PART 203—HOME MORTGAGE DISCLOSURE (REGULATION C)

■ 1. The authority citation for part 203 continues to read as follows:

Authority: 12 U.S.C. 2801–2810.

■ 2. In Supplement I to part 203, under section 203.2 Definitions, *2(e) Financial Institution*, paragraph 2. is revised.

Supplement I to Part 203—Staff Commentary

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§ 203.2 Definitions.

2(e) Financial Institution

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2. *Adjustment of exemption threshold for depository institutions.* For data collection in 2007, the asset-size exemption threshold is $36 million. Depository institutions with assets at or below $36 million as of December 31, 2006 are exempt from collecting data for 2007.

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By order of the Board of Governors of the Federal Reserve System, acting through the Director of the Division of Consumer and Community Affairs under delegated authority, December 20, 2006.

Jennifer J. Johnson,

Secretary of the Board.

[FR Doc. E6–22027 Filed 12–22–06; 8:45 am]

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FARM CREDIT ADMINISTRATION

12 CFR Parts 652 and 655

RIN 3052–AC17

Federal Agricultural Mortgage Corporation Funding and Fiscal Affairs; Federal Agricultural Mortgage Corporation Disclosure and Reporting Requirements; Risk-Based Capital Requirements

AGENCY: Farm Credit Administration.

ACTION: Final rule.

SUMMARY: The Farm Credit Administration (FCA, Agency, we) is amending regulations governing the Federal Agricultural Mortgage Corporation (Farmer Mac or the Corporation) risk-based capital stress test (RBCST or model). We are making these amendments in response to changing financial markets, new business practices and the evolution of the loan portfolio at Farmer Mac, as well as continued development of industry best practices among leading financial institutions. The rule modifies regulations in 12 CFR part 652, subpart B. The rule is intended to more accurately reflect risk in the model in order to improve the model's output—Farmer Mac's regulatory minimum risk-based capital level. The rule also clarifies Farmer Mac's reporting requirements in § 655.50(c).

DATES: *Effective Date:* This regulation will be effective the later of 30 days after publication in the **Federal Register** during which time either or both Houses of Congress are in session, or March 31, 2007. We will publish a notice of the effective date in the **Federal Register**.

FOR FURTHER INFORMATION CONTACT:

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SUPPLEMENTARY INFORMATION:

I. Purpose

The purpose of this rule is to revise the risk-based capital (RBC) regulations that apply to Farmer Mac. Our proposed rule was published in the **Federal Register** on November 17, 2005.[1] The final rule makes the following changes to the RBCST:

1. Establishes specific proxy values for loans with missing or anomalous or ambiguous data. In the final rule, the Debt-to-Assets ratio (DA) proxy value is 0.50, the Loan-to-Value ratio (LTV) remains at 0.70, and the Debt Service Coverage ratio (DSC) is 1.25.

2. Requires the application of known data on Long-term Standby Purchase Commitment (Standby) loans in the model.

3. Revises the estimate of future years' miscellaneous income to the annualized 3-year weighted average of the most recent quarterly miscellaneous income rate as a fraction of the current quarter's sum of cash, investments, guaranteed securities, and loans held for investment.

4. Revises the treatment of gain on sale of agricultural mortgage-backed securities (AMBS) by applying the 3-year gain rate factor to the most recent 4 quarters of AMBS sales.

5. Revises the method used to estimate operating expenses to a moving-average of operating expenses as a percent of non-program assets and on- and off-balance sheet program investments.

The proposed rule also included provisions related to improved estimates of the carrying costs of troubled loans by revising assumptions regarding Loan Loss Resolution Timing (LLRT), and related to adding a component to reflect counterparty risk. These two items are not included in the final rule. The Agency plans to address these issues in a future rulemaking.

In developing this rule, we considered the comments and recommendations pertaining to the RBCST in the Government Accountability Office (GAO) report entitled, ''Farmer Mac: Some Progress Made, but Greater Attention to Risk Management, Mission, and Corporate Governance is Needed.'' [2] We also met with Farmer Mac representatives on several occasions prior to the development of the proposed rule and discussed possible Agency revisions to the RBCST.

II. Background

Our analysis of the RBCST has identified a need to update the model in response to changing financial markets, new business practices and the evolution of the loan portfolio at Farmer Mac, as well as continued development of industry best practices among leading financial institutions. Our goal is to ensure that the RBCST reflects changes in the Corporation's business structure and loan portfolio that have occurred since the model was originally developed by FCA, while complying with the statutory requirements and constraints on the model's design.

Our proposed rule was published in the **Federal Register** on November 17, 2005, and provided for a 90-day comment period to end on February 15, 2006. We later extended and reopened the comment period, which ended on May 17, 2006.[3]

III. Comments

We received seven comment letters on the proposed rule from the following: Farmer Mac, the Farm Credit Bank of Texas (FCBT), AgFirst Farm Credit Bank (AgFirst), U.S. AgBank FCB (U.S. AgBank), Sacramento Valley Farm Credit (Sac Valley), First Dakota National Bank (Dakota Mac), and AgStar

[1] 79 FR 69692. See the preamble to our proposed rule for a full discussion of our proposed changes.

[2] United States General Accounting Office, Farmer Mac: Some Progress Made, but Greater Attention to Risk Management, Mission, and Corporate Governance is Needed, GAO–04–116 (2003). At the time of the report's publication, the GAO was known as the General Accounting Office.

[3] In response to requests from commenters, we extended the original comment period to April 17, 2006 (71 FR 7446, Feb. 13, 2006), and subsequently reopened the comment period until May 17, 2006 (71 FR 24613, Apr. 26, 2006).

Financial Services, ACA (AgStar).[4] In general, the commenters agreed with FCA's objective to revise the RBCST to reflect Farmer Mac's actual business risks more accurately but asserted that our proposal would not achieve that objective. The commenters contended that the proposed changes would result in a risk-based capital requirement that is higher than it should be and would drive up the cost of doing business with Farmer Mac. Specific comments were primarily focused on two changes: (1) The proposed data proxy values for loans with missing data; and (2) the method of implementing the carrying cost of nonperforming loans. The latter provision is not included in this final rule.

IV. Summary of the Provisions of the Final Rule and FCA's Responses to Comments

We begin by summarizing and responding to general comments on the proposed rule and then provide a summary of specific comments on the proposed rule and FCA's responses to the comments.

A. General Comments

FCBT stated that its chief concern was that certain proposed changes appear to have been selected primarily for the purpose of increasing the risk-based capital requirement. FCBT and each of the other commenters criticized the proposed rule as not being based on Farmer Mac's actual underwriting practices and loss experience.

U.S. AgBank called the proposed regulation overly prescriptive and stated that it would be better for FCA to direct Farmer Mac to create an RBCST calculation process that complies with the statute, than to continue the FCA-designed risk-based capital model. U.S. AgBank also stressed the importance of a model that is statistically valid and not biased toward overly conservative assumptions, thereby avoiding artificial results that could result in unintended consequences. It asserted that such consequences could include the compromising of sound governance practices at Farmer Mac and of management's accountability to its shareholders. Finally, U.S. AgBank said that the model is too inflexible given the dynamic nature of agricultural finance and Farmer Mac's lines of business that include unique risk factors such as part-time farm loans.

Sac Valley, FCBT, and AgFirst also provided their general support for the comments submitted by Farmer Mac. Sac Valley stated its concurrence with FCA's objective of estimating risk-based capital in a way that reflects the risks of Farmer Mac's business and incorporates as much as possible best business practices.

B. Proxy Data Values for Loans With Missing or Anomalous Loan Origination Data and for Standby Loans—Appendix A, Section 4.1 d.

1. FCA's Proposal

As noted in the preamble to the proposed rule, the RBCST model was designed to use loan origination data—specifically the loan amount, DA, LTV, and DSC to estimate the lifetime probability of default on the loans, which is then seasoned to reflect the current age of the loan. At the time the model was designed, Farmer Mac had complete origination data for most loans in its portfolio. In 1998, it had complete origination data on approximately 88 percent of Cash Window loans, excluding pre-1996 loans. For the remaining loans, state-level average loss rates estimated from the loans with complete data were applied to loans where data were missing.

Today, a significant proportion of Farmer Mac's current portfolio has incomplete or anomalous loan origination data, or has data that are not used in the model. Some data are missing because Farmer Mac has several programs whose underwriting standards do not require the collection of such data. These programs include part-time farm, seasoned and fast-track loans. In addition, the model treats unseasoned Standby loans for which loan origination data are available as if the loan data were missing. This means that, as of June 30, 2006, complete loan origination data were available, and used in the RBCST, on well under half of Farmer Mac's loan portfolio, excluding pre-1996 loans. We proposed to revise this part of the model to replace the application of state-level loss estimates with the application of specified proxy values to all loans with missing or anomalous data, and to use known data for unseasoned Standby loans when such data are known. The proxy values we proposed were a DA ratio of 0.60, an LTV ratio of 0.70, and a DSC ratio of 1.20. As we explained in the preamble to the proposed rule, we chose conservative proxy values directly related to Farmer Mac's underwriting standards on the ground that using conservative proxy data best preserves the theoretical and structural integrity of the RBCST.

2. Comments

Farmer Mac agreed that the use of proxy values could be appropriate in these circumstances. It asserted, however, that the proposed proxy values are flawed because they are ''inconsistent with Farmer Mac's underwriting standards for the vast majority of full-time farm loans, as well as with Farmer Mac's own risk exposure in actual practice''; that they are ''arbitrary, unsupported by any reasoned methodology, and based on'' an incorrect interpretation of the Act; that they are ''unacceptable because they do not correlate strongly, or even adequately, to Farmer Mac's actual core business and underwriting standards''; and that it knows of no requirement in the Act that the loans ''should, unto themselves, represent a worst-case scenario for the abuse of Farmer Mac underwriting discretion.'' Farmer Mac asserted that, ''if there is available information that would more closely approximate Farmer Mac's actual book of business, it should be utilized, as opposed to unrelated conservative proxy values.'' Farmer Mac raised a concern that the proposed proxy values ''likely will'' distort or misrepresent the risks of its business and ''create unintended incentives for or against particular classes of loans.''

Farmer Mac recommended that the proxy values be based instead on its historical loan data, using a statistical process for the imputation of missing data, or alternatively selecting cutoff percentiles. Farmer Mac described possible methodologies and stated its view that there was no reason to depart from the model's current method, which it characterized as most similar to treatment of data that are ''Missing Completely At Random,'' absent ''evidence that [the current method] is untenable.'' Farmer Mac also contended that two of the proxy values, DA and DSC, are not relevant to its underwriting standards for part-time farm loans and offered to work with FCA to develop an appropriate RBCST submodel for those loans.

The other commenters submitted comments that were very much in line with Farmer Mac's. They asserted that:

- The proxy values appear arbitrary and not supported in the preamble to the proposed rule by any defined methodology or evidence;
- The proxy values are not representative of the commenters' loan experience with Farmer Mac or with Farmer Mac's portfolio (as understood by the commenters) and are not representative of Farmer Mac's underwriting standards; and

[4] All of the commenters except Dakota Mac are Farm Credit institutions.

• The proposal, by requiring Farmer Mac to hold capital in excess of actual risk, could cause Farmer Mac to increase fees and could harm the secondary agricultural loan market and the commenters' business with Farmer Mac.

The commenters recommended basing the proxy values on Farmer Mac historical loan data and using a ''well defined methodology'' to determine the values. In the section below, we address specific comments of Farmer Mac and other commenters.

3. Final Rule

In the final rule, we establish proxy values for the DA, LTV, and DSC ratios that are related to Farmer Mac's underwriting standards, but we have moderated them somewhat from the proposed rule. In the final rule, the DA ratio proxy value is 0.50, down from 0.60 in the proposed rule; the LTV ratio remains at 0.70, the same value as in the proposed rule; and the DSC ratio is 1.25, up from 1.20 in the proposed rule. Upon further review and consideration of the ranges of Farmer Mac's underwriting standards and the relative proportions of the various loan types in the portfolio, we have decided that these values are more appropriate to the underwriting standards for the loan types that make up the preponderance of Farmer Mac's portfolio. In our judgment, these proxy values are appropriate for application to loan programs that have different underwriting standards but account for a smaller proportion of the portfolio. We believe these values are still sufficiently conservative to maintain the theoretical integrity of the model while avoiding unintended consequences related to inappropriate incentives to underwrite more aggressively in reduced-documentation loan programs. We note that, if the relative proportions of various loan types with differing underwriting standards change over time, the Agency may consider further adjustment to the proxy values.

We disagree with many of the comments we received. To begin with, we do not believe our proposal is based on an incorrect interpretation of the Act or that it imposes ''worst-case'' proxy values. The Act provides FCA with significant discretion in establishing the RBCST. Section 8.32 of the Act states that the FCA (through the Director of the Office of Secondary Market Oversight (OSMO)) must, among other things, ''take into account appropriate distinctions based on various types of agricultural mortgage products, varying terms of Treasury obligations, and any other factors the Director considers appropriate * * *.'' [5] The model uses, and will continue to use, Farmer Mac's ''actual book of business'' as represented by actual data. The incompleteness or non-use of loan origination data for what is now a significant portion of Farmer Mac's portfolio is an important factor in evaluating the reliability of the RBCST output. The Agency must decide how best to treat the loans whose data are not in the model. We believe the model's current treatment is no longer adequate to represent loan risk for such a large portion of the portfolio. Our choice of conservative proxy values takes into consideration not only the role of the FCA to provide for the general supervision of the safe and sound performance of Farmer Mac under section 8.11(a) of the Act, but also Farmer Mac's actual loan data and practices. We do not believe the proxy values represent a ''worst-case scenario.'' In setting the proxy values, we considered Farmer Mac's actual practice of accepting loans with ratios that are riskier than those permitted under its underwriting standards when the loan has compensating strengths in other ratios or risk indicators. A ''worst-case'' approach would have yielded proxy values much higher than the proposed DA and LTV and much lower than the DSC.

We considered Farmer Mac's suggestion to substitute values based on Farmer Mac's historical loan data for the missing data.[6] In our judgment, the historical data are not necessarily representative of the portion of the portfolio that is missing data, and they are not necessarily representative of Farmer Mac's future underwriting practices on loans for which they will not collect complete data. We do not agree with the underlying assumption of the comments that the historical loan data on full-time farm loans would correlate strongly with the loans missing data. In a circumstance where we cannot know the predictive value of the historical loan data, we do not agree that a valid statistical methodology is available to set the proxy levels. Moreover, as we have noted, the loans for which loan origination data are complete now represent a much smaller proportion of Farmer Mac's loan portfolio. Therefore, we concluded that using the historical data is not the best means to determine appropriate proxy values.

A statistical approach suggested by Farmer Mac is the SAS Proc MI multiple imputation (MI) procedure for developing consistent estimates of confidence limits around the mean of each individual underwriting variable for loans for which data existed. The implication is that these estimates would be appropriate for use as proxies in cases where the underwriting data were absent in individual loans. The specific process demonstrated assumes that the underwriting data are multivariate normal and that the missing elements may depend on the remaining observed variables, but not on their own values. The resampling method generates consistent estimates of the variances from which confidence limits around the statistics can be constructed.

The MI methods cited in the comment are most often used in efforts to avoid deletion of observations in data sets with partially missing data, but for which portions of the covariate data sets exist.[7] The use of no additional independent variables (e.g., age, loan size) which are observable across loans both with and without underwriting data implies: (i) No conditioning on additional variables was considered, and (ii) an assumption of equivalent distributions between those missing data and those not missing data.

We do not agree that the Farmer Mac-suggested method provides a reasonable method for identifying candidate proxy values for numerous reasons. First, we did not intend that the proxies represent mean values of the underwriting data in cases where the data exist, or as conditioned by the pattern of missing data from cases missing only a portion of the underwriting variables. We do not believe that this approach is reasonable given the stark differences in other characteristics of the subset of loans that do and do not have complete underwriting data. To emphasize this point, Table 1 is provided which summarizes key attributes of the loans grouped by whether the loan observation received at least one proxy value due to missing or anomalous data.

[5] 12 U.S.C. 2279bb–1(b)(1)(A).

[6] We note that the current version of the RBC model, through its application of average loss rates by state to loans with missing data, is similar to the approach recommended in the comment. The insufficiency of this approach and the significant proportion of loans that have incomplete data are, in fact, the conditions that prompted the development of this revision to the RBCST.

[7] For example, if multiple health factors/indicators individually contribute to incidence rates of a serious health problem, but not all variables are observed or collected on all individuals, MI procedures allow the use of the data with incomplete measures across the independent variables rather than excluding entire observations that are missing only portions of their independent variables.

TABLE 1

Data	No proxy data	At least 1 proxy	Combined
Average Age (in years)	5.83	11.83	9.16
Average Current Balance	$433,568	$164,542	$284,199
Average Original Balance	$570,119	$267,039	$401,842
Number of Loans	7,269	9,074	16,343

As shown in the table, the loans missing data are considerably older (rendering the cases where a portion of the underwriting data does exist to be less likely to be reliable), have much smaller original balances, and have correspondingly lower current balances. Standard tests of the equivalence of means strongly reject the hypothesis of equivalence of the means between the two groups of loans by age, original size, or current balance ($p-value = 0.0000$, all cases).

As an alternative to using an imputation methodology, Farmer Mac also suggested that percentile cutoffs of actual ratios in its portfolio of unseasoned standard full-time farm loans should be considered as an acceptable method to derive proxies, though less appropriate (in their view) than imputation of mean values. Farmer Mac asserted that the proposed proxy levels are statistical outliers.[8] In general, we have the same concern here as with the multiple imputation approach regarding basing proxy values on historical measurements of a potentially uncorrelated portfolio. The appropriateness of using a cutoff percentile depends on the congruence in the data between the set missing underwriting data and those with data. Moreover, the distribution around a given ''consistent'' percentile choice is not necessarily comparable across the three underwriting variables (*i.e.*, there may be only a small ''distance'' between the 95th percentile and the maximum D/A in the available data, while there is a large ''distance'' from the 95th percentile of the order-adjusted DSC to the most undesirable one in the data set).[9]

We would also note that average loss rates generated by the RBCST's Credit Loss Module (CLM) are not especially sensitive to the level of the proxy values. To illustrate this point, we provide the following data tables. Table 2A sets forth the average loss rates generated by the CLM as of June 30, 2006, under various LTV and DA proxy value combinations, keeping DSC constant at 1.25. The table indicates that the average loss rate across all combinations presented varies within a range of 27 basis points. Under the final rule's proxy values (0.50, 0.70, and 1.25, for DA, LTV, and DSC proxies, respectively) the table shows that at June 30, 2006 the average loss rate would have been 3.782 percent.

TABLE 2A

DSC proxy = 1.25	LTV proxies					
DA Proxies	.....	0.60	0.65	0.70	0.75	0.80
	0.45	3.694%	3.706%	3.724%	3.748%	3.783%
	0.50	3.751%	3.764%	3.782%	3.807%	3.842%
	0.55	3.811%	3.824%	3.843%	3.869%	3.905%
	0.60	3.874%	3.888%	3.907%	3.934%	3.966%

Table 2B presents the calculated average loss rate across combinations of DCS and DA ratios, holding LTV constant. Under these combinations, the average loss rate varies within a range of 16 basis points.

TABLE 2B

LTV proxy = 0.70	DSC proxies					
DA Proxies	.....	1.15	1.20	1.25	1.30	1.35
	0.45	3.736%	3.730%	3.724%	3.718%	3.712%
	0.50	3.794%	3.788%	3.782%	3.775%	3.769%
	0.55	3.856%	3.849%	3.843%	3.836%	3.830%
	0.60	3.921%	3.914%	3.907%	3.900%	3.894%

Table 2C presents the variation in the calculated average loss rate across combinations of DCS and LTV ratios, holding DA constant at the level in the final rule. Under these combinations, the average loss rate varies within a range of just 3 basis points.

[8] The proposed DA proxy equated to the 95th percentile of Farmer Mac's portfolio of unseasoned full-time farm loans, the proposed LTV proxy equated to some percentile in excess of the 90th percentile, and the proposed DSC proxy equated to some percentile in excess of the 5th percentile (or, for greater ease of comparison, its inverse—the 95th percentile). In the final rule, the proxy values would equate to the 91st, 90th, and 9th percentiles respectively, as of June 30, 2006. Although we did not base our proxy values on the percentile cutoffs, we believe the relationships of those values to the percentile cutoffs is appropriate.

[9] Farmer Mac contends that the proposed proxies represent outliers in the data. However, we note that its comment includes a table showing that the proxy values indicated by the 95th percentiles in the set of unseasoned Full-time Farm loans all exceed Farmer Mac's underwriting limits for such loans. Thus, the proxy values would not appear to be unreasonably conservative.

TABLE 2C

DA proxy = 0.50	DSC proxies					
LTV proxies	.....	1.15	1.20	1.25	1.30	1.35
	0.60	3.763%	3.757%	3.751%	3.745%	3.739%
	0.65	3.776%	3.770%	3.764%	3.757%	3.751%
	0.70	3.794%	3.788%	3.782%	3.775%	3.769%
	0.75	3.820%	3.814%	3.807%	3.801%	3.795%

Rather than focusing on the distribution of underwriting ratios in the existing loan data sets through time, we instead chose proxy values that are near the conservative limits of the range of values that are acceptable to Farmer Mac under its underwriting standards for different types of loans (including, but not limited to, full-time farm loans). In addition, we took into consideration that Farmer Mac can accept underwriting ratios that exceed the stated ranges of its underwriting standards.[10] We intended that the proxy values be sufficiently conservative to avoid underestimating the risk in the portfolio, but not at the extremes of Farmer Mac's underwriting standards. This approach recognizes that Farmer Mac would be unlikely to underwrite loans at its underwriting limits in each ratio category. These values are acceptable to Farmer Mac for underwriting purposes, as demonstrated by both its policies and its practices. Therefore, we believe that the proxy values are realistic as well as conservative and reflect Farmer Mac's actual business practices.

Farmer Mac's comment that the proposed proxy values ''likely will'' distort or misrepresent the risks of its business, as well as create unintended incentives for or against particular classes of loans, did not make clear exactly what unintended incentives or what classes of loans Farmer Mac had in mind. We would agree that, on an individual loan basis, using proxy data will ''misrepresent'' the loan to the extent that the proxy values understate or overstate the level of actual risk in the loan. The problem of the likely inexactitude in the calculation is necessitated by, and a direct result of, the uncertainty created by the missing data. This uncertainty is itself one component of the risk in Farmer Mac's loan portfolio. We believe that applying conservative proxy values is a way to consider adequately the actual risk in the loan as well as the added risk associated with this uncertainty. With respect to unintended incentives, it is true that, however we decide to treat loans with missing data—for example, if we were to apply proxy values based on historical loan data or related to underwriting standards, or even if we entirely removed loans with missing data from the model—we could create incentives for Farmer Mac and its business partners to expand or contract one or more lines of business or to modify program requirements. Indeed, in the model's current treatment of loans with missing data, one could argue that using state-level loss estimates may have been a disincentive for Farmer Mac to collect loan origination data in some cases. We believe that the proxy values in the final rule will minimize any potential incentive not to collect loan origination data on the great majority of loans, without providing inappropriate incentives to continue or terminate worthy and needed loan products.

As we described above, Farmer Mac offered to work with FCA to develop an appropriate RBCST submodel for part-time farm loans since, in Farmer Mac's stated view, the DA and DSC ratios are ''not relevant'' to its underwriting standards for such loans.[11] FCA weighed the added complexity of a submodel against potential benefits in improved accuracy of the RBC model's output, as well as the potential disincentive that might be created to underwrite part-time farm business in the absence of such a submodel. By our calculation of Farmer Mac-submitted data, the part-time farm loan volume is a very small percentage of the total modeled portfolio as of June 30, 2006. We do not consider this amount to be substantial and, therefore, do not see a compelling reason to add complexity to the model by adding a submodel at this time. We could consider a submodel in the future if the Corporation's part-time farm loan volume grows. We believe that the selected proxy data values appropriately balance the risk of a disincentive to underwrite part-time loans with the risk of an inappropriate incentive to underwrite more loans of this type with risk characteristics that exceed those of the proxy values.

AgStar commented specifically that the proxy values would reflect an especially unrealistic risk estimate on seasoned loans. We disagree with the comment because the model's loan seasoning adjustment occurs after loss rates are estimated. Therefore, the risk in seasoned loans in Farmer Mac's portfolio would continue to be adjusted downward in accordance with Section 2.2 of Appendix A. We expect the impact of the seasoning adjustment to be similar in magnitude in the revised RBCST model regardless of whether the proxy values are applied. The reason is that the model recognizes substantial risk mitigation through its seasoning adjustment component. However, we note that when a loan's origination date is among the missing data, and therefore age is not determinable, the final rule will substitute the ''cut off'' date for the origination date. In such cases, if a loan were several years old and only recently taken into Farmer Mac's portfolio, the risk-mitigation of its true age could not be recognized. We believe our approach recognizes the risk created when a loan's origination date is not collected in a low-documentation loan program.

AgStar also noted that recent unseasoned loans placed in the Standby program are better quality than the proxy values would estimate. While AgStar may have good information to substantiate this claim, if these loan records do not contain that information, the Agency must address the resulting uncertainty (i.e., risk). If a primary lender consistently has such information on Standby loans, it could benefit from including these data in the loan data submitted under the Standby program regardless of whether such data are required under the Standby program.

C. Calculation of Miscellaneous Income and Gain on Sale of AMBS—Appendix A, Section 4.2(3)

Farmer Mac commented that more accurate moving average calculations of miscellaneous income and gain on sale of AMBS would be achieved by first

[10] We note Farmer Mac's actual practice of accepting loans with ratios that are outside of the ranges, as permitted under its underwriting standards when the loan has compensating strengths in other ratios or risk indicators.

[11] Notwithstanding Farmer Mac's assertion that the DA and DSC ratios are not relevant, not all part-time farm loans are missing those data in Farmer Mac's submission of the RBCST as of June 30, 2006.

calculating individual ratios, annualizing the ratios and then computing the moving average over the appropriate time horizon. We do not agree that Farmer Mac's suggested approach would be more accurate. Our approach provides a volume-weighted measure of miscellaneous income that is more accurate and generally less sensitive to variations in asset volumes than the Farmer Mac-suggested approach. Under Farmer Mac's suggested approach, each individual observation has the same weight regardless of the level of the relevant assets. The weighted average approach to AMBS avoids counting each undefined (0/0) ratio as an individual observation which would skew the average.

Similarly, in the case of gain on sale of AMBS, we believe our approach to generating the weighted average rate of gain is less potentially volatile than the Farmer Mac-suggested approach. Moreover, Farmer Mac's suggestion that the calculated amount be annualized would be incorrectly applied in this case, regardless of the method adopted, because the calculated rate is as applicable and appropriate on an annual basis as it is on a quarterly basis. To multiply the calculated rate by 4 would overstate the rate of gain.

D. Operating Expense Regression Equation—Appendix A, Section 4.2(3)

In the RBCST's operating expense regression equation, we proposed a change that would remove the dummy variable from the equation and include multiple variables to account for different business activities.

Farmer Mac agreed in principle with the extension of the independent variables in the regression and the elimination of the dummy variable but argued that the intent of the proposed regression was to provide marginal impacts of different activities to the operating expenses. It observed that the individual coefficient signs are not entirely consistent with expected relationships and offered two alternative proposals to enable projections of their operating expenses to be applied within the model. The first alternative proposed involves calculation of a simple average of recent operating expenses applied as a constant in the model. They refer to this approach as being analogous to that used to estimate MI rates and gains on AMBS rates.

The second approach offered by Farmer Mac involves a regression framework across similar expense categories as proposed by us, but expresses these in cost share form. Their proposed approach contains similar drawbacks as those Farmer Mac raised regarding FCA's proposed approach and suffers specific problems in expressing logarithms of values which may be zero at times.

In light of the recent evolution of their cost structures and changing relative scales of their program activities, we agree with the comment that an approach to accurately reflect their cost structures can be obtained from recent data and applied forward within the existing constructs of the model. Farmer Mac proposes the use of average expenses to reflect future experiences. We note that in periods of increasing costs, the recent average will have a negative bias, and during periods of decreasing costs, that there will be a positive bias. We accept the moving average application of expenses and agree that it is consistent with the spirit of the calculations of the rates for miscellaneous income and gains on sales of AMBSs. In specific application, we require that the operating expense rate be calculated as the average of operating expense rates calculated as the annualized expenses as shares of the sum of on-balance sheet assets and off-balance sheet program activities over the most recent 4 quarters inclusive of the current submission date. This average rate is applied to the current quarter's on-balance sheet assets and off-balance sheet program activities. That share will then be applied forward to the balances of the same categories throughout the 10-year period of the RBCST model.

E. Change to Disclosure Regulations

We proposed to clarify § 655.50(c) to state that Farmer Mac must provide FCA with copies of its substantive correspondence with the Securities and Exchange Commission (SEC). We received no comments on this proposal and adopt it without change in the final rule.

V. Issues Not Addressed in Final Rule

A. Carrying Costs of Troubled Loans—Appendix A, Section 4.2(3)

We proposed to improve estimates of carrying costs of troubled loans by revising the Loan Loss Resolution Timing to reflect that problem loans may take longer than the 1 year assumed in the existing model's loss-severity rate. Farmer Mac commented that it agreed with aspects of the proposed change but had concerns about some of the modifications, as well as the validity of certain assumptions we made.

The Agency has elected to address this revision in a future rulemaking out of a desire to review further the scaling factor applied to loan loss volume in order to estimate the amount of associated unpaid principal balance, and to review any new information that may be available from Farmer Mac regarding its actual loan resolution timing. The proposed scaling factor is derived from the average principal amortization of loans in the current portfolio and would be recalculated on a quarterly basis. While we received no comments on the scaling factor, we believe that the principal amortization of actual nonperforming loans at Farmer Mac might provide an opportunity to improve the estimate of unpaid principal balance associated with nonperforming loans during the LLRT period.

B. Spreadsheet Linkage for Funding Off-Balance Sheet Loans

This comment from Farmer Mac deals with a component of the revision dealing with the carrying cost of nonperforming loans. Because the Agency has elected to address this revision in a future rulemaking for reasons explained in ''A'' above, we do not address this comment here.

C. Adding a Component To Reflect Counterparty Risk—Appendix A, Section 4.1e.

The proposed rule's provisions related to the estimation of counterparty risk are not included in the final rule and will be addressed by the Agency in a future rulemaking. Specifically, while we received no comments on the approach to identifying or applying the counterparty risk component, we have elected to review the Office of Federal Housing Enterprise Oversight (OFHEO) haircut levels, confirm the applicability of the OFHEO haircut schedules for application to yields rather than individual cash flows, and consider the formal development of a calculation tool with fixed-category investment instrument definitions.

In the preamble to the proposed rule, we requested comment on potential methods to incorporate three specific risks into the model in future proposed regulations. The three risks are: The risk associated with the AgVantage portfolio; the risk of a stress-induced increase in Farmer Mac's cost of funds; and the counterparty risk associated with the derivatives portfolio and specifically the replacement cost of defaulted derivative contracts. However, we received no comments on these topics.

VI. Other Comments Received

A. Method of Historical Loss Estimation

Farmer Mac reiterated comments it made to our first rule implementing the RBCST that was published in the **Federal Register** on November 12, 1999. (*See* 64 FR 61740.) The comments criticize the methodology employed to quantify the worst-case historical benchmark loss experience, stating that it is unsubstantiated by actual loss experience. In this rulemaking, we proposed no changes related to this aspect of the RBC model and are, therefore, not adopting Farmer Mac's recommended changes in the final rule. However, we note that the Agency's position on this issue remains consistent with our response that was published in the final rule implementing the RBC model on April 12, 2001. (*See* 66 FR 19048.)

B. Spreadsheet Financial Statement Formats

In its comment letter, Farmer Mac asked us to update the RBCST's Balance Sheet and Income Statement categories. Farmer Mac commented that populating financial statement data has become time-consuming for its staff due to changes in its SEC reporting formats that are not reflected in the RBC model. While we would prefer to make the submission preparation process as efficient as possible, we have observed that Farmer Mac's financial statements have been changing format with relative frequency over recent years. For that reason, we hesitate to expend resources to modify the formats in the model if these could become outdated relatively soon. However, we agree that such updates should be done periodically in order to keep the formats reasonably close. For that reason, while we have made no changes to the financial statement formats in this rule, we would expect to make such changes in consultation with Farmer Mac through the technical change process (*i.e.*, without rulemaking).

VII. Technical Changes to the RBCST in the Final Rule

In section 4.2b(3)(E) of the Appendix, we have deleted specific guarantee fee values for post-1996 Farmer Mac I assets, pre-1996 Farmer Mac I assets, and Farmer Mac II assets because specific values are not applied in the stress test. The stress test applies quarterly updates, supplied by Farmer Mac, of the weighted average guarantee rates for each category of assets.

VIII. Impact of Final Rule Changes on Required Risk-Based Capital

The table below provides an indication of the impact of the revisions in the quarter ended June 30, 2006. Lines 1 through 4 present the impacts if only that revision were made to the current version and the column labeled ''Difference'' calculates the impact of that individual change for the quarter ended June 30, 2006, compared to the minimum requirement calculated using the currently active Version 1.25. Line 5 presents the impact of all of the revisions in Version 2.0 (the model as revised in this final rule).[12]

Calculated regulatory minimum capital	6/30/2006	Difference
RBCST Version 1.25 (calculated as of 6/30/2006)	67,660	.....
RBCST 2.0 Individual Change Impacts:		
(1) CLM Changes: Data Proxies and Standby Treatment	93,523	25,862
(2) Miscellaneous Income Treatment	59,932	−7,728
(3) Gain on Sale of AMBS	67,660	0
(4) Operating Expenses	95,297	27,637
(5) Total RBCST Version 2.0 Impact	113,431	45,771

As shown in the table, implementation of the data proxies and the revised operating expense estimation result in the greatest impact on the calculated risk-based capital requirements.

IX. Regulatory Flexibility Act

Pursuant to section 605(b) of the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*), FCA hereby certifies the rule will not have a significant economic impact on a substantial number of small entities. Farmer Mac has assets and annual income over the amounts that would qualify them as small entities. Therefore, Farmer Mac is not considered a ''small entity'' as defined in the Regulatory Flexibility Act.

List of Subjects

12 CFR Part 652

Agriculture, Banks, banking, Capital, Investments, Rural areas.

12 CFR Part 655

Accounting, Agriculture, Banks, banking, Accounting and reporting requirements, Disclosure and reporting requirements, Rural areas.

■ For the reasons stated in the preamble, parts 652 and 655 of chapter VI, title 12 of the Code of Federal Regulations are amended as follows:

PART 652—FEDERAL AGRICULTURAL MORTGAGE CORPORATION FUNDING AND FISCAL AFFAIRS

■ 1. The authority citation for part 652 continues to read as follows:

Authority: Secs. 4.12, 5.9, 5.17, 8.11, 8.31, 8.32, 8.33, 8.34, 8.35, 8.36, 8.37, 8.41 of the Farm Credit Act (12 U.S.C. 2183, 2243, 2252, 2279aa–11, 2279bb, 2279bb–1, 2279bb–2, 2279bb–3, 2279bb–4, 2279bb–5, 2279bb–6, 2279cc); sec. 514 of Pub. L. 102–552, 106 Stat. 4102; sec. 118 of Pub. L. 104–105, 110 Stat. 168.

■ 2. Revise subpart B to part 652 to read as follows:

Subpart B—Risk-Based Capital Requirements

Subpart B—Risk-Based Capital Requirements

§ 652.50 Definitions.

For purposes of this subpart, the following definitions will apply:

[12] Please note that Farmer Mac announced on October 6, 2006, that it intends to restate certain financial results for several recent reporting periods. The calculations in the table could change based on the restatement.

Farmer Mac, Corporation, you, and your means the Federal Agricultural Mortgage Corporation and its affiliates as defined in subpart A of this part.

Our, us, or we means the Farm Credit Administration.

Regulatory capital means the sum of the following as determined in accordance with generally accepted accounting principles:

(1) The par value of outstanding common stock;

(2) The par value of outstanding preferred stock;

(3) Paid-in capital, which is the amount of owner investment in Farmer Mac in excess of the par value of stock;

(4) Retained earnings; and,

(5) Any allowances for losses on loans and guaranteed securities.

Risk-based capital means the amount of regulatory capital sufficient for Farmer Mac to maintain positive capital during a 10-year period of stressful conditions as determined by the risk-based capital stress test described in § 652.65.

§ 652.55 General.

You must hold risk-based capital in an amount determined in accordance with this subpart.

§ 652.60 Corporation board guidelines.

(a) Your board of directors is responsible for ensuring that you maintain total capital at a level that is sufficient to ensure continued financial viability and—provide for growth. In addition, your capital must be sufficient to meet statutory and regulatory requirements.

(b) No later than 65 days after the beginning of Farmer Mac's planning year, your board of directors must adopt an operational and strategic business plan for at least the next 3 years. The plan must include:

(1) A mission statement;

(2) A review of the internal and external factors that are likely to affect you during the planning period;

(3) Measurable goals and objectives;

(4) Forecasted income, expense, and balance sheet statements for each year of the plan; and,

(5) A capital adequacy plan.

(c) The capital adequacy plan must include capital targets necessary to achieve the minimum, critical and risk-based capital standards specified by the Act and this subpart as well as your capital adequacy goals. The plan must address any projected dividends, equity retirements, or other action that may decrease your capital or its components for which minimum amounts are required by this subpart. You must specify in your plan the circumstances in which stock or equities may be retired. In addition to factors that must be considered in meeting the statutory and regulatory capital standards, your board of directors must also consider at least the following factors in developing the capital adequacy plan:

(1) Capability of management;

(2) Strategies and objectives in your business plan;

(3) Quality of operating policies, procedures, and internal controls;

(4) Quality and quantity of earnings;

(5) Asset quality and the adequacy of the allowance for losses to absorb potential losses in your retained mortgage portfolio, securities guaranteed as to principal and interest, commitments to purchase mortgages or securities, and other program assets or obligations;

(6) Sufficiency of liquidity and the quality of investments; and,

(7) Any other risk-oriented activities, such as funding and interest rate risks, contingent and off-balance sheet liabilities, or other conditions warranting additional capital.

§ 652.65 Risk-based capital stress test.

You will perform the risk-based capital stress test as described in summary form below and as described in detail in Appendix A to this subpart. The risk-based capital stress test spreadsheet is also available electronically at *http://www.fca.gov*. The risk-based capital stress test has five components:

(a) *Data requirements.* You will use the following data to implement the risk-based capital stress test.

(1) You will use Corporation loan-level data to implement the credit risk component of the risk-based capital stress test.

(2) You will use Call Report data as the basis for Corporation data over the 10-year stress period supplemented with your interest rate risk measurements and tax data.

(3) You will use other data, including the 10-year Constant Maturity Treasury (CMT) rate and the applicable Internal Revenue Service corporate income tax schedule, as further described in Appendix A to this subpart.

(b) *Credit risk.* The credit risk part estimates loan losses during a period of sustained economic stress.

(1) For each loan in the Farmer Mac I portfolio, you will determine a default probability by using the logit functions specified in Appendix A to this subpart with each of the following variables:

(i) Borrower's debt-to-asset ratio at loan origination;

(ii) Loan-to-value ratio at origination, which is the loan amount divided by the value of the property;

(iii) Debt-service-coverage ratio at origination, which is the borrower's net income (on- and off-farm) plus depreciation, capital lease payments, and interest, less living expenses and income taxes, divided by the total term debt payments;

(iv) The origination loan balance stated in 1997 dollars based on the consumer price index; and,

(v) The worst-case percentage change in farmland values (23.52 percent).

(2) You will then calculate the loss rate by multiplying the default probability for each loan by the estimated loss-severity rate, which is the average loss of the defaulted loans in the data set (20.9 percent).

(3) You will calculate losses by multiplying the loss rate by the origination loan balances stated in 1997 dollars.

(4) You will adjust the losses for loan seasoning, based on the number of years since loan origination, according to the functions in Appendix A to this subpart.

(5) The losses must be applied in the risk-based capital stress test as specified in Appendix A to this subpart.

(c) *Interest rate risk.* (1) During the first year of the stress period, you will adjust interest rates for two scenarios, an increase in rates and a decrease in rates. You must determine your risk-based capital level based on whichever scenario would require more capital.

(2) You will calculate the interest rate stress based on changes to the quarterly average of the 10-year CMT. The starting rate is the 3-month average of the most recent CMT monthly rate series. To calculate the change in the starting rate, determine the average yield of the preceding 12 monthly 10-year CMT rates. Then increase and decrease the starting rate by:

(i) 50 percent of the 12-month average if the average rate is less than 12 percent; or

(ii) 600 basis points if the 12-month average rate is equal to or higher than 12 percent.

(3) Following the first year of the stress period, interest rates remain at the new level for the remainder of the stress period.

(4) You will apply the interest rate changes scenario as indicated in Appendix A to this subpart.

(5) You may use other interest rate indices in addition to the 10-year CMT subject to our concurrence, but in no event can your risk-based capital level be less than that determined by using only the 10-year CMT.

(d) *Cashflow generator.* (1) You must adjust your financial statements based on the credit risk inputs and interest rate risk inputs described above to

generate pro forma financial statements for each year of the 10-year stress test. The cashflow generator produces these financial statements. You may use the cashflow generator spreadsheet that is described in Appendix A to this subpart and available electronically at *http://www.fca.gov.* You may also use any reliable cashflow program that can develop or produce pro forma financial statements using generally accepted accounting principles and widely recognized financial modeling methods, subject to our concurrence. You may disaggregate financial data to any greater degree than that specified in Appendix A to this subpart, subject to our concurrence.

(2) You must use model assumptions to generate financial statements over the 10-year stress period. The major assumption is that cashflows generated by the risk-based capital stress test are based on a steady-state scenario. To implement a steady-state scenario, when on- and off-balance sheet assets and liabilities amortize or are paid down, you must replace them with similar assets and liabilities. Replace amortized assets from discontinued loan programs with current loan programs. In general, keep assets with small balances in constant proportions to key program assets.

(3) You must simulate annual pro forma balance sheets and income statements in the risk-based capital stress test using Farmer Mac's starting position, the credit risk and interest rate risk components, resulting cashflow outputs, current operating strategies and policies, and other inputs as shown in Appendix A to this subpart and the electronic spreadsheet available at *http://www.fca.gov.*

(e) *Calculation of capital requirement.* The calculations that you must use to solve for the starting regulatory capital amount are shown in Appendix A to this subpart and in the electronic spreadsheet available at *http://www.fca.gov.*

§ 652.70 Risk-based capital level.

The risk-based capital level is the sum of the following amounts:

(a) *Credit and interest rate risk.* The amount of risk-based capital determined by the risk-based capital test under § 652.65.

(b) *Management and operations risk.* Thirty (30) percent of the amount of risk-based capital determined by the risk-based capital test in § 652.65.

§ 652.75 Your responsibility for determining the risk-based capital level.

(a) You must determine your risk-based capital level using the procedures in this subpart, Appendix A to this subpart, and any other supplemental instructions provided by us. You will report your determination to us as prescribed in § 652.90. At any time, however, we may determine your risk-based capital level using the procedures in § 652.65 and Appendix A to this subpart, and you must hold risk-based capital in the amount we determine is appropriate.

(b) You must at all times comply with the risk-based capital levels established by the risk-based capital stress test and must be able to determine your risk-based capital level at any time.

(c) If at any time the risk-based capital level you determine is less than the minimum capital requirements set forth in section 8.33 of the Act, you must maintain the statutory minimum capital level.

§ 652.80 When you must determine the risk-based capital level.

(a) You must determine your risk-based capital level at least quarterly, or whenever changing circumstances occur that have a significant effect on capital, such as exposure to a high volume of, or particularly severe, problem loans or a period of rapid growth.

(b) In addition to the requirements of paragraph (a) of this section, we may require you to determine your risk-based capital level at any time.

(c) If you anticipate entering into any new business activity that could have a significant effect on capital, you must determine a pro forma risk-based capital level, which must include the new business activity, and report this pro forma determination to the Director, Office of Secondary Market Oversight, at least 10-business days prior to implementation of the new business program.

§ 652.85 When to report the risk-based capital level.

(a) You must file a risk-based capital report with us each time you determine your risk-based capital level as required by § 652.80.

(b) You must also report to us at once if you identify in the interim between quarterly or more frequent reports to us that you are not in compliance with the risk-based capital level required by § 652.70.

(c) If you make any changes to the data used to calculate your risk-based capital requirement that cause a material adjustment to the risk-based capital level you reported to us, you must file an amended risk-based capital report with us within 5-business days after the date of such changes;

(d) You must submit your quarterly risk-based capital report for the last day of the preceding quarter not later than the last business day of April, July, October, and January of each year.

§ 652.90 How to report your risk-based capital determination.

(a) Your risk-based capital report must contain at least the following information:

(1) All data integral for determining the risk-based capital level, including any business policy decisions or other assumptions made in implementing the risk-based capital test;

(2) Other information necessary to determine compliance with the procedures for determining risk-based capital as specified in Appendix A to this subpart; and

(3) Any other information we may require in written instructions to you.

(b) You must submit each risk-based capital report in such format or medium, as we require.

§ 652.95 Failure to meet capital requirements.

(a) *Determination and notice.* At any time, we may determine that you are not meeting your risk-based capital level calculated according to § 652.65, your minimum capital requirements specified in section 8.33 of the Act, or your critical capital requirements specified in section 8.34 of the Act. We will notify you in writing of this fact and the date by which you should be in compliance (if applicable).

(b) *Submission of capital restoration plan.* Our determination that you are not meeting your required capital levels may require you to develop and submit to us, within a specified time period, an acceptable plan to reach the appropriate capital level(s) by the date required.

§ 652.100 Audit of the risk-based capital stress test.

You must have a qualified, independent external auditor review your implementation of the risk-based capital stress test every 3 years and submit a copy of the auditor's opinion to us.

Appendix A—Subpart B of Part 652—Risk-Based Capital Stress Test

1.0 Introduction

a. Appendix A provides details about the risk-based capital stress test (stress test) for Farmer Mac. The stress test calculates the risk-based capital level required by statute under stipulated conditions of credit risk and interest rate risk. The stress test uses loan-level data from Farmer Mac's agricultural mortgage portfolio or proxy data as described in section 4.1 d.(3) below, as well as quarterly Call Report and related information to generate pro forma financial statements and calculate a risk-based capital requirement. The stress test also uses historic agricultural real estate mortgage performance data, relevant economic variables, and other inputs in its calculations of Farmer Mac's capital needs over a 10-year period.

b. Appendix A establishes the requirements for all components of the stress test. The key components of the stress test are: Specifications of credit risk, interest rate risk, the cashflow generator, and the capital calculation. Linkages among the components ensure that the measures of credit and interest rate risk pass into the cashflow generator. The linkages also transfer cashflows through the financial statements to represent values of assets, liabilities, and equity capital. The 10-year projection is designed to reflect a steady state in the scope and composition of Farmer Mac's assets.

2.0 Credit Risk

Loan loss rates are determined by applying loss-frequency and loss-severity equations to Farmer Mac loan-level data. From these equations, you must calculate loan losses under stressful economic conditions assuming Farmer Mac's portfolio remains at a ''steady state.'' Steady state assumes the underlying characteristics and risks of Farmer Mac's portfolio remain constant over the 10 years of the stress test. Loss rates are computed from estimated dollar losses for use in the stress test. The loan volume subject to loss throughout the stress test is then multiplied by the loss rate. Lastly, the stress test allocates losses to each of the 10 years assuming a time pattern for loss occurrence as discussed in section 4.3, ''Risk Measures.''

2.1 Loss-Frequency and Loss-Severity Models

a. Credit risks are modeled in the stress test using historical time series loan-level data to measure the frequency and severity of losses on agricultural mortgage loans. The model relates loss frequency and severity to loan-level characteristics and economic conditions through appropriately specified regression equations to account explicitly for the effects of these characteristics on loan losses. Loan losses for Farmer Mac are estimated from the resulting loss-frequency equation combined with the loss-severity factor by substituting the respective values of Farmer Mac's loan-level data or proxy data as described in section 4.1 d.(3) below, and applying stressful economic inputs.

b. The loss-frequency equation and loss-severity factor were estimated from historical agricultural real estate mortgage loan data from the Farm Credit Bank of Texas (FCBT). Due to Farmer Mac's relatively short history, its own loan-level data are insufficiently developed for use in estimating the default frequency equation and loss-severity factor. In the future, however, expansions in both the scope and historic length of Farmer Mac's lending operations may support the use of its data in estimating the relationships.

c. To estimate the equations, the data used included FCBT loans, which satisfied three of the four underwriting standards Farmer Mac currently uses (estimation data). The four standards specify: (1) The debt-to-assets ratio (D/A) must be less than 0.50, (2) the loan-to-value ratio (LTV) must be less than 0.70, (3) the debt-service-coverage ratio (DSCR) must exceed 1.25, (4) and the current ratio (current assets divided by current liabilities) must exceed 1.0. Furthermore, the D/A and LTV ratios were restricted to be less than or equal to 0.85.

d. Several limitations in the FCBT loan-level data affect construction of the loss-frequency equation. The data contained loans that were originated between 1979 and 1992, but there were virtually no losses during the early years of the sample period. As a result, losses attributable to specific loans are only available from 1986 through 1992. In addition, no prepayment information was available in the data.

e. The FCBT data used for estimation also included as performing loans, those loans that were re-amortized, paid in full, or merged with a new loan. Including these loans may lead to an understatement of loss-frequency probabilities if some of the re-amortized, paid, or merged loans experience default or incur losses. In contrast, when the loans that are re-amortized, paid in full, or merged are excluded from the analysis, the loss-frequency rates are overstated if a higher proportion of loans that are re-amortized, paid in full, or combined (merged) into a new loan are non-default loans compared to live loans.[1]

f. The structure of the historical FCBT data supports estimation of loss frequency based on origination information and economic conditions. Under an origination year approach, each observation is used only once in estimating loan default. The underwriting variables at origination and economic factors occurring over the life of the loan are then used to estimate loan-loss frequency.

g. The final loss-frequency equation is based on origination year data and represents a lifetime loss-frequency model. The final equation for loss frequency is:

$$p = 1/(1+\exp(-(BX))$$

Where:

$$BX = (-12.62738) + 1.91259 \cdot X_1 + (-0.33830) \cdot X_2 / (1 + 0.0413299)^{Periods} + (-0.19596) \cdot X_3 + 4.55390 \cdot (1-\exp((-0.00538178) \cdot X_4) + 2.49482 \cdot X_5$$

Where:

- p is the probability that a loan defaults and has positive losses (Pr (Y=1 | x));
- X_1 is the LTV ratio at loan origination raised to the power 5.3914596; [2]
- X_2 is the largest annual percentage decline in FCBT farmland values during the life of the loan dampened with a factor of 0.0413299 per year; [3]
- X_3 is the DSCR at loan origination;
- X_4 is 1 minus the exponential of the product of negative 0.00538178 and the original loan balance in 1997 dollars expressed in thousands; and
- X_5 is the D/A ratio at loan origination.

h. The estimated logit coefficients and p-values are: [4]

[1] Excluding loans with defaults, 11,527 loans were active and 7,515 loans were paid in full, re-amortized or merged as of 1992. A t-test[2] of the differences in the means for the group of defaulted loans and active loans indicated that active loans had significantly higher D/A and LTV ratios, and lower current ratios than defaulted loans where loss occurred. These results indicate that, on average, active loans have potentially higher risk than loans that were re-amortized, paid in full, or merged.

[2] Loss probability is likely to be more sensitive to changes in LTV at higher values of LTV. The power function provides a continuous relationship between LTV and defaults.

[3] The dampening function reflects the declining effect that the maximum land value decline has on the probability of default when it occurs later in a loan's life.

[4] The nonlinear parameters for the variable transformations were simultaneously estimated using SAS version 8e NLIN procedure. The NLIN procedure produces estimates of the parameters of a nonlinear transformation for LTV, dampening factor, and loan-size variables. To implement the NLIN procedure, the loss-frequency equation and its variables are declared and initial parameter values supplied. The NLIN procedure is an iterative process that uses the initial parameter values as the starting values for the first iteration and continues to iterate until acceptable parameters are solved. The initial values for the power function and dampening function are based on the proposed rule. The procedure for the initial values for the size variable parameter is provided in an Excel spreadsheet posted at *http://www.fca.gov.* The Gauss-Newton method is the selected iterative solving process. As described in the preamble, the loss-frequency function for the nonlinear model is the negative of the log-likelihood function, thus producing maximum likelihood estimates. In order to obtain statistical properties for the loss-frequency equation and verify the logistic coefficients, the estimates for the nonlinear transformations are applied to the FCBT data and the loss-frequency model is re-estimated using the SAS Logistic procedure. The SAS procedures, output reports and Excel spreadsheet used to estimate the parameters of the loss-frequency equation are located on the Web site *http://www.fca.gov.*

	Coefficients	p-value
Intercept	−12.62738	<0.0001
X_1: LTV variable	1.91259	0.0001
X_2: Max land value decline variable	0.33830	<0.0001
X_3: DSCR	−0.19596	0.0002
X_4: Loan size variable	4.55390	<0.0001
X_5: D/A ratio	2.49482	<0.0000

i. The low p-values on each coefficient indicate a highly significant relationship between the probability ratio of loan-loss frequency and the respective independent variables. Other goodness-of-fit indicators are:

Hosmer and Lemeshow goodness-of-fit p-value	0.1718
Max-rescaled R^2	0.2015
Concordant	85.2%
Disconcordant	12.0%
Tied	2.8%

j. These variables have logical relationships to the incidence of loan default and loss, as evidenced by the findings of numerous credit-scoring studies in agricultural finance.[5] Each of the variable coefficients has directional relationships that appropriately capture credit risk from underwriting variables and, therefore, the incidence of loan-loss frequency. The frequency of loan loss was found to differ significantly across all of the loan characteristics and lending conditions. Farmland values represent an appropriate variable for capturing the effects of exogenous economic factors. It is commonly accepted that farmland values at any point in time reflect the discounted present value of expected returns to the land.[6] Thus, changes in land values, as expressed in the loss-frequency equation, represent the combined effects of the level and growth rates of farm income, interest rates, and inflationary expectations—each of which is accounted for in the discounted, present value process.

k. When applying the equation to Farmer Mac's portfolio, you must get the input values for X_1, X_3, X_4, and X_5 for each loan in Farmer Mac's portfolio on the date at which the stress test is conducted, using either submitted data or proxy data as described in section 4.1 d.(3) below. For the variable X_2, the stressful input value from the benchmark loss experience is −23.52 percent. You must apply this input to all Farmer Mac loans subject to loss to calculate loss frequency under stressful economic conditions.[7] The maximum land value decline from the benchmark loss experience is the simple average of annual land value changes for Iowa, Illinois, and Minnesota for the years 1984 and 1985.[8]

l. Forecasting with data outside the range of the estimation data requires special treatment for implementation. While the estimation data embody Farmer Mac values for various loan characteristics, the maximum farmland price decline experienced in Texas was −16.69 percent, a value below the benchmark experience of −23.52 percent. To control for this effect, you must apply a procedure that restricts the slope of all the independent variables to that observed at the maximum land value decline observed in the estimation data. Essentially, you must approximate the slope of the loss-frequency equation at the point −16.69 percent in order to adjust the probability of loan default and loss occurrence for data beyond the range in the estimating data. The adjustment procedure is shown in step 4 of section 2.3 entitled, ''Example Calculation of Dollar Loss on One Loan.''

m. Loss severity was not found to vary systematically and was considered constant across the tested loan characteristics and lending conditions. Thus, the simple weighted average by loss volume of 20.9 percent is used in the stress test.[9] You must multiply loss severity with the probability estimate computed from the loss-frequency equation to determine the loss rate for a loan.

n. Using original loan balance results in estimated probabilities of loss frequency over the entire life of a loan. To account for loan seasoning, you must reduce the loan-loss exposure by the cumulative probability of loss already experienced by each loan as discussed in section 2.2 entitled, ''Loan-Seasoning Adjustment.'' This subtraction is based on loan age and reduces the loss estimated by the loss-frequency and loss-severity equations. The result is an age-adjusted lifetime dollar loss that can be used in subsequent calculations of loss rates as discussed in section 2.4, ''Calculation of Loss Rates for Use in the Stress Test.''

2.2 Loan-Seasoning Adjustment

a. You must use the seasoning function supplied by FCA to adjust the calculated probability of loss for each Farmer Mac loan for the cumulative loss exposure already experienced based on the age of each loan. The seasoning function is based on the same data used to determine the loss-frequency equation and an assumed average life of 14 years for agricultural mortgages. If we determine that the relationship between the loss experience in Farmer Mac's portfolio over time and the seasoning function can be improved, we may augment or replace the seasoning function.

b. The seasoning function is parameterized as a beta distribution with parameters of p = 4.288 and q = 5.3185.[10] How the loan-seasoning distribution is used is shown in Step 7 of section 2.3, ''Example Calculation of Dollar Loss on One Loan.''

2.3 Example Calculation of Dollar Loss on One Loan

Here is an example of the calculation of the dollar losses for an individual loan with the following characteristics and input values:[11]

Loan Origination Year	1996
Loan Origination Balance	$1,250,000
LTV at Origination	0.5
D/A at Origination	0.5
DSCR at Origination	1.3984
Maximum Percentage Land Price Decline (MAX)	−23.52

Step 1: Convert 1996 Origination Value to 1997 dollar value (LOAN) based on the consumer price index and transform as follows:

$\$1,278,500 = \$1,250,000 \cdot 1.0228$

$0.998972 = 1 - \exp((-.00538178) \cdot \$1,278,500 / 1000)$

Step 2: Calculate the default probabilities using −16.64 percent and −16.74 percent land value declines as follows:[12]

Where:

$Z_1 = (-12.62738) + 1.91259 \cdot LTV^{5.3914596} - 0.33830 \cdot (-16.6439443) - 0.19596 \cdot DSCR + 4.55390 \cdot 0.998972 + 2.49482 \cdot DA = (-1.428509)$

Default Loss Frequency at (−16.64%) =

$1 / 1 + \exp^{-(-1.428509)} = 0.19333111$

And

$Z_1 = (-12.62738) + 1.91259 \cdot LTV^{5.3914596} - 0.33830 \cdot (-16.7439443) - 0.19596 \cdot DSCR + 4.55390 \cdot 0.998972 + 2.49482 \cdot DA = (-1.394679)$

Loss Frequency Probability at (−16.74%) =

$1 / 1 + \exp^{-(-1.394679)} = 0.19866189$

[5] Splett, N.S., P. J. Barry, B. Dixon, and P. Ellinger. ''A Joint Experience and Statistical Approach to Credit Scoring,'' *Agricultural Finance Review*, 54(1994):39–54.

[6] Barry, P. J., P. N. Ellinger, J. A. Hopkin, and C. B. Baker. *Financial Management in Agriculture*, 5th ed., Interstate Publishers, 1995.

[7] On- and off-balance sheet Farmer Mac I agricultural mortgage program assets booked after the 1996 Act amendments are subject to the loss calculation.

[8] While the worst-case losses, based on origination year, occurred during 1983 and 1984, this benchmark was determined using annual land value changes that occurred 2 years later.

[9] We calculated the weighted-average loss severity from the estimation data.

[10] We estimated the loan-seasoning distribution from portfolio aggregate charge-off rates from the estimation data. To do so, we arrayed all defaulting loans where loss occurred according to the time from origination to default. Then, a beta distribution, β(p, q), was fit to the estimation data scaled to the maximum time a loan survived (14 years).

[11] In the examples presented we rounded the numbers, but the example calculation is based on a larger number of significant digits. The stress test uses additional digits carried at the default precision of the software.

[12] This process facilitates the approximation of slope needed to adjust the loss probabilities for land value declines greater than observed in the estimation data.

Step 3: Calculate the slope adjustment. You must calculate slope by subtracting the difference between ''Loss-Frequency Probability at −16.64 percent'' and ''Loss-Frequency Probability at −16.74 percent'' and dividing by −0.1 (the difference between −16.64 percent and −16.74 percent) as follows:

0.05330776 = (0.19333111 − 0.19866189) / −0.1

Step 4: Make the linear adjustment. You make the adjustment by increasing the loss-frequency probability where the dampened stressed farmland value input is less than −16.69 percent to reflect the stressed farmland value input, appropriately discounted. As discussed previously, the stressed land value input is discounted to reflect the declining effect that the maximum land value decline has on the probability of default when it occurs later in a loan's life.[13] The linear adjustment is the difference between −16.69 percent land value decline and the adjusted stressed maximum land value decline input of −23.52 multiplied by the slope estimated in Step 3 as follows:

Loss Frequency at −16.69 percent =
$Z_1 = (-12.62738) + (1.91259)(LTV^{5.3914596}) - (0.33830)(-16.6939443) - (0.19596)(DSCR) + (4.55390)(0.998972) + (2.49482)(DA) = -1.411594$
And
$1 / 1 + \exp^{-(-1.411594)} = 0.19598279$
Dampened Maximum Land Price Decline = (−20.00248544) = (−23.52)(0.0413299)$^{-4}$
Slope Adjustment = 0.17637092 = 0.053312247 · (−16.6939443 − (−20.00248544))
Loan Default Probability = 0.37235371 = 0.19598279 + 0.17637092

Step 5: Multiply loan default probability times the average severity of 0.209 as follows:
0.077821926 = 0.37235371 · 0.209

Step 6: Multiply the loss rate times the origination loan balance as follows:

$97,277 = $1,250,000 · 0.077821926

Step 7: Adjust the origination based dollar losses for 4 years of loan seasoning as follows:

$81,987 = $97,277 − $97,277 · (0.157178762) [14]

2.4 Calculation of Loss Rates for Use in the Stress Test

a. You must compute the loss rates by state as the dollar weighted average seasoned loss rates from the Cash Window and Standby loan portfolios by state. The spreadsheet entitled, ''Credit Loss Module.XLS'' can be used for these calculations. This spreadsheet is available for download on our Web site, *www.fca.gov*, or will be provided upon request. The blended loss rates for each state are copied from the ''Credit Loss Module'' to the stress test spreadsheet for determining Farmer Mac's regulatory capital requirement.

b. The stress test use of the blended loss rates is further discussed in section 4.3, ''Risk Measures.''

3.0 Interest Rate Risk

The stress test explicitly accounts for Farmer Mac's vulnerability to interest rate risk from the movement in interest rates specified in the statute. The stress test considers Farmer Mac's interest rate risk position through the current structure of its balance sheet, reported interest rate risk shock-test results,[15] and other financial activities. The stress test calculates the effect of interest rate risk exposure through market value changes of interest-bearing assets, liabilities, and off-balance sheet transactions, and thereby the effects to equity capital. The stress test also captures this exposure through the cashflows on rate-sensitive assets and liabilities. We discuss how to calculate the dollar impact of interest rate risk in section 4.6, ''Balance Sheets.''

3.1 Process for Calculating the Interest Rate Movement

a. The stress test uses the 10-year Constant Maturity Treasury (10-year CMT) released by the Federal Reserve in HR. 15, ''Selected Interest Rates.'' The stress test uses the 10-year CMT to generate earnings yields on assets, expense rates on liabilities, and changes in the market value of assets and liabilities. For stress test purposes, the starting rate for the 10-year CMT is the 3-month average of the most recent monthly rate series published by the Federal Reserve. The 3-month average is calculated by summing the latest monthly series of the 10-year CMT and dividing by three. For instance, you would calculate the initial rate on June 30, 1999, as:

Month end	10-year CMT monthly series
04/1999	5.18
05/1999	5.54
06/1999	5.90
Average	5.54

b. The amount by which the stress test shocks the initial rate up and down is determined by calculating the 12-month average of the 10-year CMT monthly series. If the resulting average is less than 12 percent, the stress test shocks the initial rate by an amount determined by multiplying the 12-month average rate by 50 percent. However, if the average is greater than or equal to 12 percent, the stress test shocks the initial rate by 600 basis points. For example, determine the amount by which to increase and decrease the initial rate for June 30, 1999, as follows:

Month end	10-year CMT monthly series
07/1998	5.46
08/1998	5.34
09/1998	4.81
10/1998	4.53
11/1998	4.83
12/1998	4.65
01/1999	4.72
02/1999	5.00
03/1999	5.23
04/1999	5.18
05/1999	5.54
06/1999	5.90
12-Month Average	5.10

Calculation of shock amount	
12-Month Average Less than 12%	Yes.
12-Month Average	5.10.
Multiply the 12-Month Average by	50%.
Shock in basis points equals	255.

c. You must run the stress test for two separate changes in interest rates: (i) An immediate increase in the initial rate by the shock amount; and (ii) immediate decrease in the initial rate by the shock amount. The stress test then holds the changed interest rate constant for the remainder of the 10-year stress period. For example, at June 30, 1999, the stress test would be run for an immediate and sustained (for 10 years) upward movement in interest rates to 8.09 percent (5.54 percent plus 255 basis points) and also for an immediate and sustained (for 10 years) downward movement in interest rates to 2.99 percent (5.54 percent minus 255 basis points). The movement in interest rates that results in the greatest need for capital is then used to determine Farmer Mac's risk-based capital requirement.

4.0 Elements Used in Generating Cashflows

a. This section describes the elements that are required for implementation of the stress test and assessment of Farmer Mac capital performance through time. An Excel spreadsheet named FAMC RBCST, available at *http://www.fca.gov*, contains the stress test, including the cashflow generator. The spreadsheet contains the following seven worksheets:

(1) Data Input;
(2) Assumptions and Relationships;
(3) Risk Measures (credit risk and interest rate risk);
(4) Loan and Cash Flow Accounts;
(5) Income Statements;
(6) Balance Sheets; and
(7) Capital.

b. Each of the components is described in further detail below with references where appropriate to the specific worksheets within the Excel spreadsheet. The stress test may be generally described as a set of linked financial statements that evolve over a period of 10 years using generally accepted accounting conventions and specified sets of stressed inputs. The stress test uses the initial financial condition of Farmer Mac, including earnings and funding relationships, and the credit and interest rate stressed inputs to calculate Farmer Mac's capital performance

[13] The dampened period is the number of years from the beginning of the origination year to the current year (i.e., January 1, 1996 to January 1, 2000 is 4 years).

[14] The age of adjustment of 0.157178762 is determined from the beta distribution for a 4-year-old loan.

[15] See paragraph c. of section 4.1 entitled, ''Data Inputs,'' for a description of the interest rate risk shock-reporting requirement.

through time. The stress test then subjects the initial financial conditions to the first period set of credit and interest rate risk stresses, generates cashflows by asset and liability category, performs necessary accounting postings into relevant accounts, and generates an income statement associated with the first interval of time. The stress test then uses the income statement to update the balance sheet for the end of period 1 (beginning of period 2). All necessary capital calculations for that point in time are then performed.

c. The beginning of the period 2 balance sheet then serves as the departure point for the second income cycle. The second period's cashflows and resulting income statement are generated in similar fashion as the first period's except all inputs (*i.e.*, the periodic loan losses, portfolio balance by category, and liability balances) are updated appropriately to reflect conditions at that point in time. The process evolves forward for a period of 10 years with each pair of balance sheets linked by an intervening set of cashflow and income statements. In this and the following sections, additional details are provided about the specification of the income-generating model to be used by Farmer Mac in calculating the risk-based capital requirement.

4.1 Data Inputs

The stress test requires the initial financial statement conditions and income generating relationships for Farmer Mac. The worksheet named ''Data Inputs'' contains the complete data inputs and the data form used in the stress test. The stress test uses these data and various assumptions to calculate pro forma financial statements. For stress test purposes, Farmer Mac is required to supply:

a. *Call Report Schedules RC: Balance Sheet and RI: Income Statement.* These schedules form the starting financial position for the stress test. In addition, the stress test calculates basic financial relationships and assumptions used in generating pro forma annual financial statements over the 10-year stress period. Financial relationships and assumptions are in section 4.2, ''Assumptions and Relationships.''

b. *Cashflow Data for Asset and Liability Account Categories.* The necessary cashflow data for the spreadsheet-based stress test are book value, weighted average yield, weighted average maturity, conditional prepayment rate, weighted average amortization, and weighted average guarantee fees. The spreadsheet uses this cashflow information to generate starting and ending account balances, interest earnings, guarantee fees, and interest expense. Each asset and liability account category identified in this data requirement is discussed in section 4.2, ''Assumptions and Relationships.''

c. *Interest Rate Risk Measurement Results.* The stress test uses the results from Farmer Mac's interest rate risk model to represent changes in the market value of assets, liabilities, and off-balance sheet positions during upward and downward instantaneous shocks in interest rates of 300, 250, 200, 150, and 100 basis points. The stress test uses these data to calculate a schedule of estimated effective durations representing the market value effects from a change in interest rates. The stress test uses a linear interpolation of the duration schedule to relate a change in interest rates to a change in the market value of equity. This calculation is described in section 4.4 entitled, ''Loan and Cashflow Accounts,'' and is illustrated in the referenced worksheet of the stress test.

d. *Loan-Level Data for all Farmer Mac I Program Assets.*

(1) The stress test requires loan-level data for all Farmer Mac I program assets to determine lifetime age-adjusted loss rates. The specific loan data fields required for running the credit risk component are:

Farmer Mac I Program Loan Data Fields

Loan Number
Ending Scheduled Balance
Group
Pre/Post Act
Property State
Product Type
Origination Date
Loan Cutoff Date
Original Loan Balance
Original Scheduled P&I
Original Appraised Value
Loan-to-Value Ratio
Debt-to-Assets Ratio
Current Assets
Current Liabilities
Total Assets
Total Liabilities
Gross Farm Revenue
Net Farm Income
Depreciation
Interest on Capital Debt
Capital Lease Payments
Living Expenses
Income & FICA Taxes
Net Off-Farm Income
Total Debt Service
Guarantee/Commitment Fee
Seasoned Loan Flag

(2) From the loan-level data, you must identify the geographic distribution by state of Farmer Mac's loan portfolio and enter the current loan balance for each state in the ''Data Inputs'' worksheet. The lifetime age-adjustment of origination year loss rates was discussed in section 2.0, ''Credit Risk.'' The lifetime age-adjusted loss rates are entered in the ''Risk Measures'' worksheet of the stress test. The stress test application of the loss rates is discussed in section 4.3, ''Risk Measures.''

(3) Under certain circumstances, described below, you must substitute the following data proxies for the variables LTV, DSCR, and D/A: LTV = 0.70, DSCR = 1.25, and D/A = 0.50. The substitution must be done whenever any of these data are missing, i.e., cells are blank, or one or more of the conditions in the following table is true.

Condition	Apply
1. Total Assets = 0	Proxy D/A.
2. Total Liabilities = 0	Proxy D/A.
3. Total assets less total liabilities <0	Proxy D/A.
4. Total debt service = 0 or not calculable	Proxy DSCR.
5. Net farm income = 0	Proxy DSCR.
6. LTV ratio = 0	Proxy LTV.
7. Total assets less than original appraised value	Proxy LTV, D/A.
8. Total liabilities less than the original loan amount	Proxy D/A.
9. Total debt service is less than original scheduled principal and interest payment	Proxy DSCR.
10. Depreciation, interest on capital debt, capital lease payments, or living expenses are reported as less than zero.	Proxy DSCR.
11. Original Scheduled Principal and Interest is greater than Total Debt Service	Proxy DSCR.
12. Calculated LTV (original loan amount divided by original appraised value) does not equal the submitted LTV ratio.	The greater of the two LTV ratios.
13. Any of the fields referenced in ''1.'' through ''12.'' above are blank or contain spaces, periods, zeros, negative amounts, or fonts formatted to any setting other than numbers.	Proxy all related ratios.

In addition, the following loan data adjustments must be made in response to the situations listed below:

Situation	Data adjustment
Original loan balance is less than scheduled loan balance	Substitute scheduled balance for origination.
Purchase (commitment) date (a.k.a. ''cutoff'' date) field and Origination date field are both blank.	Insert the quarter end ''as of'' date of the RBCST submission.
Origination date field is blank	Model based on Cutoff date.
Seasoned Standby loans that include loan data	Proxy data applied.*

* Application of proxy data recognizes that underwriting data on seasoned Standby loans are not reviewed by Farmer Mac in favor of other criteria and frequently not origination data.

Further, because it would not be possible to compile an exhaustive list of loan data anomalies, FCA reserves the authority to require an explanation on other data anomalies it identifies and to apply the loan data proxies on such cases until the anomaly is adequately addressed by the Corporation.

e. *Other Data Requirements.* Other data elements are taxes paid over the previous 2 years, the corporate tax schedule, selected line items from Schedule RS–C of the Call Report, and 10-year CMT information as discussed in section 3.1 entitled, ''Process for Calculating the Interest Rate Movement.'' The stress test uses the corporate tax schedule and previous taxes paid to determine the appropriate amount of taxes, including available loss carry-backs and loss carry-forwards. Three line items found in sections Part II.2.a. and 2.b. of Call Report Schedule RS–C Capital Calculation must also be entered in the ''Data Inputs'' sheet. The two line items found in Part II.2.a. contain the dollar volume off-balance sheet assets relating to the Farmer Mac I and II programs. The off-balance sheet program asset dollar volumes are used to calculate the operating expense regression on a quarterly basis. The single-line item found in Part II.2.b. provides the amount of other off-balance sheet obligations and is presented in the balance sheet section of the stress test for purposes of completeness. The 10-year CMT quarterly average of the monthly series and the 12-month average of the monthly series must be entered in the ''Data Inputs'' sheet. These two data elements are used to determine the starting interest rate and the level of the interest rate shock applied in the stress test.

4.2 Assumptions and Relationships

a. The stress test assumptions are summarized on the worksheet called ''Assumptions and Relationships.'' Some of the entries on this page are direct user entries. Other entries are relationships generated from data supplied by Farmer Mac or other sources as discussed in section 4.1, ''Data Inputs.'' After current financial data are entered, the user selects the date for running the stress test. This action causes the stress test to identify and select the appropriate data from the ''Data Inputs'' worksheet. The next section highlights the degree of disaggregation needed to maintain reasonably representative financial characterizations of Farmer Mac in the stress test. Several specific assumptions are established about the future relationships of account balances and how they evolve.

b. From the data and assumptions, the stress test computes pro forma financial statements for 10 years. The stress test must be run as a ''steady state'' with regard to program balances, and where possible, will use information gleaned from recent financial statements and other data supplied by Farmer Mac to establish earnings and cost relationships on major program assets that are applied forward in time. As documented in the stress test, entries of ''1'' imply no growth and/or no change in account balances or proportions relative to initial conditions with the exception of pre-1996 loan volume being transferred to post-1996 loan volume. The interest rate risk and credit loss components are applied to the stress test through time. The individual sections of that worksheet are:

(1) *Elements related to cashflows, earnings rates, and disposition of discontinued program assets.*

(A) The stress test accounts for earnings rates by asset class and cost rates on funding. The stress test aggregates investments into the categories of: Cash and money market securities; commercial paper; certificates of deposit; agency mortgage-backed securities and collateralized mortgage obligations; and other investments. With FCA's concurrence, Farmer Mac is permitted to further disaggregate these categories. Similarly, we may require new categories for future activities to be added to the stress test. Loan items requiring separate accounts include the following:

(i) Farmer Mac I program assets post-1996 Act;

(ii) Farmer Mac I program assets post-1996 Act Swap balances;

(iii) Farmer Mac I program assets pre-1996 Act;

(iv) Farmer Mac I AgVantage securities;

(v) Loans held for securitization; and

(vi) Farmer Mac II program assets.

(B) The stress test also uses data elements related to amortization and prepayment experience to calculate and process the implied rates at which asset and liability balances terminate or ''roll off'' through time. Further, for each category, the stress test has the capacity to track account balances that are expected to change through time for each of the above categories. For purposes of the stress test, all assets are assumed to maintain a ''steady state'' with the implication that any principal balances retired or prepaid are replaced with new balances. The exceptions are that expiring pre-1996 Act program assets are replaced with post-1996 Act program assets.

(2) *Elements related to other balance sheet assumptions through time.* As well as interest earning assets, the other categories of the balance sheet that are modeled through time include interest receivable, guarantee fees receivable, prepaid expenses, accrued interest payable, accounts payable, accrued expenses, reserves for losses (loans held and guaranteed securities), and other off-balance sheet obligations. The stress test is consistent with Farmer Mac's existing reporting categories and practices. If reporting practices change substantially, the above list will be adjusted accordingly. The stress test has the capacity to have the balances in each of these accounts determined based upon existing relationships to other earning accounts, to keep their balances either in constant proportions of loan or security accounts, or to evolve according to a user-selected rule. For purposes of the stress test, these accounts are to remain constant relative to the proportions of their associated balance sheet accounts that generated the accrued balances.

(3) *Elements related to income and expense assumptions.* Several other parameters that are required to generate pro forma financial statements may not be easily captured from historic data or may have characteristics that suggest that they be individually supplied. These parameters are the gain on agricultural mortgage-backed securities (AMBS) sales, miscellaneous income, operating expenses, reserve requirement, and guarantee fees.

(A) The stress test applies the actual weighted average gain rate on sales of AMBS over the most recent 3 years to the dollar amount of AMBS sold during the most recent four quarters in order to estimate gain on sale of AMBS over the stress period.

(B) The stress test assumes miscellaneous income at a level equal to the average of the most recent 3-year's actual miscellaneous income as a percent of the sum of; cash, investments, guaranteed securities, and loans held for investment.

(C) Operating costs are determined in the model using weighted moving average of operating expenses as a percentage of the sum of on-balance sheet assets and off-balance sheet program activities over the previous four quarters inclusive of the current submission date. The share will then be applied forward to the balances of the same categories throughout the 10-year period of the RBCST model. As additional data accumulate, the specification will be re-examined and modified if we deem changing the specification results in a more appropriate representation of operating expenses.

(D) The reserve requirement as a fraction of loan assets can also be specified. However, the stress test is run with the reserve requirement set to zero. Setting the parameter to zero causes the stress test to calculate a risk-based capital level that is comparable to regulatory capital, which includes reserves. Thus, the risk-based capital requirement contains the regulatory capital required, including reserves. The amount of total capital that is allocated to the reserve account

is determined by GAAP. The stress test applies quarterly updates of the weighted average guarantee rates for post-1996 Farmer Mac I assets, pre-1996 Farmer Mac I assets, and Farmer Mac II assets.

(4) *Elements related to earnings rates and funding costs.*

(A) The stress test can accommodate numerous specifications of earnings and funding costs. In general, both relationships are tied to the 10-year CMT interest rate. Specifically, each investment account, each loan item, and each liability account can be specified as fixed rate, or fixed spread to the 10-year CMT with initial rates determined by actual data. The stress test calculates specific spreads (weighted average yield less initial 10-year CMT) by category from the weighted average yield data supplied by Farmer Mac as described earlier. For example, the fixed spread for Farmer Mac I program post-1996 Act mortgages is calculated as follows:

Fixed Spread = Weighted Average Yield less 10-year CMT 0.014 = 0.0694—0.0554

(B) The resulting fixed spread of 1.40 percent is then added to the 10-year CMT when it is shocked to determine the new yield. For instance, if the 10-year CMT is shocked upward by 300 basis points, the yield on Farmer Mac I program post-1996 Act loans would change as follows:

Yield = Fixed Spread + 10-year CMT .0994 = .014 + .0854

(C) The adjusted yield is then used for income calculations when generating pro forma financial statements. All fixed-spread asset and liability classes are computed in an identical manner using starting yields provided as data inputs from Farmer Mac. The fixed-yield option holds the starting yield data constant for the entire 10-year stress test period. You must run the stress test using the fixed-spread option for all accounts except for discontinued program activities, such as Farmer Mac I program loans made before the 1996 Act. For discontinued loans, the fixed-rate specification must be used if the loans are primarily fixed-rate mortgages.

(5) *Elements related to interest rate shock test.* As described earlier, the interest rate shock test is implemented as a single set of forward interest rates. The stress test applies the up-rate scenario and down-rate scenario separately. The stress test also uses the results of Farmer Mac's shock test, as described in paragraph c. of section 4.1, ''Data Inputs,'' to calculate the impact on equity from a stressful change in interest rates as discussed in section 3.0 titled, ''Interest Rate Risk.'' The stress test uses a schedule relating a change in interest rates to a change in the market value of equity. For instance, if interest rates are shocked upward so that the percentage change is 262 basis points, the linearly interpolated effective estimated duration of equity is −6.7405 years given Farmer Mac's interest rate measurement results at 250 and 300 basis points of −6.7316 and 76.7688 years, respectively found on the effective duration schedule. The stress test uses the linearly interpolated estimated effective duration for equity to calculate the market value change by multiplying duration by the base value of equity before any rate change from Farmer Mac's interest rate risk measurement results with the percentage change in interest rates.

4.3 Risk Measures

a. This section describes the elements of the stress test in the worksheet named ''Risk Measures'' that reflect the interest rate shock and credit loss requirements of the stress test.

b. As described in section 3.1, the stress test applies the statutory interest rate shock to the initial 10-year CMT rate. It then generates a series of fixed annual interest rates for the 10-year stress period that serve as indices for earnings yields and cost of funds rates used in the stress test. (See the ''Risk Measures'' worksheet for the resulting interest rate series used in the stress test.)

c. The Credit Loss Module's state-level loss rates, as described in section 2.4 entitled, ''Calculation of Loss Rates for Use in the Stress Test,'' are entered into the ''Risk Measures'' worksheet and applied to the loan balances that exist in each state. The distribution of loan balances by state is used to allocate new loans that replace loan products that roll off the balance sheet through time. The loss rates are applied both to the initial volume and to new loan volume that replaces expiring loans. The total life of loan losses that are expected at origination are then allocated through time based on a set of user entries describing the time-path of losses.

d. The loss rates estimated in the credit risk component of the stress test are based on an origination year concept, adjusted for loan seasoning. All losses arising from loans originated in a particular year are expressed as lifetime age-adjusted losses irrespective of when the losses actually occur. The fraction of the origination year loss rates that must be used to allocate losses through time are 43 percent to year 1, 17 percent to year 2, 11.66 percent to year 3, and 4.03 percent for the remaining years. The total allocated losses in any year are expressed as a percent of loan volume in that year to reflect the conversion to exposure year.

4.4 Loan and Cashflow Accounts

The worksheet labeled ''Loan and Cashflow Data'' contains the categorized loan data and cashflow accounting relationships that are used in the stress test to generate projections of Farmer Mac's performance and condition. As can be seen in the worksheet, the steady-state formulation results in account balances that remain constant except for the effects of discontinued programs. For assets with maturities under 1 year, the results are reported for convenience as though they matured only one time per year with the additional convention that the earnings/cost rates are annualized. For the pre-1996 Act assets, maturing balances are added back to post-1996 Act account balances. The liability accounts are used to satisfy the accounting identity, which requires assets to equal liabilities plus owner equity. In addition to the replacement of maturities under a steady state, liabilities are increased to reflect net losses or decreased to reflect resulting net gains. Adjustments must be made to the long- and short-term debt accounts to maintain the same relative proportions as existed at the beginning period from which the stress test is run. The primary receivable and payable accounts are also maintained on this worksheet, as is a summary balance of the volume of loans subject to credit losses.

4.5 Income Statements

a. Information related to income performance through time is contained on the worksheet named ''Income Statements.'' Information from the first period balance sheet is used in conjunction with the earnings and cost-spread relationships from Farmer Mac supplied data to generate the first period's income statement. The same set of accounts is maintained in this worksheet as ''Loan and Cashflow Accounts'' for consistency in reporting each annual period of the 10-year stress period of the test. The income from each interest-bearing account is calculated, as are costs of interest-bearing liabilities. In each case, these entries are the associated interest rate for that period multiplied by the account balances.

b. The credit losses described in section 2.0, ''Credit Risk,'' are transmitted through the provision account, as is any change needed to re-establish the target reserve balance. For determining risk-based capital, the reserve target is set to zero as previously indicated in section 4.2. Under the income tax section, it must first be determined whether it is appropriate to carry forward tax losses or recapture tax credits. The tax section then establishes the appropriate income tax liability that permits the calculation of final net income (loss), which is credited (debited) to the retained earnings account.

4.6 Balance Sheets

a. The worksheet named ''Balance Sheets'' is used to construct pro forma balance sheets from which the capital calculations can be performed. As can be seen in the Excel spreadsheet, the worksheet is organized to correspond to Farmer Mac's normal reporting practices. Asset accounts are built from the initial financial statement conditions, and loan and cashflow accounts. Liability accounts including the reserve account are likewise built from the previous period's results to balance the asset and equity positions. The equity section uses initial conditions and standard accounts to monitor equity through time. The equity section maintains separate categories for increments to paid-in-capital and retained earnings and for mark-to-market effects of changes in account values. The process described below in the ''Capital'' worksheet uses the initial retained earnings and paid-in-capital account to test for the change in initial capital that permits conformance to the statutory requirements. Therefore, these accounts must be maintained separately for test solution purposes.

b. The market valuation changes due to interest rate movements must be computed utilizing the linearly interpolated schedule of estimated equity effects due to changes in interest rates, contained in the ''Assumptions & Relationships'' worksheet. The stress test calculates the dollar change in the market value of equity by multiplying the base value

of equity before any rate change from Farmer Mac's interest rate risk measurement results, the linearly interpolated estimated effective duration of equity, and the percentage change in interest rates. In addition, the earnings effect of the measured dollar change in the market value of equity is estimated by multiplying the dollar change by the blended cost of funds rate found on the ''Assumptions & Relationships'' worksheet. Next, divide by 2 the computed earnings effect to approximate the impact as a theoretical shock in the interest rates that occurs at the mid-point of the income cycle from period t_0 to period t_1. The measured dollar change in the market value of equity and related earnings effect are then adjusted to reflect any tax-related benefits. Tax adjustments are determined by including the measured dollar change in the market value of equity and the earnings effect in the tax calculations found in the ''Income Statements'' worksheet. This approach ensures that the value of equity reflects the economic loss or gain in value of Farmer Mac's capital position from a change in interest rates and reflects any immediate tax benefits that Farmer Mac could realize. Any tax benefits in the module are posted through the income statement by adjusting the net taxes due before calculating final net income. Final net income is posted to accumulated unretained earnings in the shareholders' equity portion of the balance sheet. The tax section is also described in section 4.5 entitled, ''Income Statements.''

c. After one cycle of income has been calculated, the balance sheet as of the end of the income period is then generated. The ''Balance Sheet'' worksheet shows the periodic pro forma balance sheets in a format convenient to track capital shifts through time.

d. The stress test considers Farmer Mac's balance sheet as subject to interest rate risk and, therefore, the capital position reflects mark-to-market changes in the value of equity. This approach ensures that the stress test captures interest rate risk in a meaningful way by addressing explicitly the loss or gain in value resulting from the change in interest rates required by the statute.

4.7 Capital

The ''Capital'' worksheet contains the results of the required capital calculations as described below, and provides a method to calculate the level of initial capital that would permit Farmer Mac to maintain positive capital throughout the 10-year stress test period.

5.0 Capital Calculation

a. The stress test computes regulatory capital as the sum of the following:

(1) The par value of outstanding common stock;

(2) The par value of outstanding preferred stock;

(3) Paid-in capital;

(4) Retained earnings; and

(5) Reserve for loan and guarantee losses.

b. Inclusion of the reserve account in regulatory capital is an important difference compared to minimum capital as defined by the statute. Therefore, the calculation of reserves in the stress test is also important because reserves are reduced by loan and guarantee losses. The reserve account is linked to the income statement through the provision for loan-loss expense (provision). Provision expense reflects the amount of current income necessary to rebuild the reserve account to acceptable levels after loan losses reduce the account or as a result of increases in the level of risky mortgage positions, both on- and off-balance sheet. Provision reversals represent reductions in the reserve levels due to reduced risk of loan losses or loan volume of risky mortgage positions. The liabilities section of the ''Balance Sheets'' worksheet also includes separate line items to disaggregate the Guarantee and commitment obligation related to the Financial Accounting Standards Board Interpretation No. 45 (FIN 45) Guarantor's Accounting and Disclosure Requirements for Guarantees, Including Indirect Guarantees of Indebtedness of Others. This item is disaggregated to permit accurate calculation of regulatory capital post-adoption of FIN 45. When calculating the stress test, the reserve is maintained at zero to result in a risk-based capital requirement that includes reserves, thereby making the requirement comparable to the statutory definition of regulatory capital. By setting the reserve requirement to zero, the capital position includes all financial resources Farmer Mac has at its disposal to withstand risk.

5.1 Method of Calculation

a. Risk-based capital is calculated in the stress test as the minimum initial capital that would permit Farmer Mac to remain solvent for the ensuing 10 years. To this amount, an additional 30 percent is added to account for managerial and operational risks not reflected in the specific components of the stress test.

b. The relationship between the solvency constraint (*i.e.*, future capital position not less than zero) and the risk-based capital requirement reflects the appropriate earnings and funding cost rates that may vary through time based on initial conditions. Therefore, the minimum capital at a future point in time cannot be directly used to determine the risk-based capital requirement. To calculate the risk-based capital requirement, the stress test includes a section to solve for the minimum initial capital value that results in a minimum capital level over the 10 years of zero at the point in time that it would actually occur. In solving for initial capital, it is assumed that reductions or additions to the initial capital accounts are made in the retained earnings accounts, and balanced in the debt accounts at terms proportionate to initial balances (same relative proportion of long- and short-term debt at existing initial rates). Because the initial capital position affects the earnings, and hence capital positions and appropriate discount rates through time, the initial and future capital are simultaneously determined and must be solved iteratively. The resulting minimum initial capital from the stress test is then reported on the ''Capital'' worksheet of the stress test. The ''Capital'' worksheet includes an element that uses Excel's ''solver'' or ''goal seek'' capability to calculate the minimum initial capital that, when added (subtracted) from initial capital and replaced with debt, results in a minimum capital balance over the following 10 years of zero.

PART 655—FEDERAL AGRICULTURAL MORTGAGE CORPORATION DISCLOSURE AND REPORTING REQUIREMENTS

■ 3. The authority citation for part 655 continues to read as follows:

Authority: Sec. 8.11 of the Farm Credit Act (12 U.S.C. 2279aa–11).

Subpart B—Reports Relating to Securities Activities of the Federal Agricultural Mortgage Corporation

§ 655.50 [Amended]

■ 4. Section 655.50 is amended by removing the word ''should'' and adding in its place, the word ''must'' in the second sentence of paragraph (c).

Dated: December 15, 2006.

James M. Morris,

Acting Secretary, Farm Credit Administration Board.

[FR Doc. E6–21831 Filed 12–22–06; 8:45 am]

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA–2006–26492; Directorate Identifier 2006–CE–77–AD; Amendment 39–14861; AD 2006–26–03]

RIN 2120–AA64

Airworthiness Directives; Alpha Aviation Design Limited (Type Certificate No. A48EU formerly held by APEX Aircraft and AVIONS PIERRE ROBIN), Model R2160 Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule; request for comments.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for certain Alpha Aviation Model R2160 airplanes. This AD requires you to inspect the fuel pressure indication system for leakage at the end of the adapter in the fuel pressure indication system. This AD results from the possibility of fuel leakage at the end of the adapter in the fuel pressure indication system. We are issuing this AD to detect, correct, and prevent fuel leaks in the fuel pressure indicating system. This failure could allow fuel to leak near the exhaust manifold and lead to a fire.