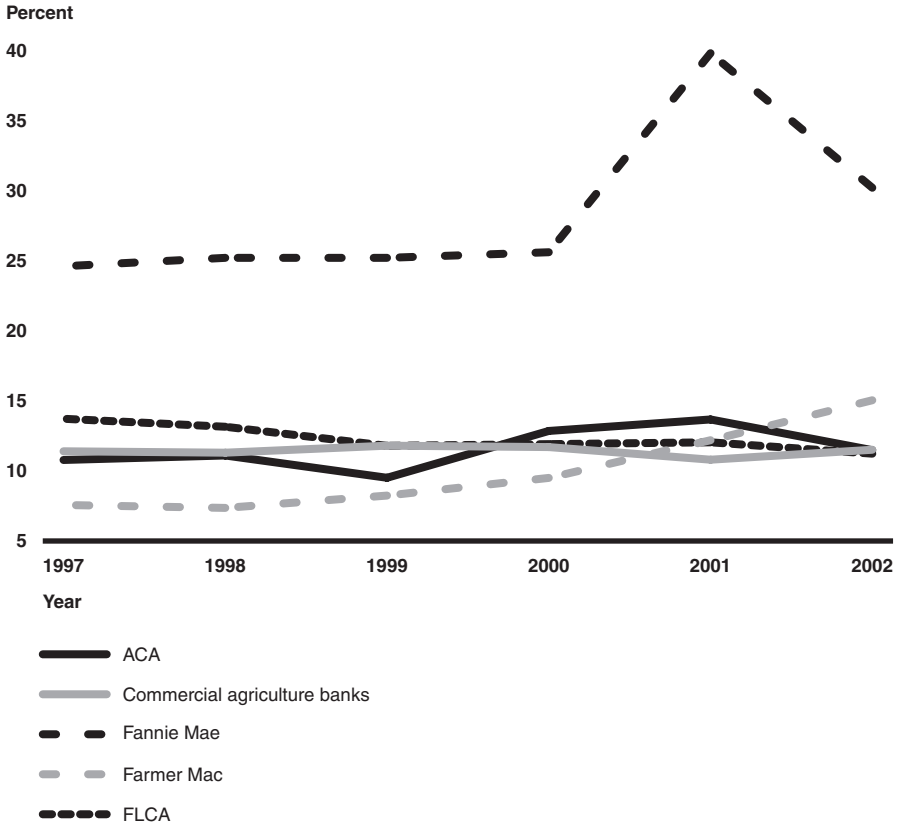
Figure 9: Farmer Mac's ROA Compared to Other Entities



Source: GAO's analysis of Farmer Mac, FCA, Federal Reserve, and Fannie Mae data.

Farmer Mac's return on average common stockholder equity (ROE) of 15.04 percent for 2002 increased steadily from 7.57 percent in 1997. Between 1997 and 2002, Farmer Mac's ROE remained well below Fannie Mae's ROE, which was 30.2 percent for 2002. However, for 2002, Farmer Mac's ROE exceeded the comparative banking institutions of commercial agriculture banks, ACA, and FLCA. One reason for the difference is that Farmer Mac's capital as a percentage of total assets is less than that of the comparative banking institutions, but greater than Fannie Mae's capital ratio. See fig. 10.

Figure 10: Farmer Mac's ROE Compared to Other Entities

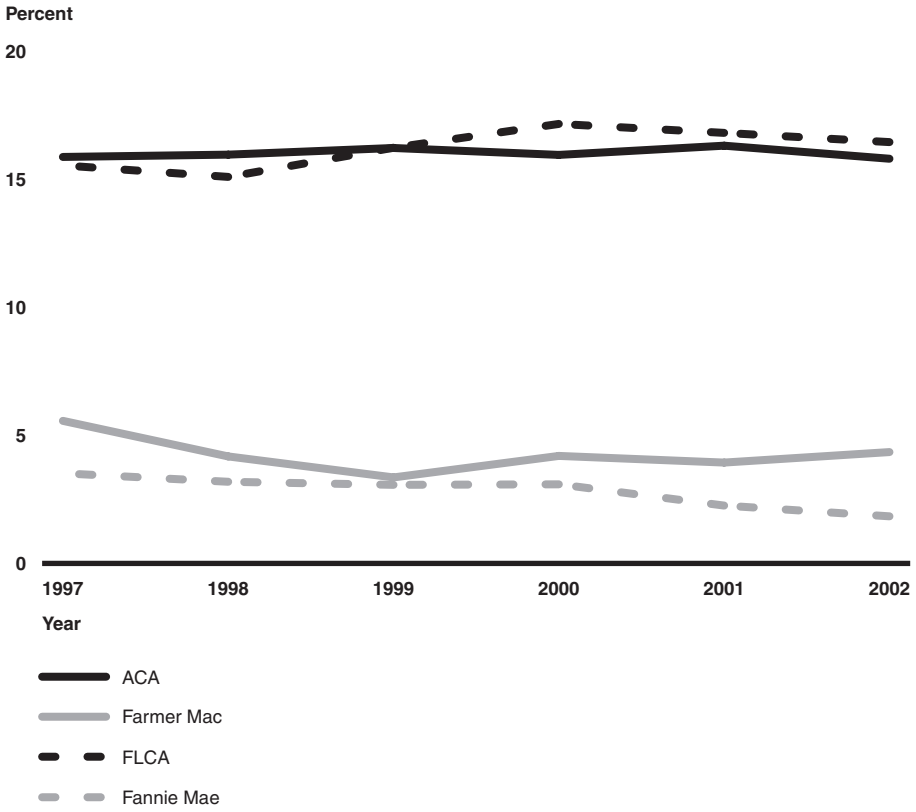


Source: GAO's analysis of Farmer Mac, FCA, Federal Reserve, and Fannie Mae data.

Farmer Mac's total capital (stockholder equity) to total assets of 4.35 percent as of December 31, 2002, is significantly below ACA's and FLCA's ratios of 15.81 percent and 16.46 percent, respectively, but above Fannie Mae's ratio of 1.84 percent. See fig. 11. Capital's primary function is to support the institution's operations, act as a cushion to absorb unanticipated losses and declines in asset values that could otherwise cause an institution to fail, and provide protection to debt holders in the event of liquidation. A higher capital to assets ratio, such as ACA's and FLCA's compared to Farmer Mac's, indicates there is more coverage for potential financial losses. Because Fannie Mae's housing loans have different risks than agriculture loans, it is expected that its capital would be lower than Farmer Mac's, ACA's, and FLCA's. In general, since 1997, Farmer Mac has operated in economic times when agriculture land values have

been rising and interest rates have been relatively low, experienced minimal credit losses, and has not experienced net income losses, so its capital has not been stressed and therefore has not demonstrated whether it can absorb unanticipated losses and declines in asset values.

Figure 11: Farmer Mac's Capital to Asset Ratios Compared to Other Entities



Source: GAO analysis of Farmer Mac, FCA, and Fannie Mae data.

As of December 31, 2002, Farmer Mac's capital was in excess of its statutory requirements. According to the 1991 Amendment to the Agricultural Credit Act of 1987 and the 1996 Act, Farmer Mac has the following capital requirements:

- Minimum required capital level is an amount of core capital equal to the sum of 2.75 percent of Farmer Mac's aggregate on-balance sheet assets, as calculated in accordance with generally accepted accounting

principles (GAAP), plus .75 percent of the aggregate off-balance sheet obligations of Farmer Mac, specifically including the unpaid principal balance of outstanding Farmer Mac AMBS, instruments issued or guaranteed by Farmer Mac, and other off-balance sheet obligations.

- Critical capital level is an amount of core capital equal to 50 percent of the total minimum capital requirement at that time.

- Core capital is the sum of par value of common and preferred stock plus paid-in capital and retained earnings, determined in accordance with GAAP.

Farmer Mac's Underwriting Standards

Underwriting standards are used by Farmer Mac to determine which mortgages it will buy, and then choose to either hold in its own portfolios of loans, place into mortgage pools to be sold to investors, or place under standby agreements. Generally, eligible loans must meet each of the underwriting standards. The standards are meant to limit the risk that the mortgages will create losses for Farmer Mac or the holders of mortgage pools by ensuring that the borrower has the ability to pay, is creditworthy, and is likely to meet scheduled payments and, in the event of the default, the value of the agriculture real estate limits any losses. Standards are tailored to loans depending upon whether the loan is newly originated or seasoned, based upon full- or part-time agricultural production, or for specialized facilities. Farmer Mac requires lenders originating and selling the loans to (1) ensure that loan documentation in each loan file conclusively supports determination of each standard and (2) provide representations and warranties to help ensure that the qualified loans conform to these standards and other requirements of Farmer Mac.

Farmer Mac has nine underwriting standards for newly originated loans that are based on credit ratios such as debt-to-assets, other quantitative measures such as loan-to-appraised value (LTV), and qualitative terms such as receipts supporting agricultural use of the property. These standards are a chapter in Farmer Mac's *Seller/Servicer Guide*, and provide guidelines to its staff and lenders, supported with detailed examples and explanatory comments for each standard. A summary of each of these nine standards is condensed below.

- *Standard 1: Creditworthiness of Borrowers*. A complete and current credit report must be obtained for each applicant and guarantor that includes historical experience, identification of all debts, and other pertinent information.

- *Standard 2: Balance Sheet and Income Statements*. This standard requires the loan applicant to provide fair market value balance sheets and income statements for at least the last 3 years.

- *Standard 3: Debt-to-Asset (or Leverage) Ratio*. The entity being financed should have a pro forma debt-to-asset ratio of 50 percent or less on a market value basis. The debt-to-asset ratio is calculated by dividing pro forma liabilities by pro forma assets. A pro forma ratio shows the impact of the amount borrowed on assets and liabilities.

- *Standard 4: Liquidity and Earnings*. The entity being financed should be able to generate sufficient liquidity and net earnings, after family living expenses and taxes, to meet all debt obligations as they come due over the term of the loan and provide a reasonable margin for capital replacement and contingencies. This standard is achieved by having a pro forma current ratio of not less than 1.0 and a pro forma total debt service ratio of not less than 1.25, after living expenses and taxes. The current ratio is calculated by dividing pro forma current assets by pro forma liabilities. Total debt service coverage ratio is calculated by dividing net operating income by annual debt service. Net income from farm and nonfarm sources may be included.

- *Standard 5: Loan-to-Value (LTV) Ratio*. The LTV should not exceed 70 percent in the case of a typical Farmer Mac loan secured by agricultural real estate, 75 percent in the case of qualified facility loans, 60 percent for loans greater than $2.8 million, or 85 percent in the case of part-time farm loans with private mortgage insurance coverage required for amounts above 70 percent. The LTV ratio is important in determining the probability of default and the magnitude of loss.

- *Standard 6: Minimum Acreage and Annual Receipts Requirement*. Agricultural real estate must consist of at least 5 acres or be used to produce annual receipts of at least $5,000 to be eligible to secure a qualified loan.

- *Standard 7: Loan Conditions*. The loan (1) must be at a fixed payment level and either fully amortize the principal over a term not to exceed 30 years or amortize the principal according to a schedule not to exceed 30 years and (2) mature no earlier than the time at which the remaining principal balance (i.e., balloon payment) of the loan equals 50 percent of the original appraised value of the property securing the loan. The amortization is expected to match the useful life of the mortgaged asset and payments should match the earnings cycle of the farm operations. For facilities, the amortization schedule should not extend beyond the useful agricultural economic life of the facility.

- *Standard 8: Rural Housing Loans Standards*. Farmer Mac has adopted the credit underwriting standards applicable to Fannie Mae, adjusted to reflect the usual and customary characteristics of rural housing. These standards include, among other things, allowing loans secured by properties that are subject to unusual easements, having larger sites than those for normal residential properties in the area, and

having property that is located in areas that are less than 25 percent developed.

- *Standard 9: Nonconforming Loans*. On a loan-by-loan determination, Farmer Mac may decide to accept loans that do not conform to one or more of the underwriting standards or conditions, with the exception of standard 5. Farmer Mac may accept those loans that have compensating strengths that outweigh their inability to meet all of the standards. Examples of compensating strengths include substantial borrower net worth or a larger borrower down payment. The granting of standard 9 exceptions is not intended to provide a basis for waiving or lessening in any way Farmer Mac's focus on buying only high-quality loans.

Interest Rate Risk

Asset-Liability Management

As of December 31, 2002, over 70 percent of Farmer Mac's liabilities ($2.9 billion) were short-term—maturing in 1 year or less—while most of the assets it held were agricultural real estate mortgages, which can have maturities of up to 30 years. As most of these longer-term assets are either fixed-interest rate loans or loans with adjustable rates that will adjust more than 1 year in the future, this would result in an asset liability mismatch, which would occur when assets and liabilities do not have the same maturity or interest rate characteristics. Farmer Mac's use of interest rate swaps substantially reduces this problem. In addition, Farmer Mac uses callable debt to mitigate the risk from prepayable mortgages.

Farmer Mac is subject to interest rate risk on its portfolio due to the potential timing differences in the cash-flow patterns of its assets and liabilities. Farmer Mac uses callable debt, derivatives and yield-maintenance terms in its loan contracts to mitigate interest rate risk (IRR).[1] Financial institutions often match the cash flow and duration of newly acquired assets with liabilities of equal cash flow and duration. In order to achieve an overall lower cost of funding for the assets it purchases, Farmer Mac relies on short-term discount notes as its primary source of funding. However, since funding longer-term assets with short-term liabilities causes an asset-liability mismatch, Farmer Mac enters into derivative contracts to convert the short-term discount notes into longer-term liabilities, which more closely match the duration of the assets. The majority of Farmer Mac's interest rate contracts are floating to fixed-interest rate swaps, in which Farmer Mac pays fixed rates of interest to, and receives floating rates from, the derivative counterparty. If interest rates were to rise, Farmer Mac would have to pay higher rates when its discount notes matured and had to be reissued, but the interest it receives from the swaps would also rise, compensating Farmer Mac for the increased funding cost. Farmer Mac also enters into basis swaps in which it pays variable rates of interest based on its discount notes, and receives variable rates of interest based on another index, such as LIBOR.[2] Farmer Mac also has prepayment penalties or yield-maintenance terms on 57

[1]Interest rate risk is the potential that changes in prevailing interest rates will adversely affect assets, liabilities, capital, income, or expenses at different times in different amounts.

[2]London Interbank Offered Rate (LIBOR) is the rate that the most creditworthy international banks dealing in Eurodollars charge each other for large loans. The LIBOR rate is usually the base for other large Eurodollar loans to less creditworthy corporate and government borrowers.

percent of its outstanding balance of loans and guarantees (including 91 percent of loans with fixed-interest rates), which limits Farmer Mac's exposure to losses stemming from declines in interest rates. Prepayment penalties and yield-maintenance agreements reduce the borrower's incentive to refinance into a lower interest rate loan when interest rates drop, and produce additional revenue for the owner of the mortgage if it is refinanced at a time of falling interest rates.

Prepayment Model

Prepayment models are an important component of interest-rate risk measurement. Approximately 57 percent of Farmer Mac's loan portfolio has some form of yield-maintenance protection, which mitigates the effects of loan prepayments. The fixed-rate loans that do not have yield maintenance expose Farmer Mac to prepayment risk. This is particularly true for the purchases of large portfolios of loans (bulk purchases) that include loans with characteristics different from the rest of the portfolio. For fixed-rate loans without yield-maintenance agreements, falling interest rates result in a loss for the financial institution if the mortgage is paid off early, as the owner of the mortgage can only reinvest the funds at a lower interest rate if the mortgage is paid off early. For fixed-rate loans with yield-maintenance agreements, falling rates may result in a gain for the financial institution, as any loans that do pay off early will pay a penalty that generally compensates the lender for the lower interest rate received on the reinvested funds.[3] Prepayment models predict the number and timing of early payments, hence, the losses or gains that may result from changes in interest rates.

Farmer Mac's prepayment risk model was developed internally based on models that predict prepayment behavior for residential mortgage borrowers. Farmer Mac followed this approach due to the unavailability of external data on agricultural mortgage prepayments. But agricultural real-estate borrowers may behave differently than residential mortgage

[3]Yield maintenance is designed to compensate lenders for loss in market value when loans are paid off early in falling rate environments. The yield-maintenance penalty formula tends to slightly overcompensate lenders for early repayment because the formula does not consider the effect of amortization, and the formula uses the gross spread between the interest rate on the mortgage (net of servicing fees) and a Treasury security of comparable maturity, although some of that spread represents the higher cost of agency debt, and not the net interest margin on the loan. Because yield maintenance is not collected for the last six months of a loan's life, it may less than fully compensate the lender when a loan is paid off near its maturity date.

borrowers for many reasons. First, Farmer Mac's fixed-rate agricultural real-estate loans often have prepayment penalties or yield-maintenance agreements, which are rare for single-family residential borrowers. Therefore, at times of falling interest rates, single-family mortgages will experience waves of refinancing induced prepayment which will be absent for many types of agricultural mortgage. In addition, single-family borrowers are influenced by price appreciation on single-family housing, and agricultural real estate may have significantly different patterns of price appreciation. Single-family prepayments are also determined in part by mobility and the sale of owner-occupied housing, and agricultural real estate may show different patterns of sale-induced prepayment over time. Farmer Mac makes substantial downward revisions to prepayment speeds for loans with penalties or yield maintenance, but these adjustments are not based on a model of borrower behavior. Rather, they are based on long-run historical averages for prepayments on similar loan types. For loans that allow open prepayment, Farmer Mac uses a multiplicative adjustment factor applied to the prepayment speeds of single-family mortgages. These revisions to prepayment speeds more closely align the prepayment behavior of single-family mortgages with the loans held or securitized by Farmer Mac. The adjustment factors are backtested over several previous quarters to ensure that they fit the recent past and are revised from time to time. However, because single-family prepayment rates fluctuate, sometimes substantially, for different reasons than do prepayment rates on agricultural mortgages, a simple proportional adjustment factor may be insufficient to capture the differences in prepayment behavior. For example, if agricultural real-estate prices were flat or falling while single family homes were appreciating rapidly, single-family prepayments may rise without a corresponding increase in agricultural prepayment rates, or vice versa. If the relative rate of agricultural mortgage prepayments to single-family mortgage prepayments were different for prepayments caused by property sales (which predominate at times of flat interest rates) than for prepayments caused by refinancing, a proportionate adjustment factor calculated at a time of flat interest rates would not provide a good forecast of agricultural mortgage behavior when rates are falling.

Loans with prepayment penalties are likely to experience higher default probabilities at times of falling interest rates. Yield-maintenance penalties have the effect of increasing the loan's payoff amount in a falling interest rate environment. This has an effect similar to an increase in the LTV ratio,

a prime determinant of default in studies of borrower behavior.[4] As a concrete example of this effect, consider a $700,000 loan on a $1,000,000 property. If the agricultural market is stressed, and the value of the farm falls to $800,000, a borrower may consider selling the property and using the proceeds to pay off the loan. If interest rates have fallen; however, and the loan payoff additionally includes a $150,000 prepayment penalty, the borrower would be unable to pay off the loan with the proceeds from the sale of the property and would therefore be more likely to default or to negotiate a costly restructuring. Farmer Mac's IRR model assumes that default behavior does not change when interest rates change, hence does not model an increased probability of failing to collect yield maintenance or prepayment penalties in times of falling rates.

Farmer Mac's IRR Measurement Process

On a monthly basis, or more frequently if necessary, Farmer Mac measures its IRR using an industry standard package, Quantitative Risk Management (QRM).[5] The primary IRR metric that is reported to the Farmer Mac board of directors is MVE-at-risk. Farmer Mac calculates MVE by first obtaining the market prices of Farmer Mac's assets, liabilities, and off-balance sheet obligations. Then Farmer Mac uses QRM to calculate the sensitivity of MVE to parallel changes of the Treasury yield curve of plus and minus 100, 200, and 300 basis points.[6] In addition, on a quarterly basis, Farmer Mac management analyzes the effect that changes in interest rates have on the financial value of Farmer Mac. Farmer Mac management also managed NII in a similar fashion as MVE. Finally, Farmer Mac also measures the

[4]Numerous studies of the performance of commercial mortgage behavior incorporate this effect. It is generally done by using the market, as opposed to the book value of the mortgage when calculating loan-to-value ratios. The market value is calculated by taking the stream of payments of the mortgage, discounted at the currently prevailing interest rate. The market value of a mortgage rises when interest rates fall, in line with the yield-maintenance payment. Market value and yield maintenance are two different approaches to calculating the same concept, namely, the value of the mortgage to investors. Some examples of papers that use market value of the mortgage as a predictor of loan default include Vandell, Barnes, Hartzell, Kraft, and Wendt (1993) "Commercial Mortgage Defaults: Proportional Hazards Estimation Using Individual Loan Histories," American Real Estate and Urban Economics Association Journal, V 21 Number 4, pp. 451-480, or Huang, and Ondrich (2002) "Pay, Stay, or Walk Away: A Hazard Rate Analysis of FHA Multifamily Mortgages," Journal of Housing Research, V 13 Number 1, pp. 85-117.

[5]QRM is a commercial software used to manage IRR.

[6]Yield curve is a graph showing the relationship between the yield on bonds of the same credit quality but different maturities.

duration gap of its assets, liabilities, and off-balance sheet obligations. Other sensitivity analyses are done on a regular basis, such as examining the effects of changes in the prepayment speed assumptions for mortgages underlying the AMBS.[7]

[7] Prepayment speed is the rate at which mortgages pay off before their scheduled maturity.

Farm Credit Administration Credit Risk Model

FCA measures the credit risk component of Farmer Mac's risk-based capital requirement with a statistical model that relates loan characteristics, such as the loan-to-value (LTV) ratio, and changes in agricultural real estate prices, to credit losses on loans secured by agricultural real estate. The estimated relationship between credit losses and the prediction variables is used to forecast the losses expected on agricultural real estate mortgages under a severe stress scenario, such as that experienced in Minnesota, Iowa, and Illinois in 1983 and 1984.

The data used to estimate the credit loss model consist of loans from the Farm Credit Bank of Texas (FCBT) observed over the period 1979 to 1992. This data source was identified by FCA's consultants who found that FCBT had the most reliable loan data for agricultural mortgage losses for the purpose of building the credit risk model to estimate Farmer Mac's credit risk. The data include several important underwriting variables: the LTV ratio, the ratio of the borrower's debt to the borrower's assets, and the ratio of the borrower's debt payments to farm income. The data also contain the dollar amount of the loan, the year in which the loan was written, the year in which the loan was foreclosed (for those loans that completed foreclosure), and the amount that was lost on the foreclosed loan. The data files used by the contractors did not contain information on other key variables, such as the amortization period of the loan, the interest rate on the loan, or an indicator of whether the loan was paid off early.

The model consists of three equations, estimated sequentially. In the first equation, the loss frequency equation, the probability that a loan will experience a credit loss at any point over its life is predicted by three underwriting variables—the LTV ratio, the debt-to-asset ratio, the debt payment to farm income ratio—the dollar amount of the loan (in inflation adjusted dollars), and the maximum percentage decline in farmland value experienced over the life of the loan. Logistic regression is used to model the probability of a credit loss. Several of the explanatory variables are modified for use in the regression. The LTV ratio is raised to a power, the dollar amount of the loan is modified with an exponential function, and the decline in farmland value is adjusted downward with a multiplicative factor that varies with the age of the loan. The second equation multiplies the loss frequency by a loss severity, assumed to be a constant 20.9 percent. The final equation uses a beta function to distribute the product of loss frequency and loss severity over time, so that the losses expected over the remaining lives of the loans may be isolated.

Data Limitations

FCA's contractors and we have identified several shortcomings in the data used to estimate the credit risk model, including: (1) data have not been updated with post-1992 loan information; (2) data may not have captured all the credit losses experienced by the FCBT; (3) the data set consists entirely of loans in Texas; and (4) the data set does not contain information on prepayments.[1] These shortcomings were noted by FCA's contractors in the *Federal Register* (Final Rule) document that presents the credit risk model. FCA's contractors told us that despite these flaws they believe this data set represents the best data available for estimating a credit risk model in a stressed time period.

We have identified other data shortcomings, which were not indicated in the *Federal Register* risk-based capital document. These include: (1) the FCBT data systems did not record all the components of loss on foreclosed loans; (2) the loans made by the FCBT from 1979 to 1992 had very different interest rate terms than the most common loans bought by Farmer Mac; and (3) the data set does not include other important predictors of credit loss, such as interest rate or amortization terms. These shortcomings limit the ability of the credit risk model to forecast the credit risk on loans held by Farmer Mac.

Restricting the data set to 1979 through 1992 creates the possibility that credit losses on the loans used in the data will be missed. For example, a 15-year loan originated in 1990 may experience a credit loss in any year from 1990 to 2005, but only credit losses that occur in 1990 to 1992 will be predicted by the regression.[2] Updating the data set with post-1992 borrower behavior would allow more credit losses to be observed in the data. Because a longer history is available for older loans, it is likely that fewer credit losses are missed on older loans than on newer loans. Because a key predictor, the greatest decline in land prices, varies with the age of loan, the result is likely to be a biased regression coefficient for this variable.

The data systems in use by FCBT did not identify all the loans that resulted in losses to the bank. Some loans that were merged or restructured may

[1]Farmer Mac uses the same data for its credit risk models and therefore faces the same limitations.

[2]This problem is known as "right censoring" in statistical analysis. SeeYamaguchi, Kazuo, 1991, *Event History Analysis* (Sage Publications, Inc., Newbury Park, CA) pp. 3-9.

have resulted in losses to the bank, but these losses are not captured by the foreclosure variable used in the credit risk model. Thus, the frequency of credit losses may be understated in the model's forecast.

Additionally, the data system did not record the time value of money foregone during foreclosure, a process that could take 2 years. This has two implications for the credit risk model. First, some foreclosures, which appear to have had no credit loss may, in fact, have resulted in credit losses. Thus, the frequency of a credit loss would be understated in the model's forecast. Second, the model's estimate of severity given default may be different than the historical average. To the extent that costs are not captured on loans that resulted in credit losses, the calculated severity will understate the loss severity actually experienced by the bank. To the extent that some loans are excluded from the severity analysis because the database recorded that they had no credit losses, severity may be either understated or overstated, depending on the magnitude of the severity for these loans. The data used by FCA's contractors indicated that 62 percent of the loans that went through foreclosure had no credit loss recorded. While the number of loans that may have been misidentified as having no losses is not known, it is potentially large.

The data set contains only Texas loans. Previous work by FCA's contractors indicates that a region consisting of Minnesota, Iowa, and Illinois was the area that experienced the highest level of stress as legally defined for FCA's credit risk test, and that Texas was the fourth most severely stressed geographic region in the mid-1980s.[3] Hence, the model must extrapolate credit losses to a stress situation beyond that contained in the data used to estimate the model. The form of extrapolation used in FCA's credit risk model assumes that there is a straight line relationship between land price declines and a function of the probability of credit loss. Without data on loans that experienced property price declines akin to those in the most stressed region of the country, it is impossible to know if the true relationship is linear or nonlinear.[4]

The data used by FCA's contractors did not include information on whether or when the loan was prepaid. This has several consequences for the credit

[3]12 CFR Part 650.

[4]Problems relating to extrapolation and the form of the relationship are discussed in Snedecor, George, and Cochran, William, 1967, *Statistical Methods*, *Sixth Edition* (Iowa State University Press, Ames, IA) p. 144 and p. 456.

risk model. The model assigns the land value decline that occurred between 1985 and 1986 to any loan written between 1979 and 1986 that had not entered foreclosure by 1986. It is possible that some of these loans had refinanced by 1985 as interest rates declined, so that these loans would not have been exposed to the 1985 and 1986 land price change. For these loans, the regression would be predicting the probability of a credit loss on a loan using a value for the predictor that occurred after the loan had been paid off. The lack of information on loan prepayment also precludes the measurement of the impact of loan duration on the probability of credit loss. It is likely that a loan that was active for 10 years is more likely to experience a credit loss than is an otherwise identical loan active for only 2 years, as it is exposed to the potential of adverse events for a longer time. But the data do not identify which loans were active for only 2 years versus those active for 10 years. To the extent that loans with lower credit risk as measured by underwriting variables, such as lower LTV ratios, are more likely to prepay, the underwriting variables in the regression are likely to capture both the direct effect of the underwriting variable on the probability of credit loss, and an indirect effect caused by the tendency of these higher credit quality loans to prepay more often; hence, be exposed to risk of a credit loss for a shorter period of time.[5]

The loans now purchased by Farmer Mac have different interest rate terms than those used in FCA's credit risk model. Over the time period covered by the data, Farm Credit System (FCS) institutions, including FCBT, made loans with adjustable interest rates, in which the interest rate was tied to FCS' cost of funds. The average cost of funds changed more slowly than did the prevailing rate of interest, as FCS institutions used a mix of short- and long-term debt, and the average cost of funds was an average of rates on debt recently incurred and debt incurred over several previous years. Because of these interest rate terms, when interest rates fell after 1982, many farm credit borrowers found it advantageous to refinance their debt with other lenders. The mismatch between fixed rate liabilities and variable rate, prepayable assets was a cause of the FCS's financial problems in the mid-1980s.[6] However, the bulk of the loans now purchased by Farmer Mac are either rapidly adjusting adjustable-rate mortgages, tied

[5]Yamaguchi calls this nonindependent censoring. See Yamaguchi, op. cit., p. 6 and pp.169-172.

[6]General Accounting Office, *Preliminary Analysis of the Financial Condition of the Farm Credit System*, GAO/GGD-86-13-BR (Washington, D.C.: Oct. 4, 1985).

to short-term interest rates, or are fixed-rate loans with prepayment penalties or yield maintenance agreements. For these loans, there is little or no advantage in refinancing when interest rates drop. In the case of adjustable-rate loans, the interest rate on the mortgage will drop without the need to refinance, and in the case of fixed-rate loans the prepayment penalties or yield maintenance agreements increase the cost of refinancing, making it less advantageous. As interest rates generally declined over the period 1979 through1992 (the high point for interest rates was 1982, the low point was 1992), it is likely that a larger percentage of the loans in the data set paid off early than would be the case for the loans now purchased by Farmer Mac. Therefore, the loans purchased by Farmer Mac are likely to be exposed to adverse events for a longer time period than the loans used in estimating the credit risk model. This would have the effect of understating the credit risk capital requirement. The prevalence of yield maintenance agreements has another effect on the potential for credit losses in Farmer Mac's portfolio. As previously discussed, the fixed-rate loans now purchased by Farmer Mac that have yield maintenance agreements are likely to experience elevated credit risk in times of falling interest rates. A borrower in financial distress is more likely to go to foreclosure, and is more likely to impose a severe credit loss, if the value of the debt substantially exceeds the value of the collateral. After a fall in interest rates, fixed-rate loans with yield maintenance agreements will owe substantial amounts in excess of their unpaid principal balance. Therefore, these loans are more likely to have total obligations (unpaid principal balance plus yield maintenance) that exceed the value of the collateral, than would loans of otherwise similar characteristics that did not have yield maintenance agreements, such as those used in estimating FCA's credit risk model, resulting in an underestimate of credit risk by FCA's model.

Because the data set did not contain information on interest rates or amortization terms, these variables could not be included in the credit risk model regression analysis. Other studies of credit risk have found these to be important variables in predicting credit losses.[7] Loans which amortize faster are exposed to adverse events for a shorter period of time, and accumulate equity more rapidly, which reduces credit risk. Higher interest

[7]General Accounting Office, *Mortgage Financing: FHA Has Achieved Its Home Mortgage Capital Reserve Target*, GAO/RCED-96-50 (Washington, D.C.: April 12, 1996) and Office of Federal Housing Enterprise Oversight, 1999, Risk-Based Capital Regulation: Second Notice of Proposed Rulemaking, *Federal Register*: (Volume 64, Number 70) (April 13, 1999).

rates lead to higher payment burdens, which can put greater stress on borrower's financial resources. Adjustable rate mortgages are subject to "payment shock" in which defaults increase after a rise in interest rates, which leads to a rise in the mortgage payment.[8] Since FCA's model does not assign higher credit risk to longer amortization loans, or to adjustable-rate loans in times of rising interest rates, Farmer Mac could increase its exposure to credit risk by buying more of these types of loans, without facing a higher risk-based capital requirement.

FCA's ability to estimate a detailed credit risk model was limited by the scarcity of relevant data for agricultural real estate loans. FCA's consultants identified the Farm Credit Bank of Texas' data from 1979 to 1992 as the only available data set of agricultural loans observed during a stressed period.[9] The data file used by the contractors had 19,418 loans, including 180 loans with credit losses. In contrast, the Office of Federal Housing Enterprise Oversight's (OFHEO) risk-based capital model for Fannie Mae and Freddie Mac thirty year fixed rate single-family loans is based on about 15 million loans, 176,000 of which had credit losses. While none of the loans in FCA's model were observed during a stress event as severe as that called for in its risk-based capital statute, over 7,000 of the 30-year single family fixed rate loans used by OFHEO were observed during the benchmark stress event specified by OFHEO's risk-based capital legislation.

Model Limitations

We also have identified several limitations in the form of the credit risk model used by FCA. These limitations include: (1) the methodology chosen by FCA's contractors; (2) use of an independent variable, greatest land price decline, whose value is a function of the event predicted by the regression; (3) transformations of the independent variables to enhance goodness of fit prior to and independent of the calculation of significance tests; and (4) the use of state averages to model credit risk on the long-term standby agreements.

[8]Price-Waterhouse, 1997, *An Actuarial Review for Fiscal Year 1996 of the Federal Housing Administration's Mutual Mortage Insurance Fund*, (Washington, D.C., Feb. 14, 1997).

[9]Data after 1992 were not readily useable, as the Texas Bank changed computer systems and post-1992 data could not be readily linked to earlier loans. FCA noted they are now studying the data to determine if it is possible to link post-1992 data to earlier loans.

FCA's credit risk model uses observations on loans, and predicts the probability that a loan will experience a credit loss at some point in its life. Many models of mortgage credit risk use a different structure, and predict the probability that a loan will experience a credit event over a defined time period, such as a quarter or a year.[10] For example, our model of the Veteran's Administration credit subsidy costs and OFHEO's multifamily risk-based capital model predict annual probabilities of a credit event, while OFHEO's single-family model predicts quarterly probabilities of a credit event.[11] These models have the advantage of accounting for the different level of risk inherent in loans that are active for longer or shorter periods, and can readily estimate the effects of predictor variables that change over time, such as interest rates or the value of collateral. The ability to incorporate such variables in the measurement of credit risk is important when the goal is to measure the risk of a pool of loans, some of which are new, and some of which have been active for a long time. For example, the credit risk on a loan originated 5 years ago in a state with a 50 percent rise in agricultural real estate prices over that 5-year period is likely to have less credit risk than an otherwise identical loan originated 5 years ago in a state where agricultural real estate prices have remained constant. In order to capture the changing credit risk over time in a portfolio with seasoned loans, it is necessary to include measures of credit risk determinants that change over time.

The credit risk model does incorporate a variable, change in the value of agricultural real estate, which changes over time. However, its inclusion in FCA's model, which predicts lifetime credit event probabilities, instead of annual or quarterly probabilities, leads to biased estimates of the effects of land price changes on credit risk. The variable is defined as the greatest annual percentage decline in agricultural land price in Texas from the year that the loan is originated until either 1992 or the year of loan foreclosure, whichever comes first. The regression is designed to predict the probability of foreclosure with credit losses, but the variable's value is determined, in part, by whether the loan enters foreclosure. For example, a

[10]Different models use different measures of credit risk, such as a loan terminating in a claim (such as our study of *VA Subsidy Rates*, *Homeownership: Appropriations Made to Finance VA's Housing Program May be Overestimated* (GAO-RCED-93-173)) or delinquency, Calem, P. and Wachter, S. 1991, *Community Reinvestment and Credit Risk: Evidence from an Affordable-Home-Loan Program*, *Real Estate Economics*, V. 27 #1, pp.105-134. The term credit event is used as a general description of these various definitions.

[11]Such models are known as hazard models. Yamaguchi, op. cit., p. 9.

1979 loan that does not enter foreclosure will be assigned a value of—17 percent—that being the maximum decline in land prices from 1979 to 1992. However, a loan that enters foreclosure in 1980 would be assigned a value of 7 percent, as land prices rose over the short time that the loan survived.[12] Thus, the definition of the land price variable is not independent of the event being estimated, and its estimated coefficient is likely to be biased.[13] It can be shown that the structure of estimating a lifetime probability, combined with the definition of land price change used in FCA's credit risk model, can produce a statistically significant coefficient for the land price change variable, even if there were no effect of land price changes on credit risk.[14] The land price change variable is the key variable used to extrapolate the stress scenario called for in the Farm Credit Act of 1971, as amended, and the regression may be estimating its impact in a biased fashion, which would lead to a misestimate of the credit risk in Farmer Mac's portfolio.

Significance tests reported with the regression results in the *Federal Register* document, which describes the credit-risk model, are likely to be biased in favor of a finding of significance. Several variables are transformed in various ways before their coefficients are estimated in the logistic regression. The greatest decline in land value variable is modified by a "dampening factor," which proportionately decreases the absolute value of the variable, the longer the loan is observed to have not defaulted. The LTV ratio is raised to a power. The loan size (dollar amount) variable is defined as 1 minus the exponential of the product of the loan size in thousands and the number –0.00538178, so that the variable is close to 0 when loan size is small and rises towards 1 as loan size increases. These transformations were not estimated as part of the logistic regression. Instead, several values were tried for each of these parameters, and the values giving the best goodness-of-fit measurements were used to

[12]The land price change variable is then modified by a "dampening factor" before entering the regression, but the value of the transformed variable is still determined, in part, by whether and when the loan enters foreclosure.

[13]Working, E "What do Statistical Demand Curves Show?", 1927, Quarterly Journal of Economics V 41 #1.

[14]A similar example is cited in Yamaguchi, op. cit., pp. 26-27. Yamaguchi concludes that independent variables, which are determined by life course characteristics, can only be used if their value is determined prior to the observation entering the period in which they are subject to the risk of experiencing the event to be modeled.

transform the predictor variables prior to estimating the logistic regression. Such pre-testing leads to inflated tests of significance.[15]

The estimated credit risk model is not used directly to produce an estimate of the credit risk inherent in Farmer Mac's standby agreements. Instead, the average credit risk for loans in each state is used as an estimate for the credit risk in the standby agreements. The regression-based model cannot be used because key underwriting variables for standby agreements are not reported to FCA. The use of state averages in place of credit risk calculations based on underwriting variables would allow Farmer Mac to purchase standby agreements with higher loan-to-value or debt-to-asset ratios; hence, higher credit risk, than is contained in their loan portfolio, without a commensurate increase in their risk-based capital requirements. Although Farmer Mac's current portfolio of standby agreements has, on average, lower LTV ratios than its on-balance sheet portfolio, the structure of the credit risk model provides Farmer Mac with the incentive to shift risk into standby agreements should the risk-based capital constraint become binding.

[15]See Kennedy, P, 1987, *A Guide to Econometrics*, 2nd Edition, (MIT Press, Cambridge, MA), p. 164.

Comments from the Federal Agricultural Mortgage Corporation

Note: GAO comments supplementing those in the report text appear at the end of this appendix.

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September 19, 2003

Thomas M. McCool
Managing Director
Financial Markets and Community Investment
U.S. General Accounting Office
Room 2A14
441 G Street, N.W.
Washington, DC 20548

Re: GAO Draft Report:
Federal Agricultural Mortgage Corporation

Dear Mr. McCool:

Thank you for this opportunity to comment on the draft of the above-referenced General Accounting Office Report (the "Report"). We appreciate the cooperation afforded us by the GAO staff who worked on the Report. It was gratifying to note that, after the third examination and review of the Federal Agricultural Mortgage Corporation (Farmer Mac) by GAO over the course of the past six years, no serious deficiencies in the implementation of Farmer Mac's programs or mission were identified; recommendations were made for enhancing risk management procedures in light of the Corporation's continuing growth; and a number of positive findings were made about the safety and soundness of Farmer Mac's operations and about its progress in establishing the secondary market for agricultural mortgages.

In its last report on Farmer Mac, dated May 21, 1999, GAO concluded that "Farmer Mac's future viability depends on its growth potential in the secondary market for agricultural mortgages and the prospects for realizing that potential are unclear. . . . if FCS institutions or other lenders increase participation in Farmer Mac programs, Farmer Mac's financial condition could improve." Working with agricultural lenders throughout the Nation, Farmer Mac's Board and management have resolved favorably the uncertainties raised in that earlier report. Thus, we are pleased with the new Report's recognition of Farmer Mac's progress in the four intervening years, in terms of both its financial strength and the growth of its mission-related activities. At the same time, we share GAO's view, expressed in the Report, that Farmer Mac should continue to enhance its risk management, for the efficiency of our operations will be a key factor in the

accomplishment of our mission. Farmer Mac has already implemented several enhancements to risk management procedures which are described later in this letter.

The Chairman and Ranking Member of the United States Senate Committee on Agriculture, Nutrition, and Forestry, in their letter request of June 26, 2002, sought GAO's assistance "to ensure that Farmer Mac's mission continues to be met in a financially sound manner." As to the six specific topics GAO was asked to address in that letter, the Report:

(1) found no current financial instability at Farmer Mac, noting that: independent accountants issued Farmer Mac a "clean," unqualified audit opinion; an outside forensic accounting firm determined Farmer Mac's reserve levels and methodology were "reasonable" under U.S. GAAP; Farmer Mac effectively managed its interest rate risk through asset/liability matching and yield maintenance protection against prepayment risk; and Farmer Mac's controls over credit risks were generally sound, but could be improved in light of recent and expected future growth;

(2) found no significant shortcomings in corporate governance; acknowledged that Farmer Mac was taking actions to ensure that it complies with recent Sarbanes-Oxley Act and NYSE listing requirements, as they become effective; and noted areas in which Farmer Mac (like other private sector corporations) might have to update its corporate governance, including expanded director training;

(3) found executive compensation was in line with the recommendations of two independent consultants, but recommended that the timing of vesting of stock options be extended, which the Farmer Mac Board has done;

(4) found no irregularities in Farmer Mac's investment practices or strategy and that non-mission investments have been reduced as a percentage of mission-related assets;

(5) recommended that Congress reconsider the non-voting status of Farmer Mac Class C common stock; and

(6) noted that Farmer Mac has increased its Congressional mission-related activities (loan purchases, guarantees and commitments) since GAO's 1999 report, and recommended that Congress consider establishing more specific criteria for measurement of Farmer Mac's mission accomplishment.

In addition, the Report raised a number of problematic or hypothetical issues. For simplicity, we have paraphrased those issues in italics below with Farmer Mac's observations following them.

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See comment 1.

(A) *It would be preferable if Farmer Mac used its own data instead of Farm Credit Bank of Texas ("FCBT") historical data for credit risk projections.*

While the Report cites the conclusion of a prominent agricultural economic consultant to Farmer Mac's federal regulator that the FCBT loan data was the "best available" database for the purpose of building a model to estimate Farmer Mac's credit risk, it nevertheless concludes that it would be better if Farmer Mac were using its own historical database. While that conclusion may be theoretically correct, Farmer Mac notes that its own database is still relatively new and U.S. agriculture has not been through a significant downturn during the period it covers. The FCBT database contains loans screened for conformity to Farmer Mac credit underwriting standards and reflects loan performance during a series of economic events that resulted in the most severe loan losses in U.S. agricultural credit history. Until its portfolio of mortgages under guarantee and commitment seasons further, Farmer Mac expects to continue to use the FCBT database as a conservative benchmark for evaluation of its credit risk.

See comment 2.

(B) *Elements of Farmer Mac's prepayment model are based upon residential data, which may not reflect fully the prepayment characteristics of agricultural mortgages.*

The prepayment model used by Farmer Mac is consistent with models used by other agricultural mortgage lenders; Farmer Mac has adjusted its model to reflect the differences in the behavior of agricultural and residential mortgage borrowers, with validation by a recognized outside expert on prepayment modeling; and the accuracy of Farmer Mac's model has been confirmed through "back-testing," i.e., verifying model forecasts against actual outcomes. No useable agricultural mortgage prepayment database exists and, when Farmer Mac's own historical database becomes statistically significant, it will revise its prepayment modeling accordingly.

(C) *With respect to guaranteed AMBS held by Farmer Mac, the U.S. Treasury has questioned whether it would be required to allow Farmer Mac to draw upon its Treasury line of credit to support those guarantees.*

While the Report acknowledges that Farmer Mac has a reasoned legal opinion of outside counsel stating that the Treasury line of credit would be available in those circumstances, the question is moot. No issue has been raised as to the availability of its Treasury line of credit relative to AMBS held by parties other than Farmer Mac and, if Farmer Mac were coming under pressure to fund its guarantee obligations, it is confident it could sell to third parties any AMBS it held long before it needed to use the Treasury line of credit.

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(D) *As Farmer Mac's Long-Term Standby Purchase Commitments ("LTSPCs") continue to grow, if risks were not closely managed and there were massive defaults on those loans far beyond the worst levels experienced in U.S. agricultural economic history, the Corporation could be required to acquire a high proportion of the outstanding loans covered by LTSPCs, resulting in a possible future funding risk.*

GAO, in raising this issue, posits a situation in which loan defaults go far beyond the 13.8% default rate peak for all agricultural loans (including non-mortgage loans) within the Farm Credit System in 1986, the worst period in recorded U.S. agricultural economic history. Without discussing Farmer Mac's 90-day delinquency rate on LTSPCs referenced in the Report at 0.1%, we note that the additional funding required to acquire loans even in the implausible volume suggested in the Report would not be inconsistent with Farmer Mac's current levels of debt issuance in the capital markets.

See comment 3.

(E) *Farmer Mac creates "regulatory capital arbitrage" for lenders as a consequence of the application of its guarantee or commitment by reducing the regulatory risk weight assigned to mortgages by 80%.*

The regulatory capital levels required (by OCC and FCA) for agricultural primary lenders take into account that the loans they hold include unsecured loans, loans secured by chattel (including crops in the ground), second mortgage loans, and first mortgage loans; only a subset of the last category would be eligible for a Farmer Mac guarantee or commitment. Rather than arbitrage, the reduction of capital requirements for first mortgage loans that bear Farmer Mac credit enhancements is appropriate to the reduced risk inherent in those loans, analogous to the regulatory capital treatment of residential mortgage loans credit enhanced by other GSEs. Comparison of non-stress test capital requirements for loans held by primary lenders to Farmer Mac's statutory minimum capital requirement is irrelevant. Farmer Mac's stress test based risk-based capital model is the appropriate means of determining the capital needed to support loans in Farmer Mac's programs. Farmer Mac is required to maintain the higher of statutory minimum and risk-based capital.

Farmer Mac recognizes that there are a number of areas in its business that will continue to need attention. Independent of, but consistent with the findings and recommendations in the Report, Farmer Mac has taken a number of steps to enhance its risk management practices that should be mentioned here. First, we have developed a loan classification system that is the basis for an internally developed capital adequacy model. Farmer Mac measures its capital adequacy against this model, in addition to the statutory minimum capital levels established by Congress and risk-based capital levels established by FCA. We expect to migrate Farmer Mac's loss allowance methodology from the current model based on the FCBT data to a methodology based on this loan classification system, which reflects Farmer Mac's own historical portfolio loss and

loan performance experience. Second, we have formalized the Corporation's long-standing liquidity contingency funding plan, with Board action confirming the new plan. Third, we have enhanced documentation procedures regarding loan underwriting decisions, including those based on compensating strengths and subsequent performance of such loans, and regarding loan loss reserve methodology and procedures.

Farmer Mac's Board and management have cooperated with GAO throughout the process of GAO's research and drafting of the Report. We look forward to continuing the fulfillment of this Corporation's Congressional mission and are pleased to have been given this opportunity to share our thoughts on these important matters.

Very truly yours,

Henry D. Edelman
President

cc. Ms. Davi D'Agostino,
Director, Financial Markets
and Community Investment

The following are GAO's comments on the Federal Agricultural Mortgage Corporation's letter dated September 19, 2003.

GAO Comments

1. Farmer Mac commented that its own loan portfolio database is relatively new and that the U.S. agriculture has not been through a significant downturn during the period it covers. Further, Farmer Mac expects to continue to use the FCBT database as a conservative benchmark for evaluating credit risk. While it may be true that during the period of time Farmer Mac has been accumulating information to develop its own loan database, the U.S. agricultural industry has not faced a similar catastrophic decline as that experienced during the 1980's as captured in the Texas data, we disagree with Farmer Mac's inference that its portfolio is too new to provide loan loss experience from which to estimate credit losses. Farmer Mac has been buying and retaining its portfolio of loans for over 7 years, and has been executing its guarantees under standby commitments for over 3 years. Accounting industry guidance suggests, "Two to three years of lending experience normally would provide data that is more relevant than peer group experience." Further, because Farmer Mac's loan portfolio has characteristics, which differ from the FCBT data used in the model, and quantification of the effect of these differences-whether it would increase, decrease, or have no material impact to the allowance-has not been made by Farmer Mac, we believe that Farmer Mac should use the more relevant data. Farmer Mac asserts, however, that the FCBT is a more conservative tool to benchmark the allowance because it includes an economically depressed time period. In fact, the loan loss allowance should reflect current environmental factors and conditions that could cause probable future losses rather than the most severe loss situation in history. We believe that the most appropriate approach would be for Farmer Mac to use its own data, which provides relevant and comparable loan characteristics, in its loan loss methodology while also applying appropriate "stress testing" approaches to reflect any potential or likely future downturns or economically depressed conditions.

2. Farmer Mac commented that an outside expert on prepayment modeling has validated the adjustments that Farmer Mac made to its prepayment model, and that since no useable agricultural mortgage database exists, Farmer Mac will revise its prepayment modeling accordingly when its historical database becomes statistically significant. In making that comment, Farmer Mac seems to disagree

with our recommendation that it should improve the quality of its prepayment model to ensure accurate measurements of interest rate risk. However, as stated in our report, Farmer Mac management noted that they are currently working with an outside expert to develop an agricultural mortgage prepayment model to better model prepayment risk.

3. Farmer Mac commented that the reduction of capital requirements for mortgage loans that bear Farmer Mac credit enhancements is not arbitrage but is analogous to the regulatory capital treatment of loans enhanced by Fannie Mae and Freddie Mac guarantee or commitment. Referring to table 2 in the report, Farmer Mac commented that comparing Farmer Mac's statutory capital minimum requirement to the capital requirement for primary lenders is irrelevant and stated that Farmer Mac is required to maintain the higher of statutory minimum and risk-based capital. First, because all of Farmer Mac's current participants in standby agreements are FCS institutions (another GSE), the report discusses the potential reduction of the sum of capital required to be held by the Farm Credit System and Farmer Mac without a corresponding reduction in risk. In this regard, a reduction in capital requirements for loans bearing Farmer Mac credit enhancements is not analogous to the housing GSEs because these GSEs are enhancing loan credit from commercial lenders, not another GSE. The intent of table 2 is not to compare the capital levels of Farmer Mac with primary lenders, but rather, to demonstrate the reduction of capital for loans enhanced by Farmer Mac guarantee or commitment. We agree and the draft report clearly states that Farmer Mac must meet the higher of statutory minimum or risk-based capital requirement. As such, we have analyzed the risk-based capital model and have identified some limitations that are discussed in the report.

Comments from the Farm Credit Administration

Note: GAO comments supplementing those in the report text appear at the end of this appendix.

Farm Credit Administration

1501 Farm Credit Drive
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(703) 883-4000

August 21, 2003

Ms. Davi M. D'Agostino
Director, Financial Markets and
Community Investment
United States General Accounting Office
441 G Street, NW
Washington, DC 20548

Dear Ms. D'Agostino:

The Farm Credit Administration (FCA) appreciates the opportunity to comment on the General Accounting Office's (GAO) draft report entitled Farmer Mac: Greater Attention to Risk Management, Mission, and Corporate Governance is Needed (the Report). While we have some suggestions and clarifying comments regarding conclusions reached about FCA, overall we believe the Report is a fair representation of our work to oversee the safety and soundness of the Federal Agricultural Mortgage Corporation (Farmer Mac or Corporation).[1] Moreover, we expect the Report to add value to our work on several initiatives already underway at FCA.

The Report includes the following five recommendations for FCA's oversight of Farmer Mac:

- consider potential improvements to the Risk-based Capital Stress Test (RBC model);
- improve and formalize offsite monitoring including regulatory reporting;
- reduce potential safety and soundness concerns that may arise from "capital arbitrage" activities of Farmer Mac and Farm Credit System (FCS or System) banks and associations;
- examine how other secondary market regulators developed regulations to require government-sponsored enterprises to obtain a risk rating from nationally recognized statistical rating agencies; and
- assess and report on the impact of Farmer Mac's activities on agricultural real estate lending markets.

FCA will fully consider and incorporate the Report's recommendations into its oversight of Farmer Mac both through current regulatory and examination work in process and, as necessary, new initiatives.

GAO recognizes that work relating to several items discussed in the Report is currently underway within FCA. This work includes two projects on FCA's current regulatory agenda addressing Farmer Mac's liquidity and nonprogram investments, and revisions to the RBC model. Further initiatives include plans for updating Call Report formats and instructions to

[1] Farmer Mac is established separately by Title VIII of the Farm Credit Act of 1971, as amended (12 U.S.C. 2279aa-2279cc). Subtitles A and B of Title VIII authorize the FCA to examine the Corporation and provide for the regulation and general supervision of its safe and sound performance, including promulgation of regulatory capital standards.

improve offsite monitoring, and possible regulatory action on two items - the capital issues arising when System institutions enter into Long-term Standby Purchase Commitments (Standbys) with Farmer Mac, and FCS credit exposure to guarantors that do not have a credit rating, such as Farmer Mac. As part of that process, we will examine how other regulators have imposed credit rating requirements.

In addition, the Report includes suggestions for Congressional consideration. Regarding Farmer Mac's mission, GAO suggests Congress establish clearer mission goals for Farmer Mac. It also suggests Congress allow FCA more flexibility to establish capital standards commensurate with Farmer Mac's changing risk profile and in setting minimum capital standards. We support these suggestions and will assist Congress as they are considered. In addition, we will reexamine authorities provided in existing legislation for FCA to pursue these suggestions.

Without making a recommendation, the Report points out a potential conflict of interest resulting from a single regulator overseeing both primary and secondary market institutions. The Report also notes FCA's awareness of this potential conflict and alludes to our belief that we are successfully managing any associated risk. In response, we emphasize that FCA is committed to delivering the highest standard of financial institution supervision. Congress established FCA's Office of Secondary Market Oversight (OSMO) as a separate office to oversee Farmer Mac with foresight of the issue raised by the Report. FCA continues to preserve the independence of OSMO within its organizational structure. FCA will periodically reassess the changing dynamics involved in regulating both FCS lending institutions and Farmer Mac and will remain vigilant in addressing any concerns arising from this dual responsibility.

FCA's comments on the recommendations regarding the RBC model are enclosed. These comments focus on the unique aspects of risk analysis of agricultural credit and the scientific properties of the model we developed under guidance provided in Title VIII of the Farm Credit Act of 1971, as amended (Act). Generally, FCA would stress that the RBC model was developed based on reasoned and conservative judgment, the best available data, accepted econometric methodologies, transparent procedures, and, most significantly, in conformance with the governing statutory provisions of the Act.

As envisioned by FCA in the RBC model's final rule, ongoing changes to the model are anticipated based on: developments in regulatory guidelines (e.g., New Basel Accord); new types of business activity; institutional change; financial innovations; new data sources and availabilities; refinements in methodologies; financial market conditions; and statutory amendments. As part of our planned regulatory project on revisions to the RBC model, we also will consider GAO's findings and recommendations.

Again, we thank you for the opportunity to provide these comments and the technical comments that were provided separately. We hope you find them useful as the final report is published.

Sincerely,

Michael M. Reyna
Chairman and Chief Executive Officer

Enclosure

Enclosure

Farm Credit Administration (FCA) Comments Specific To The Risk-based Capital Stress Test (RBC model) As Discussed In The General Accounting Office (GAO) Draft Report Entitled Farmer Mac: Greater Attention To Risk Management, Mission, And Corporate Governance Is Needed (the Report)

FCA receives the recommendations in the Report related to the RBC model as constructive commentary. Nevertheless, below are several responses that offer an expanded perspective on specific issues raised in the Report. We trust our comments will add value for users of the Report.

Steady-state Approach

See comments 1 and 2.

GAO questions FCA's use of a steady-state approach to the RBC model, which necessitates future earnings assumptions, in contrast to the Office of Federal Housing Enterprise Oversight's (OFHEO) use of a run-off approach. It is important to note that OFHEO's statute has specific requirements regarding new business and earnings assumptions. The authorizing statute for FCA, the Farm Credit Act of 1971, as amended, (Act) is silent on the issue. Thus, FCA has the authority to interpret the Act and use whatever approach is reasonable and produces a stressful model that is most suitable for Farmer Mac and agricultural loans.

FCA thoroughly considered whether to use a steady-state or run-off approach. Although GAO questions the use of earnings estimates, FCA found in developing the model that using a steady-state approach resulted in our having to make fewer assumptions than would have been required by a run-off model.

FCA also believed that the Act is best read to treat Farmer Mac as a going concern. Section 8.32 of the Act states that the test must determine the amount of regulatory capital necessary for Farmer Mac to maintain positive capital during a 10-year stress period. The requirement that Farmer Mac maintain positive capital during the 10-year period implies that Farmer Mac would remain a going concern during that period.

Congress considered both FCA's and OFHEO's mandate to develop a risk-based capital test at the same time and chose to include specific instructions for OFHEO on this issue, while leaving FCA room to determine the best approach for Farmer Mac. Although GAO economists favor a run-off approach, FCA believes we adopted the best approach at the time given our statutory mandate.

Data Limitations

See comment 3.

GAO recommends FCA obtain "more relevant and current data" to support the loan loss estimation in the RBC model. Regarding relevancy, we would note that GAO staff made inquiries to identify a more relevant data set but were unable to provide FCA with any suggestions for a more suitable set of data.

In addition, during the development of the risk-based capital regulations, the FCA documented its exhaustive search for data on agricultural mortgage losses. FCA requested public input on whether more relevant data existed and received no information on other more usable, relevant data.

2

Regarding currency, current data is likely to be of limited use due to the constraints of the Act. The most stressful 2-year period in agricultural lending is required, but few would argue that such events have occurred over the past decade.

The data utilized in the study were the most comprehensive source available for farm real estate loans, with a relatively large set of loss experiences that reflected the severe farm financial adversities of the 1980s. The properties of these data were consistent with statutory specifications for estimating worst-case historic conditions and allowed estimates of the frequency and severity of loan loss.

See comment 4.

Extensive evidence of model validation is found in the proposed and final rules for the RBC model and indicates strong explanatory capacity and forecast capability in determining risk-based capital requirements. Included in the validation process are: tests of logic, judgment, and experience of the FCA work team and outside consultants; external reviews and feedback; verification of model construction; consistency of the magnitude and location of worst-case conditions with findings in previous studies and data compilations by FCA, the U.S. Department of Agriculture, Federal Reserve economists, and academic economists; quality of econometric results; sensitivity of capital requirements to changing economic conditions; and comparisons of simulated to actual losses.

While we can agree that an improved data set would be beneficial – locating, testing, and evaluating new data will be a challenge. Still, we are pursing that end with the analysis of post-1992 data from the Farm Credit Bank of Texas (FCBT) as described below.

See comment 5.

The Report also states that the RBC model did not use post-1992 data, which implies that FCA had usable data after 1992 and opted to exclude it from the RBC model. At the time of developing the test, the post-1992 data available were not in a usable form. Our consultants are currently working with the FCBT to analyze post-1992 information and to render the data usable. Once the post-1992 information is usable, FCA intends to incorporate it into the RBC model as appropriate.

Servicing Records

See comment 6.

The Report states that FCA had access to servicing records of the FCBT, but that we did not use it in our analysis of the data, except to produce estimates of loan loss severity. In fact, the data in the servicing records were not detailed payment records. FCA reviewed the servicing records and concluded they did not contain information that would enhance the quality of the loss estimates. We would note that the Report does not suggest how that information would have been useful in analyzing the FCBT data or in developing a loss frequency estimation regression in the RBC model, nor did GAO review the data in these records to our knowledge.

Yield Maintenance Provisions

See comments 7 and 8.

The Report asserts that yield maintenance provisions and prepayment penalties in loan contracts reduce the borrowers' incentive to prepay or refinance loans in periods of falling interest rates, lengthen their exposure to credit risk, may lead to loan balances exceeding collateral values, and increase capital requirements. However, falling interest rates, with other factors held constant, would tend to increase rather than decrease present market values of farmland, a nondepreciable asset that is the underlying source of collateral for most farm mortgage loans. In addition, default rate studies, including the pioneering work by Edward Altman, generally indicate that default frequencies are considerably higher earlier in the lives of

loans. Thus, we believe much of the credit risk will have dissipated on seasoned loans. These time patterns characterize the FCBT data and the RBC model developed by FCA.

The Use of Land Value Decline as an Independent Variable

See comment 9.

The Report suggests that the accuracy of the credit loss regression is reduced by using the variable of minimum land price decline whose value is a function of the event predicted by the regression. However, this position is inconsistent with the theory and empirical evidence indicating that stress-induced reductions in anticipated farm income cause declines in present values of farmland. That is, stress conditions lead to less optimistic expectations of farm income and these pessimistic expectations put downward pressure on the present values of farmland. Thus, FCA believes the direction of the functional relationship in the RBC model is valid.

Credit Risk Not Captured in the Model

See comment 10.

The Report referenced three types of instruments that are not subject to credit risk in the model, AgVantage bonds, nonprogram investments, and counterparty swaps. When the RBC model regulation was finalized, FCA did not believe that AgVantage bonds should be stressed against the loan loss portion of the model because the bonds are general obligations of the issuing institutions. Although pools of qualified loans serve as collateral for the bonds, the ultimate payment of the bonds is not solely dependent upon payment on the underlying loans.

Swap agreements have relatively little associated risk compared to loans because a counterparty's default results in, at most, the loss of a single periodic payment. Although we do not believe current exposures are material, we do agree that, as Farmer Mac and its swap portfolio grow, the materiality of this item could increase.

Historically, the investment portfolio has had a low proportion of assets rated less than "A." Therefore, FCA suggests that credit risk is low and currently risk exposure is immaterial on these items, and that the Report overstates the impact of their current exclusion. Nevertheless, FCA is considering a revision to the RBC model regulation to address risk on nonprogram investments. Further, FCA is working toward regulating Farmer Mac's nonprogram investments (including setting minimum quality standards) and liquidity requirements.

As FCA works to revise the RBC model, questions regarding certain statutory constraints have been raised. Having noted GAO's other suggestions to Congress, we believe further enhancement to the RBC model and overall capital adequacy measurements are possible with an adjustment to the Act's prescribed method of shocking interest rates. Rather than a one-time shock to interest rates, FCA suggests that applying interest rate volatility over the RBC model's 10-year estimation period would be both more stressful and realistic. In addition, should Congress decide to address GAO's suggestion to expand FCA's statutory flexibility to set minimum capital levels, we will be pleased to offer other suggestions for establishing minimum regulatory capital levels.

The following are GAO's comments on the Farm Credit Administration's letter dated August 21, 2003.

GAO Comments

Steady-state Approach

1. FCA commented that it had the authority to use whatever approach is reasonable to produce a stressful model that is most suitable for Farmer Mac and agricultural loans. It also stated that the 1987 Act is best read to treat Farmer Mac as a going concern. We agree and believe that our report clearly indicates that FCA had the authority to build a risk-based capital test using either a steady-state or a run-off approach. However, we do not agree with FCA's view that the statute's requirement for positive capital throughout a stress scenario implies a preference for a steady-state approach. The Federal Housing Enterprises Financial Safety and Soundness Act of 1992 (FHEFSA), which sets the requirements for OFHEO's risk-based capital test, also requires positive capital throughout a stress scenario, but requires an initial run-off approach, followed by mandated studies of the steady-state approach.

2. FCA commented that using a steady-state approach resulted in their having to make fewer assumptions. We believe that the assumptions required for a steady-state approach are difficult to support. The key assumption of a steady-state approach is that the volume of new business will exactly match the run-off of old business, even during a stressed period. Additionally, assumptions concerning the level of profitability, or unprofitability, of new business during a stressed period must be made in order to implement a steady-state approach. Both of these assumptions are difficult to base on data for financial institutions in stressed time periods.

Data Limitations

3. FCA commented that GAO staff were unable to provide suggestions for a more suitable data set. In our report, we recognized that FCB Texas data was the most comprehensive data source available and did not suggest that the FCB Texas data be replaced with a more suitable data set. Rather, we recommend that the FCB Texas data be brought current, if possible, and that data from other sources be used to model risks such as payment shocks on adjustable-rate mortgages or amortization terms that cannot be easily modeled with the Texas data. Updating the Texas

Bank data would improve the credit risk estimation model by addressing an issue raised in the report, that loans originated in 1992 or earlier, some of which would have experienced the land price stresses of the mid 1980's, may still result in credit losses after 1992. Only by updating the data set with post 1992 foreclosures can the model capture the lifetime credit experience of these loans.

Additionally, the credit risk model uses a regression framework to extrapolate losses based on the Texas stress event to a more severe stress event such as that which occurred in the Upper Midwest. The extrapolation relies on the slope of the land price decline variable estimated by the regression. Since 71 percent of the loans in the Texas data file used by the contractors, comprising 176 of the 180 credit losses, are associated with a land price decline of 17 percent, and another 25 percent of the Texas data are associated with land price declines of 2 or 4 percent (these loans have no credit losses), there is very little variation in the data used to estimate the slope with respect to minimum land price changes. The loans associated with a 17 percent price decline are all observed for 7 to 13 years after origination, while the loans associated with 2 or 4 percent declines are all observed for only 0 to 5 years after origination. Augmenting the Texas data to include credit losses over less stressful time periods should reduce the bias and increase the precision of the estimate of the land price decline - credit loss relationship, upon which the extrapolation used by FCA is based.

4. FCA commented that the magnitude and location of worst-case conditions of its model validation process is consistent with findings in studies and data compilations by a number of economists. Therefore, it is evident that the FCA model has strong forecasting capability in determining risk-based capital requirements. We do not dispute FCA's finding that the Upper Midwest in the mid-1980's was a high stress event for agricultural real estate. We disagree that FCA has presented evidence of the model's forecasting ability. Without post 1992 data on loans, there are no data with which out of sample forecasts can be made to test the model's forecasting ability. Additionally, we have noted in the report that in-sample goodness-of-fit statistics presented with the model are likely to be biased, based on the fact that nonlinear transformations of certain variables, such as loan-to-value, were fitted prior to the estimation of the regression model.

5. We have modified the text of the report to indicate that FCA did not have post 1992 data available in a ready to use format, and to recognize

that FCA is engaged in an effort to incorporate post 1992 FCB Texas data.

Servicing Records

6. In commenting on a section of the draft report that discusses data limitations, FCA stated that it had reviewed the servicing records of FCB of Texas, which were not detailed payment records, and concluded that they did not contain information that would enhance the quality of the loss estimates. We modified the text of the report to delete references to servicing records.

Yield Maintenance Provisions

7. In commenting on a section of the draft report that discusses the effect of yield maintenance provisions and prepayment penalties in the credit risk model, FCA stated that falling interest rates, with other factors held constant, would tend to increase rather than decrease present market values of farmland. We agree that, with other factors held constant, declining interest rates will tend to increase the value of agricultural real estate. However, other factors are often not constant. For example, a decline in inflation will lower both interest rates and anticipated cash flows, so that real estate values will not necessarily increase when interest rates decline. FCA's stress test is based upon falling Texas land prices in 1985 and 1986. From their peak in 1985, Texas agricultural real estate values fell by 25 percent over the next 2 years, although the interest rate on 10 year Treasury bonds had fallen from 10.6 percent to 8.4 percent over the same time period. Additionally, yield maintenance provisions increase the borrower's obligation even when interest rates are unchanged, because the present value of the spread between the loan rate and the rate on comparable Treasury securities must be paid when a loan is terminated. Farmer Mac's seller-servicer manual gives an example in which there is an 8 percent yield maintenance penalty despite unchanging interest rates. Because yield maintenance penalties and land prices do not always move in equal and opposite proportions, we believe that each should be considered as independent variables in a credit risk regression.

8. FCA stated that default rate studies generally indicate that default frequencies are considerably higher earlier in the lives of loans and that these time patterns characterize the FCBT data and the risk-based capital model. We do not agree that default frequencies are higher in the

early years of a loan's life based on performance of the loans in the FCBT data. In this data, no credit losses occurred in the year of loan origination, and less than 4 percent of the credit losses occurred within the subsequent 2 years. Further, about 25 percent of the credit losses occurred 9 years or more after origination and the median year of foreclosure in the FCBT data is the 7th. Nevertheless, large yield maintenance penalties and substantial refinancing incentives can occur early in a loan's life. Therefore, we continue to believe that it is important to consider the effects of prepayment and yield maintenance when estimating a credit risk model.

The Use of Land Value Decline

9. FCA referred to a section of the draft of this report that discusses how the variable of minimum land price decline affects the accuracy of the credit loss regression. FCA commented that GAO's position, which suggests the use of this variable would reduce the accuracy of the model, is inconsistent with theory and empirical evidence and that the direction of the functional relationship in the risk-based capital model is valid. We agree that the direction of the effect of land prices on credit losses in FCA's credit risk model is consistent with theory and empirical evidence. However, FCA's implementation of the risk-based capital test relies on the magnitude, as well as the direction, of this relationship. It is still the case that using a land price decline variable that is defined, in part, by the event that the regression seeks to predict, will produce a biased estimate of the magnitude of the effect of land price changes on credit risk.

Credit Risk Not Captured

10. In commenting on the draft report discussion of the three types of instruments that are not subject to credit risk in the risk-based capital model, FCA stated that the current risk exposures on these instruments were immaterial. We recognize that Agvantage bonds are backed by both mortgage collateral and the general obligation of the issuing institutions. Issuing institutions are likely to be stressed at a time of falling farmland values as contemplated by the RBC stress test. While we agree that multiple layers of backing for these bonds is likely to result in a small credit risk, they are still at some risk of loss in a stressed time period. The Federal Home Loan Bank System uses a similar product (Advances) with even more layers of backing (mortgage pools, general obligations of the originating institutions, and the so-

called superlien, giving Home Loan Banks first priority on the assets of originating depository institutions), yet the Federal Housing Finance Board assigns a small, but nonzero credit risk charge to these assets.

We agree that the credit risk stemming from counterparty risk on swap transactions, and the credit risk on many of the assets in Farmer Mac's liquidity portfolio, is likely to be small. However, we believe that credit risk can be easily accounted for, and the text of our report notes that it is accounted for in the risk-based capital models of other regulators, such as OFHEO and the FHFB. Doing so would increase the accuracy of FCA's risk-based capital calculation for Farmer Mac, and would provide an incentive for Farmer Mac to do business with higher rated counterparties and to hold lower risk assets, if the risk based capital constraint becomes binding.

GAO Contacts and Staff Acknowledgments

GAO Contacts

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Acknowledgments

In addition to those individuals named above, Rachel DeMarcus, Debra Johnson, Austin Kelly, Paul Kinney, Bettye Massenburg, Kimberley McGatlin, Nicholas Satriano, John Treanor, and Karen Tremba made key contributions to this report.

Glossary of Terms

Amortization	The process of making regular, periodic decreases in the book or carrying value of an asset.
Basis points	A basis point is equal to one hundredth of a percent. It is used to measure changes in or differences between yields or interest.
Capital	For financial purposes, capital is generally defined as the long-term funding for a firm that cushions the firm against unexpected losses.
Credit risk	The possibility of financial loss resulting from default by borrowers on farming assets that have lost value or other parties' failing to meet their obligations.
Discount notes	Discount notes are unsecured general corporate obligations that are issued at a discount but mature at face value. Their maturities range from overnight to one year.
Duration	A measure of the average timing of cash flows from an asset or a liability. It is computed by summing the present values of all future cash flows after multiplying each by the time until receipt, and then dividing that product by the sum of the present value of the future cash flows without weighting them for the time of receipt.
Interest rate risk	Interest rate risk is the potential that changes in prevailing interest rates will adversely affect assets, liabilities, capital, income or expenses at different times in different amounts.

Interest rate swap	A financial instrument representing a transaction in which two parties agree to swap or exchange net cash flows, on agreed-upon dates, for an agreed-upon period of time, for interest on an agree-upon principal amount. The agreed upon principal amount, called the notional amount, is never exchanged. Only the net interest cash flows are remitted. In the simplest form of interest rate swap, one party agrees to swap fixed-rate loan payments with the floating-rate payments of another party.
Liquidity	Both the capacity and the perceived capacity to meet all obligations whenever due, without a material increase in cost, and to take advantage of business opportunities important to the future of the enterprise. The capacity and the perceived ability to meet known near-term and long-term funding commitments whole supporting selective business expansion.
Liquidity contingency risk	The risk that future events may require a materially larger amount of liquidity than the financial institution currently requires. It is of the three primary components of liquidity risk along with mismatch liquidity risk and market liquidity risk.
Medium term notes (MTN)	Medium term notes are debt securities that may be issued with floating or fixed interest rates with maturities ranging from nine months to thirty years or longer. An advantage of MTNs over corporate bonds is that they tend to be more flexible in terms of maturities and interest rates.
Operations risk	The risk that an entity may be exposed to financial loss from inadequate systems, management failure, faulty controls, or human error.
Prepayment risk	The risk that prepayments will speed or slow and therefore change the yield and/or life of the security.
Return on average assets	Return on average assets is net income for the year divided by the average total assets of the year.

Return on equity	Return on average common stockholder equity is the net income for the year less preferred stockholder dividends divided by the average common stockholder equity for the year and demonstrates how well the company is performing for its common stock shareholders.
Yield maintenance	A prepayment premium that allows investors to attain the same yield as if the borrower made all scheduled mortgage payments until maturity.

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