

75 FR 3647, 01/22/2010

Handbook Mailing HM-10-1

[6705-01-P]

FARM CREDIT ADMINISTRATION

12 CFR Part 652

RIN 3052-AC51

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

AGENCY: Farm Credit Administration.

ACTION: Proposed rule.

SUMMARY: The Farm Credit Administration (FCA, Agency, us, or we) proposes to amend our regulations at 12 CFR part 652, subpart B, on the Risk-Based Capital Stress Test (RBCST or model) used by the Federal Agricultural Mortgage Corporation (Farmer Mac or the Corporation). We propose to update the model to address recent additions to Farmer Mac's program authorities, specifically the authority for Farmer Mac to finance rural utility loans. We are also proposing to revise the existing treatment of risk mitigations of general obligations for the AgVantage Plus program and related structures, as established in Version 3.0 of the model. Finally, we propose revising the treatment of counterparty risk on non-program investments in the model by adjusting the haircuts applied to those investments to keep the model consistent with statutory requirements for calculating Farmer Mac's regulatory minimum capital level.

DATES: You may send us comments by March 8, 2010.

ADDRESSES: We offer a variety of methods for you to submit comments on this proposed rule. For accuracy and efficiency reasons, commenters are encouraged to submit comments by e-mail or through the Agency's Web site. As facsimiles (fax) are difficult for us to process and achieve compliance with section 508 of the Rehabilitation Act, we are no longer accepting comments submitted by fax. Regardless of the method you use, please do not submit your comment multiple times via different methods. You may submit comments by any of the following methods:

- E-mail: Send us an e-mail at reg-comm@fca.gov.
- FCA Web site: <http://www.fca.gov>. Select "Public Commenters," then "Public Comments," and follow the directions for "Submitting a Comment."
- Federal eRulemaking Portal: <http://www.regulations.gov>. Follow the instructions for submitting comments.
- Mail: Joseph T. Connor, Associate Director for Policy and Analysis, Office of Secondary Market Oversight, Farm Credit Administration, 1501 Farm Credit Drive, McLean, VA 22102-5090.

You may review copies of all comments we receive at our office in McLean, Virginia, or on our

Web site at <http://www.fca.gov>. Once you are in the Web site, select "Public Commenters," then "Public Comments," and follow the directions for "Reading Submitted Public Comments." We will show your comments as submitted, but for technical reasons we may omit items such as logos and special characters. Identifying information that you provide, such as phone numbers and addresses, will be publicly available. However, we will attempt to remove e-mail addresses to help reduce Internet spam.

FOR FURTHER INFORMATION CONTACT:

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SUPPLEMENTARY INFORMATION:

I. Objective

The objective of this proposed rule is to ensure that the RBCST for Farmer Mac continues to determine regulatory capital requirements in a manner that remains consistent with statutory requirements.

II. Background

Farmer Mac is a stockholder-owned instrumentality of the United States, chartered by Congress to establish a secondary market for agricultural real estate, rural housing mortgage loans, and rural utility loans as well as to facilitate capital markets funding for USDA-guaranteed farm program and rural development loans. Farmer Mac's Class C non-voting and Class A voting common stocks are listed on the New York Stock Exchange under the symbols AGM and AGM.A, respectively. FCA, an independent agency in the executive branch of the Federal Government, is the safety and soundness regulator of Farmer Mac. FCA regulates Farmer Mac through the Office of Secondary Market Oversight (OSMO).

Section 5406 of the Food, Conservation and Energy Act of 2008 (2008 Farm Bill)¹ amended the definition of "qualified loan" in Title VIII of the Farm Credit Act of 1971, as amended, (Act)² to include rural utility loans. This change gave Farmer Mac the authority to purchase and guarantee securities backed by loans to rural electric and telephone utility cooperatives as program business. The 2008 Farm Bill further directed FCA to estimate the credit risk on the portfolio covered by this new authority at a rate of default and severity reasonably related to the risks in rural electric and telephone facility loans.

The existing RBCST (Version 3.0) for Farmer Mac is contained in subpart B of part 652,³ and is used to determine the minimum level of regulatory capital Farmer Mac must hold to maintain positive capital during a 10-year period, as characterized by stressful credit and interest rate conditions. Version 3.0 of the RBCST was developed according to the provisions of section 8.32 of the Act before Farmer Mac was given rural utility authority and thus lacks a component to directly recognize the credit risk on such loans.⁴ At the time of the Farm Bill's enactment, Farmer Mac held approximately \$1.3 billion of such loans in its non-program investment portfolio. At the end of the first quarter 2009, Farmer Mac held \$1.4 billion in loans to rural electric cooperatives in its program loan portfolio.

Based on the provisions of the 2008 Farm Bill, we are proposing to amend the RBCST (Version 3.0) to account for Farmer Mac's new authority to finance rural electric and telephone utility cooperatives. We are also proposing to address the existing adjustment factors for recognizing the risk-mitigating effects of an issuer's general obligation to Farmer Mac by applying increases (or "haircuts") to the historical default rates by whole-letter credit rating. In our rule published in June 2008, we established a method to recognize the risk-mitigating effects of the issuer's general obligation to Farmer Mac under the product referred to as "AgVantage Plus."⁵ RBCST Version 3.0 recognized the risk mitigation provided by the general obligation by reducing the age-adjusted dollar losses estimated on the subject loans by a General Obligation Adjustment (GOA) factor derived from average historical default rates of corporate bond issuers with similar whole-letter credit ratings as reported by a nationally recognized statistical rating organization (NRSRO).⁶ We now propose to apply stress generally to the current GOA factors and to further discount them to recognize the level of concentration risk associated with an individual counterparty's general obligation.

We are also proposing conforming changes to the haircuts on non-program investments. Our existing rule applies a method to account for counterparty risk on non-program investments by applying a discount (or "haircut") to the yields of non-program investments, scaled according to average credit ratings, with a 10-year phase-in. We are proposing modifications to the haircut levels applied to non-program investments to increase the severity of the haircuts.

III. Section-by-Section Analysis

The purpose of this proposed rule is to revise the risk-based capital regulations that apply to Farmer Mac to reflect changes in Farmer Mac's financing authorities, operations, and business practices. The issues addressed in this proposed rule include: (1) Treatment of program loan volume in the rural utility cooperative sector; (2) modification of the GOA factors (initially established in RBCST Version 3.0) to reflect greater prudence in the assumptions regarding the relationship between risk and pricing of Farmer Mac's exposure to certain structures known as "AgVantage Plus" and other similar arrangements that may arise in the future; and (3) modification of haircuts on non-program investments to retain consistency with the risk levels recognized by whole-letter rating category in the proposed modifications to GOA factors discussed in item "2" above. We refer to the version of the model proposed here as "Version 4.0 (proposed)."

A. Credit Loss Estimation on Rural Utility Loans [§§ 652.50 and 652.65(b); Appendix A to part 652]

1. Guarantee Fee

We propose to amend § 652.50 by adding a definition for guarantee fees charged on rural utility loans to distinguish treatment of these fees from those assessed against all other loans guaranteed by Farmer Mac. Guarantee fees are made up of Farmer Mac's estimate of likely long-term average annual losses on the investment, plus fee loads to cover operating costs and return-on-equity requirements. Section 8.10 of the Act establishes a limit on the guarantee fees Farmer Mac may charge, but the 2008 Farm Bill, when establishing the authority for Farmer Mac to deal in rural utility loans as program business, stated that this authority be handled in a manner reasonably related to the risks specific to rural utility loans. Based on this, we propose adding a "rural utility guarantee fee" definition to § 652.50 to clarify that rural utility guarantee fees are distinguished from those guarantee fees discussed in section 8.10 of the Act. Unlike all other fees under section 8.10 of the Act, we propose that the model use rural utility guarantee fees as a component of its loss estimation calculation. We also propose that the definition differentiate between on-balance sheet and off-balance sheet rural utility volume to recognize

that on-balance sheet guarantee fee rates may need to be imputed from Farmer Mac's earnings spread, while off-balance sheet guarantee fee rates would always be contractually explicit. In each case, the intent is to isolate the earnings rate on the volume. In structuring the definition in this manner, we want to be clear that whether that earnings rate an explicitly set guarantee fee in a contract or not, we would apply the proposed credit risk multiple to Farmer Mac's net cash flow rate, i.e., either the contractual guarantee fee rate (in the case of off-balance sheet rural utility exposure) or Farmer Mac's earnings spread (in the case of on-balance sheet rural utility exposure). The earnings spread is the in-coming cash flow rate (as a percent of outstanding principal) minus Farmer Mac's total funding rate on that volume.

As a conforming technical change, we propose amending sections 1.0.a., 4.1.b., 4.2.b.(2), and 4.2.b.(3) of the model in Appendix A of part 652 to add rural utility guarantee fees.

2. Credit Risk

We propose to amend the model in Appendix A of part 652 to include rural utility program volume. We propose clarifying the applicability of individual sections of the model to the rural utility portfolio. We also propose adding new sections 2.6, 4.1.e., and 4.3.e. to calculate losses for rural utility loans. This proposed rule applies a stylized approach to characterizing credit risk for rural utility program volume by multiplying the dollar-weighted average rural utility guarantee fee by a factor of two to characterize average annual loss rates. A data set suitable to build a reliable default probability loss function was not available due to the fact that historical losses in the electric cooperative sub-sector of the utilities industry have been extremely rare.⁷ The industry is characterized by low frequency of default and instances of default appear largely unrelated to specific underwriting decisions. Further, even among that small proportion of historical instances of nonperforming loans in the data we obtained, restructured credit defaults have in many instances become more profitable with deferred obligations carried at accumulating rates higher than the loan interest rates. For that reason, an empirical frequency-based analog for estimating credit risk, as was used to arrive at the model's approach to estimating agricultural loan risks, is not feasible.⁸

If there were no alternative but to use the available data set, rural utility loans' unique features (e.g., few loans, very large loan sizes, often with unique individual project features) would compel us to adjust for extreme value possibilities.⁹ Extreme value theory (EVT) employs methods to assign probability to possible outcomes in ranges beyond those included in the data. EVT provides a means to limit the relative probability assigned to sample outcomes and the probability assigned to ranges beyond the most extreme observed values. In such cases, simply relying on the empirical maximum loss value is not acceptable. For example, EVT is often applied by hydrologists who, when designing levees, are not satisfied with building protection against historical high-water marks when the maximum severity of water level in the historical data is not an acceptable level of protection to attain. Rather, they must protect against more severe high-water scenarios. However, in an EVT context, the wide divergence in the character of rural utility losses in the available data may have resulted in an even less reliable estimate of the "worst case" through a constructed limit under EVT theory. Therefore, we also rejected the EVT approach.

We next considered a cash-flow divergence (CFD) approach. A CFD approach would focus on losses related to the stress associated with delayed receipts of cash flows expected under the original amortization schedule. Even if the loan is ultimately profitable due to a restructuring, the CFD model would reflect the stress associated with funding the loan during the workout period. However, CFD models did not offer a reliable measure of loss experience that was significantly correlated with observable differences in loan underwriting characteristics in the data set.

Rather than basing the estimate of credit risk on data deemed unsuitable for reasons stated above,

we propose to base a credit risk characterization on rural utility guarantee fees charged by Farmer Mac. We believe that the Farmer Mac rural utility guarantee fee represents the best available reference point, or benchmark, for quantifying credit risk because an alternative approach deemed acceptable for depicting the probability measures associated with default was not available. Version 4.0 (proposed) would impose stressed annual credit loss rates on loans in the rural utility portfolio by multiplying the dollar-weighted average rural utility guarantee fee by a factor of two. We discuss the rationale behind the selection of a factor of two in section III.C. of this preamble.

Farmer Mac bases its fees on an evaluation of credit-related variables associated with the loans and the interrelations among those variables, as well as the counterparties' access to alternative forms of liquidity through the capital markets (i.e., an analysis of return opportunities related to what the market will bear). Among the credit-related variables are the modified debt service coverage ratios, long-term, debt-to-net utility plant ratio, debt-to-equity ratio, guaranteed supply contracts in place (if any), the level of discretion the borrower has to set electric rates, and the level of diversification in the borrower's customer base. The guarantee fee is, in part, Farmer Mac's estimate of the long-term average annual credit losses, i.e., its assessment of average net credit risk embedded in those variables.

We propose a multiple of two be applied to the rural utility guarantee fees to represent stressed rural utility loan losses and to place the amount generally in the tail of the distribution (discussed more fully in section III.C. of this preamble). The multiple of two in this case is less than the value chosen to apply stress in the case of modifications to the GOA factors for general obligation risk mitigation on AgVantage Plus counterparties because in the case of the GOA factors we have good information on the historical average default rates – which we do not have in the case of rural utility loans. We propose using a multiple of the Farmer Mac rural utility guarantee fee as a proxy for loss rates because of the unsuitability of the data as discussed above. We recognize that the use of this loss rate proxy results in a different factor than in the case of the GOA factors. Our intent is to stress rural utility loss rates only and, since the proportion of the guarantee fees attributable to expected average annual losses will vary due to the necessarily coarse level of precision targeted in this treatment, we elected not to propose some portion of the guarantee fee as the assumed average credit risk coverage component. Such an approach would have added a level of calculation complexity that is disproportionate to the coarse level of precision achievable given data limitations. Therefore, we reduced the multiple we would have applied to a more precise average credit loss component of the guarantee fee (i.e., some percentage of the total fee times three) down to two times the entire guarantee fee. We believe the proposed approach is consistent with the statutory credit risk target for agricultural loans since it targets a range meant to approximate a reasonable but stylized worst-case scenario.

By basing the loss estimate on a factor that Farmer Mac controls (rural utility guarantee fee), Farmer Mac could manipulate its minimum capital requirement through its guarantee fee pricing. However, the natural alignment of incentives to build capital and grow earnings renders the scenario implausible. If Farmer Mac were capital constrained, the incentive to take on large volume of significantly underpriced rural utility loan exposure is more than offset by counterbalancing pressures from the continuing level of the proposed loss proxy relative to any guarantee fee regardless of whether it is abnormally low (i.e., double that rate). For this reason, we view as extremely unlikely the scenario where Farmer Mac would reduce its guarantee fee below a level that might be appropriate for purposes of pricing the risk Farmer Mac assumes in the transaction in order to reduce the regulatory capital minimum requirement calculated on that volume. Further, additional offsetting pressures to this scenario can be found in the statutory leverage maximum requirements and ongoing oversight and supervisory risk monitoring by FCA, as well as Farmer Mac's internal control structures (also monitored by FCA).

Additionally, we note that while no new regulatory language is necessary, implicit in section 2.4

of the Appendix, is the proposal that if the contractual terms of an AgVantage Plus rural utility investment include overcollateral, it be treated in a manner consistent with the model's current treatment of such overcollateral in AgVantage Plus structures. Also consistent with current RBCST treatment, we propose that when rural utility loan pools submitted to Farmer Mac include overcollateral that is not contractually required, all submitted loans be modeled and the total pool loss estimate factored down proportionately. We further propose to apply no age adjustment to rural utility loss estimates because, unlike other credit loss estimates in the RBCST, rural utility loss rates are already characterized as average annual loss rates, not lifetime loss rates. Therefore, any aging affects are considered to be subsumed into that annual average. Finally, consistent with the proposed revisions to the GOA factors discussed below, we propose those GOA factors applied to rural utility AgVantage Plus volume be revised to reflect the relative concentration of rural utility loans in the portfolio of the issuer.

The proposed amendments to the model in Appendix A of part 652 discussed above includes amending the table of contents and section headings 2.1, 2.2, 2.3 and 2.5; adding new sections 2.6, 4.1.e., and 4.3.e.; and amending the contents of sections 2.0 and 4.2.b.(1)(A) to reflect the treatment of the rural utility authority. As conforming technical changes, we propose redesignating existing paragraphs (b)(5) and (b)(6) as (b)(6) and (b)(7) and adding a new paragraph (b)(5) to § 652.65 to indicate that the model in Appendix A of part 652 is to be used to calculate credit loss rates for rural utility loans.

B. Modification of the Treatment of Loans Backed by an Obligation of the Counterparty and Loans for Which Pledged Loan Collateral Volume Exceeds Farmer Mac-Guaranteed Volume [§§ 652.50 and 652.65(d); Appendix A to part 652]

We propose to amend sections 2.4.b.3, 2.4.b.4, 4.1.f., and 4.2.b. of the model in Appendix A of part 652 to increase the GOA factors, address counterparty concentration risks, and ensure AgVantage Plus volume maturities are recognized in the model.

1. GOA Factors-Treatment of Loan Volume

In Version 3.0 of the RBCST, we established a treatment for program loan volume backed by the obligation of a counterparty under a general obligation (e.g., AgVantage Plus). The derivation and application of the GOA factors in the current version of the RBCST can be summarized as follows: (1) Five levels of credit ratings from "AAA" to "below BBB and unrated" that are mapped to the various NRSRO rating categories, which include pluses ("+") and minuses ("-") to the whole-letter categories; (2) apply default rate factors equal to the average cumulative issuer-weighted 10-year corporate default rates by whole letter category from 1920 through the most recent year, as published by Moody's Investor Services; (3) apply a factor equal to the 10-year corporate default rates on Speculative-Grade bonds published in the same report for issuers that are rated below BBB or are unrated;¹⁰ (4) adjust the rate to obtain an estimated loss rate related to a general obligation of the AgVantage Plus counterparty, with a given credit rating by considering the loss-severity rate as implied by senior unsecured bond recovery rates published in the same annual Moody's report (i.e., 1 minus recovery rate).

We now propose revising the GOA factors by stressing the historical corporate bond loss rates to levels intended to represent stressed conditions instead of average conditions. The proposed rule would modify the adjustment factors through the application of increases (or "haircuts") to the estimated historical loss rates by whole-letter credit rating category. Currently, Version 3.0 effectively assumes that there is no relationship between agricultural stress and major stress on the issuer's overall financial condition (i.e., in industry sectors unrelated to agriculture to which the issuer also has significant exposure). Thus, the average corporate bond default and recovery rates are currently assumed to represent an appropriate degree of stress to that component of the model.

While we remain convinced of the appropriateness of the existing overall approach, we believe using the average default and recovery rates is not sufficiently conservative. A conclusion that, while not driven by it, is nevertheless underscored by the recent crisis in the financial services sector. Our proposed revisions to the GOA factor would change existing assumptions in Version 3.0 to recognize the potential scenario that agricultural stress and major stress on the issuer's overall financial condition could occur at the same time. That is, the proposed changes to the GOA factors would assume a degree of positive correlation between the financial strength of the issuer and the loans underlying AgVantage Plus issuance. A resulting assumption would be that an individual firm's default and recovery experience likely differs from the average experience of similarly rated firms across average historic conditions. The result would be a model representing a stressed loss scenario, not an average loss scenario.

The proposed treatment is consistent with a scenario under which Farmer Mac's risk increases as the value of the issuer's general obligation declines simultaneously with the value of the underlying loan collateral. The revised factors and their components are set forth in the table below:

Whole Letter Rating	Default Rate	Severity Rate	GOA Factor Ver. 3.0	Proposed GOA Factor
AAA	0.86%	54.51%	0.47%	1.41%
AA	2.27%	54.51%	1.23%	3.70%
A	3.13%	54.51%	1.71%	5.13%
BBB	7.02%	54.51%	3.83%	11.48%
Below BBB and unrated	27.23%	54.51%	14.84%	44.52%

As the table illustrates, we propose to increase the historical loss rates by a factor of three. As in the current RBCST version, these figures would be updated annually, or as an updated version of the Moody's report on Default and Recovery Rates of Corporate Bond Issuers becomes available. We discuss the rationale behind the selection of the factor in section III.C. of this preamble.

2. GOA Factors—Concentration Ratios

We also propose modifying GOA factors to recognize the risk associated with a counterparty's (also referred to as the AgVantage Plus issuer) loan portfolio concentration in the industry sector used in an AgVantage Plus issuance. We believe we should recognize a reduction in the risk-mitigating value of a counterparty's general obligation due specifically to its loan portfolio concentration in the same industry sector as the loans underlying an AgVantage Plus pool. We are proposing to estimate that by reducing the value of the GOA factors proportionate to the counterparty's exposure to that sector in its total portfolio. The proposed revision would recognize conditions that stress the underlying assets, as well as the counterparty's financial position generally. The proposed change is expected to simultaneously reduce the risk-mitigating value of both the underlying portfolio and the general obligation.

We further propose that the Director of OSMO (Director) make final determinations of concentration ratios on a case-by-case basis. These determinations would define industry sectors broadly when there is limited availability of concentration data of a given counterparty. Specifically, we propose

modifying section 2.4.b.3.A. of Appendix A to allow the Director to make final determinations of concentration ratios on a case-by-case basis by using publicly reported data on counterparty portfolios, nonpublic data submitted and certified by Farmer Mac as part of its RBCST submissions, and generally recognizing two rural utility sectors-rural electric cooperatives and rural telephone cooperatives. The following are two illustrative examples of how the Director would generally arrive at such determinations. First, if the underlying AgVantage Plus portfolio were rural electric utility cooperative loans and the counterparty's loan and lease portfolio were publicly reported to contain 25-percent electric utility loans, the Director would likely determine the concentration ratio at 25 percent, absent any other unique aspects of the counterparty's business. Second, if an AgVantage Plus underlying portfolio of agricultural loans has a counterparty whose portion of agricultural loans is not disaggregated from some larger portfolio segment in its publicly available disclosures, the Director would use the most appropriate publicly disclosed aggregated portfolio data to set the concentration ratio. In this final example, Farmer Mac could obtain the disaggregated portfolio information and certify to its accuracy in its quarterly RBCST submission in lieu of the Director relying on publicly disclosed aggregated portfolio data.

This proposed approach would continue to accept that the GOA factors should recognize that there are two levels of risk mitigation provided to Farmer Mac by the AgVantage Plus structure: the issuer's general obligation to Farmer Mac and the value of the underlying loan collateral. The revised approach would further recognize the relative difference in an induced correlation between the parent obligor and the underlying collateral that is likely to arise through portfolio concentrations. It would also scale the GAO factors for counterparty portfolio concentrations to reflect the Agency's view that the correlation between a significant decline in a highly concentrated issuer's overall financial condition and the underlying AgVantage Plus loan portfolio is likely to be high relative to a more diversified counterparty.

3. Technical Changes

We propose to amend § 652.50 by adding a definition for "AgVantage Plus" to clarify that, while "AgVantage Plus" is a product name used by Farmer Mac, we propose applying it throughout this subpart to refer both specifically to AgVantage Plus volume currently in Farmer Mac's portfolio as well as other similarly structured program volume that Farmer Mac might finance in the future under other names. We also propose conforming changes to the model at Appendix A of part 652 to replace the term "Off-Balance Sheet AgVantage" with "AgVantage Plus."

Since the introduction of the AgVantage product, volume has accumulated through a few very large individual deals as opposed to a constant, steady deal-flow. However, we do not believe it is reasonable to assume that such volume would backfill on a steady-state basis because there has not been sufficient historical experience demonstrating the incidence of AgVantage Plus volume renewing into similar structures at the termination of existing deals. Therefore, as additional clarifying changes, we propose adding to paragraph (d)(2) of § 652.65 a statement that AgVantage Plus volume is not replaced when it matures. We also propose explaining in the parenthetical of section 4.2.b. of the Appendix A that, while the stress test is run as a "steady state," AgVantage Plus volume maturities will be recognized by the model.

C. Using Two Different Multiples of Externally Referenced Benchmarks to Represent Stressed Default Risk

In two of the proposed revisions, we use multiples of external points of reference (or "benchmark measurements") of average expected loss. Those revisions are: 1) Establishing a representation of rural utility credit losses, and 2) adjusting the GOA factors by stressing the historical corporate bond loss rates

to levels intended to represent worst-case stress conditions. In both cases, the multiples were selected on the basis of the availability of historical information related to credit losses (or lack thereof in the case of rural utility loans) and the Agency's overarching intent to represent losses in a reasonable worst-case context. We refer to that targeted worst-case scenario as the level of loss "in the tail" of any given probability distribution. The statistical vernacular "in the tail" represents a level of loss severity sufficiently extreme that it would be a very low probability event. Targeting a low probability loss event (i.e., a scenario of very high losses, relatively) can be equivalently thought of as a high probability of capital adequacy (i.e., Farmer Mac's solvency) even under severe loss conditions. While the relative terms "high" and "low" remain unquantified targets thus far in the discussion, we now provide a generalized probabilistic description of the Agency's view of capital adequacy for purposes of these proposed revisions.

The proposed revisions reflect the Agency's targeting a high confidence level (i.e., it has been noted that AA ratings often are used interchangeably with concepts like a 99.7 percent confidence level, or the level of probability below which an insolvency scenario would not be expected to occur).¹¹ We refer to this description as "generalized" because the calculation of the relevant probabilities is entirely dependent on the amount of information and data available to the Agency, and overreliance on a highly variable measure can induce unintended modeling variability and error. When the information and data are insufficient to draw specific inferences from the data, we can still use statistical theory to make generalized statements about probability if certain conditions are met. In the present context, the proposed multiples are used with the intent to target loss events that could be reasonably viewed as being "in the tail" of the distribution, without providing a false sense of accuracy based on data whose characteristics could be overly sensitive to small changes in experiences or assumptions. We believe our approach places the post-haircut corporate bond loss estimate in a range that provides a meaningfully stressful representation, consistent with possibly limited data, and reflects generally accepted statistical principles and relationships. If, for example, the coefficient of variation were equal to one, placement of the haircut loss rate estimate would be at a point on the distribution that generally corresponds to three standard deviations from the mean, which also corresponds to the 99.7-percent confidence level. Targeting the placement in this range is meant to be consistent with the Act's credit risk targets for agricultural loans, which directs us to focus on not less than a 2-year worst-case historical loss experience in agricultural lending.¹²

Mathematical identification and reliability issues limit our ability to make specific statements regarding how to represent the loss probability. However, we can place some limits on the probability distances in any loss distribution through statistical relationships such as Chebychev's theorem – which holds that the proportion of observations within some number of standard deviations from the mean must be at least some specific percentage, regardless of the shape of the distribution. This allows us to draw conclusions (though at a fairly coarse level) about the probability of events, even when we do not know the mean or the level of variation around the mean (or both) of the event we are trying to model.

The multiple of three was selected for the GOA factors based on the recognition that the average historical default and recovery rates within each whole-letter rating category as reported by Moody's provide a measure of central tendency that summarizes the varied individual experiences of investors who purchased bonds within each rating category at each point in time. If we were to apply a multiple using implications of Chebchev's theorem to the GOA factor, the specific quantitative proportions involved in Chebychev's theorem would require a multiple of 19 or perhaps even higher in order to achieve the targeted confidence level (99.7 percent). We deemed this approach too conservative. However, if we assume the distribution is normal with a coefficient of variation of 1, then a multiple of 3 is required to achieve the targeted confidence level. While we cannot directly observe the variation of default rates within each rating category (or recovery rates among senior secured borrowers within each year), the

coefficients of variation of the time series of annual default rates in Moody's 2008 report vary from roughly two to three within the range of ratings AA to the speculative grade group through time. Like Chebychev's theorem, we can also reasonably assume that the time series variation provides a lower bound on the cross sectional variation, were it observable, and that the proposed multiple is therefore not particularly aggressive.

D. Revise Haircuts on Non-Program Investments [Appendix A to part 652]

We propose changing the haircut levels for non-program investments in existing section 4.1.e. of Appendix A, renumbering the section as 4.1.f. Specifically, we propose revising these haircut levels to the same loss rate adjustment factors proposed for application on loans underlying guaranteed notes (i.e., AgVantage Plus) as discussed in section III.B.1 of this preamble. The proposed investment haircuts to recognize counterparty risk are as follows:

Whole Letter Credit Rating	Haircut
AAA	1.41%
AA	3.70%
A	5.13%
BBB	11.48%
Below BBB and Unrated	44.52%

We likewise propose to update these figures annually, or as an updated version of the Moody's report on Default and Recovery Rates of Corporate Bond Issuers becomes available, just as we proposed for loss rate adjustment factors on loans underlying guaranteed notes.

IV. Impact of the Proposed Revisions on Required Capital

We have evaluated the impact of the proposed changes to Version 3.0 of the model. Our review indicates that changes related to the reclassification of rural utility volume as program business and the associated required application of worst-case credit risk, along with the recognition of more limited risk-mitigation in the counterparty's general obligation, would have the most significant impact on risk-based capital calculated by the model. The table below provides an indication of the impacts of the revisions in the quarter ended March 31, 2009.

Calculated Regulatory Minimum Capital (\$ in thousands)	3/31/2009	
0 RBCST Version 3.0 (calculated as of 3/31/2009)	40,061	
1 Revised Haircuts on Non-Program Investments	40,505	444
2 Tripling of Version 3.0 GOA Factors	40,201	140
3 Credit Risk on Rural Utility Loans & Concentration Risk	60,999	20,938
All Version 4.0 Proposed Effects	62,937	22,876

As the table shows, the individual estimated impacts do not have an additive relationship to the total impact on the model output. This is due to the interrelationship of the changes with one another when they are combined in Version 4.0 (proposed). It is worth noting that the marginal effects are also not constant rate effects, but depend on the starting conditions and earnings spread of Farmer Mac and the magnitude of the effect considered. For example, as the volume in the rural utility category is increased, the rate of increase in the marginal minimum risk-based capital requirement begins to increase as the downward-pressure on that rate exerted by earnings from other activities are further diluted as those earnings become increasingly smaller in proportion to total estimated losses. The same effect is evident in other ways as risk increases and the offsetting effect of earnings is diminished relative to increased risk. For example, this effect would be observed, all else equal, with lower initial earnings spreads or higher AgVantage Plus counterparty concentrations, updated (and higher) Moody's base corporate bond default rates, or ratings downgrades. Thus, the values in the table above are illustrative of the relative effects of the proposals in this rulemaking, given the conditions at March 2009, but can be materially affected by changes in starting conditions or risk compositions through time.

V. Regulatory Flexibility Act

Pursuant to section 605(b) of the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*), FCA hereby certifies the proposed 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 it as a small entity. Therefore, Farmer Mac is not considered a "small entity" as defined in the Regulatory Flexibility Act.

¹Pub. L. 110-246, 122 Stat. 1651 (June 18, 2008)(repealing and replacing Pub. L. 110-234).

²Pub. L. 92-181, 85 Stat. 583 (December 10, 1971).

³73 FR 31937 (June 5, 2008).

⁴FCA currently treats Farmer Mac's portfolio investments in rural utility loans as non-program investments.

⁵AgVantage Plus is a program created by Farmer Mac in 2006 to provide guarantees on timely repayment of principal and interest on notes issued by the counterparty. The notes are secured by obligations of issuer, which obligations are, in turn, backed by Farmer Mac eligible loan assets.

⁶Emery, K., Ou, S., Tennant, J., Matos, A., Cantor, R. "Corporate Default and Recovery Rates, 1920-2008," published by Moody's Investors Service, February 2009; Default Rates, page 31, Recovery Rates (Severity Rate – 1 minus Senior Unsecured Average Recovery Rate), page 26.

⁷In evaluating the suitability of empirical data sources, we examined historical loan performance data of the U.S. Department of Agriculture's (USDA) loan programs and interviewed market participants including the National Rural Utility Cooperative Financing Corporation, CoBank, and USDA's Rural Utility Service.

⁸For a detailed explanation of the empirical frequency-based approach, see 64 FR 61740 (November 12,

1999) and 66 FR 19048 (April 12, 2001).

⁹For a summary of the foundations of extreme value theory, see: Embrechts, P., Resnick, S., Samorodnitsky, G., "Extreme Value Theory as a Risk Management Tool", Cornell University, 1996.

¹⁰Emery, K., Ou. S., Tennant, J., Matos, A., Cantor R., "Corporate Default and Recovery Rates, 1920-2008," published by Moody's Investors Service, February 2009; Default Rates, page 31, Recovery Rates (Severity Rate = 1 minus Senior Unsecured Average Recovery Rate, page 24).

¹¹The selected target confidence level is based on the Central Limit Theorem of statistics which holds that, if the distribution is approximately normal, about 99.7 percent of the values will fall within three standard deviations of the mean. The selection of this confidence level is supported by similar targets used by regulated entities of the Farm Credit System in their research and development work on economic capital which is being done with significant oversight by FCA, as well as in the literature of other regulatory entities including the Bank of International Settlements' Basel Committee on Banking Supervision (BCBS). See, BCBS working paper Basel II: International Convergence of Capital Measurement and Capital Standards: a Revised Framework, June 2004, pages 73 (paragraph 156), 107 (paragraph 527(a) and (j) page 109.

¹²See section 8.32(a)(1) of the Act.

List of Subjects in 12 CFR Part 652

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

For the reasons stated in the preamble, part 652 of chapter VI, title 12 of the Code of Federal regulations is proposed to be amended to read 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.

Subpart B—Risk-Based Capital Requirements

2. Amend § 652.50 by adding alphabetically the following definitions:

§ 652.50 Definitions.

AgVantage Plus means both the product by that name used by Farmer Mac and other similarly structured program volume that Farmer Mac might finance in the future under other names.

Rural utility guarantee fee means the actual guarantee fee charged for off-balance sheet volume and the earnings spread over Farmer Mac's funding costs for on-balance sheet volume on rural utility loans.

3. Amend § 652.65 by:

- a. Redesignating paragraphs (b)(5) and (b)(6) as new paragraphs (b)(6) and (b)(7);
- b. Adding a new paragraph (b)(5);
- c. Revising newly redesignated paragraph (b)(6) and paragraph (d)(2) to read as follows:

§ 652.65 Risk-based capital stress test.

(b) ***

(5) You will calculate loss rates on rural utility loans as further described in Appendix A.

(6) You will further adjust losses for loans that collateralize the general obligation of AgVantage Plus volume, and for loans where the program loan counterparty retains a subordinated interest in accordance with Appendix A to this subpart.

(d) *Cashflow generator.*

(1) ***

(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

(AgVantage Plus volume is not replaced when it matures). 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.

* * * * *

4. Amend Appendix A of subpart B, part 652 by:
 - a. Revising the table of contents;
 - b. Revising the last sentence of section 1.0.a.;
 - c. Adding a new fourth sentence to section 2.0;
 - d. Adding the words "for All Types of Loans, Except Rural Utility Loans" at the end of each heading for sections 2.1, 2.2, 2.3, and 2.5;
 - e. Revising section 2.4.b.3, b.3.A., and b.4;
 - f. Adding a new section 2.6;
 - g. Renumbering the footnote in section 3.0 from "15" to "16";
 - h. Redesignating section 4.1.e. as new section 4.1.f., adding a new section 4.1.e., and revising section 4.1.b. and newly redesignated section 4.1.f.;
 - i. Revising section 4.2.b. introductory paragraph, paragraphs b.(1)(A)(v), b.(1)(A)(vi), the last sentence of paragraph b.(1)(B), the first sentence of paragraph b.(2), the last sentence of paragraph b.(3) and adding a new paragraph b.(1)(A)(vii);
 - j. Adding a new section 4.3.e.; and,
 - k. Revising the second sentence of section 4.4.

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

- 1.0** Introduction.
- 2.0** Credit Risk.
- 2.1** Loss-Frequency and Loss-Severity Models for All Types of Loans, Except Rural Utility Loans.
- 2.2** Loan-Seasoning Adjustment for All Types of Loans, Except Rural Utility Loans.
- 2.3** Example Calculation of Dollar Loss on One Loan for All Types of Loans, Except Rural Utility Loans.
- 2.4** Treatment of Loans Backed by an Obligation of the Counterparty and Loans for Which Pledged Loan Collateral Volume Exceeds Farmer Mac-Guaranteed Volume.
- 2.5** Calculation of Loss Rates for Use in the Stress Test for All Types of Loans, Except Rural Utility Loans.
- 2.6** Calculation of Loss Rates on Rural Utility Volume for Use in the Stress Test.
- 3.0** Interest Rate Risk.
- 3.1** Process for Calculating the Interest Rate Movement.
- 4.0** Elements Used in Generating Cashflows.
- 4.1** Data Inputs.
- 4.2** Assumptions and Relationships.
- 4.3** Risk Measures.
- 4.4** Loan and Cashflow Accounts.
- 4.5** Income Statements.
- 4.6** Balance Sheets.
- 4.7** Capital.
- 5.0** Capital Calculations.
- 5.1** Method of Calculation.

* * * * *

1.0 Introduction.

- a. * * * The stress test also uses historic agricultural real estate mortgage performance data, rural

utility guarantee fees, relevant economic variables, and other inputs in its calculations of Farmer Mac's capital needs over a 10-year period.

2.0 Credit Risk.

*** Loss rates discussed in this section apply to all loans, unless otherwise indicated. ***

2.4 Treatment of Loans Backed by an Obligation of the Counterparty, and Loans for which Pledged Loan Collateral Volume Exceeds Farmer Mac-Guaranteed Volume.

b. ***

3. Loans with a positive loss estimate remaining after adjustments in "1." and "2." above are further adjusted for the security provided by the general obligation of the counterparty. To make this adjustment in our example, multiply the estimated dollar losses remaining after adjustments in "1." and "2." above by the appropriate general obligation adjustment (GOA) factor based on the counterparty's whole-letter issuer credit rating by a nationally recognized statistical rating organization (NRSRO) and the ratio of the counterparty's concentration of risk in the same industry sector as the loans backing the AgVantage Plus volume, as determined by the Director.

A. The Director will make final determinations of concentration ratios on a case-by-case basis by using publicly reported data on counterparty portfolios, nonpublic data submitted and certified by Farmer Mac as part of its RBCST submissions, and will generally recognize rural electric cooperatives and rural telephone cooperatives as separate rural utility sectors. The following table sets forth the GOA factors and their components by whole-letter credit rating (Adjustment Factor = Default Rate x Severity Rate x 3), which may be further adjusted for industry sector concentration by the Director.¹⁵

A	B	C	F	E	F	G
Whole-Letter Rating	Default Rate (Percent)	Severity Rate (Percent)	V3.0 GOA Factor (Percent)	V4.0 GOA Factors (D x 3) (Percent)	Concentration Ratio (e.g., 25%) (Percent)	Factor with Concentration Adjustment $1-((1-E)x(1-F))$ (Percent)
AAA	0.897	54	0.48	1.41	25.00	26.06
AA	2.294	54	1.24	3.70	25.00	27.78
A	2.901	54	1.57	5.13	25.00	28.84
BBB	7.061	54	3.82	11.48	25.00	33.61
Below BBB and Unrated	26.827	54	14.50	44.52	25.00	58.39

¹⁵Emery, K., Ou S., Tennant, J., Kim F., Cantor R., "Corporate Default and Recovery Rates, 1920 – 2007," published by Moody's Investors Service, February 2008 – the most recent edition as of March 2008; Default Rates, page 24, Recovery Rates (Severity Rate = 1 minus Senior Unsecured Average Recovery Rate) page 20.

4. Continuing the previous example, the pool contains two loans on which Farmer Mac is guaranteeing a total of \$2 million and with total submitted collateral of 110 percent of the guaranteed amount. Of the 10-percent total overcollateral, 5 percent is contractually required under the terms of the transaction. The pool consists of two loans of slightly over \$1 million. Total overcollateral is \$200,000 of which \$100,000 is contractually required. The counterparty has a single "A" credit rating, a 25-percent concentration ratio, and after adjusting for contractually required overcollateral, estimated losses are greater than zero. The net loss rate is calculated as described in the steps in the table below.

		Loan A	Loan B
1	Guaranteed Volume	\$2,000,000	
2	Origination Balance of 2-Loan Portfolio	\$1,080,000	\$1,120,000
3	Age-Adjusted Loss Rate	7%	5%
4	Estimated Age-Adjusted Losses	\$75,600	\$56,000
5	Guarantee Volume Scaling Factor	90.91%	90.91%
6	Losses Adjusted for Total Overcollateral	\$68,727	\$50,909
7	Contractually Required Overcollateral on Pool (5%)	\$100,000	
8	Net Losses on Pool Adjusted for Contractually Required Overcollateral	\$19,636	
9	GOA Factor for "A" Issuer with 25% Concentration Ratio	28.84%	
10	Losses Adjusted for "A" General Obligation	\$5664	
11	Loss Rate Input in the RBCST for this Pool	0.28%	

2.6 Calculation of Loss Rates on Rural Utility Volume for Use in the Stress Test.

You must submit the outstanding principal, maturity date of the loan, maturity date of the AgVantage Plus contract (if applicable), and the rural utility guarantee fee percentage for each loan in Farmer Mac's rural utility loan portfolio on the date at which the stress test is conducted. You must multiply the rural utility guarantee fee by two to calculate the loss rate on rural utility loans under stressful economic conditions and then multiply the loss rate by the total outstanding principal. To arrive at the net rural utility loan losses, you must next apply the steps "5" through "11" of section 2.4.b.4 of this Appendix. For loans under an AgVantage Plus-type structure, the calculated losses are distributed over time on a straight-line basis. For loans that are not part of an AgVantage Plus-type structure, losses are distributed over the 10-year modeling horizon, consistent with other non-AgVantage Plus loan volume.

4.1 Data Inputs.

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 and

rural utility guarantee fees. The spreadsheet uses this cashflow information to generate starting and ending account balances, interest earnings, guarantee fees, rural utility 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."

e. Loan-Level Data for All Rural Utility Program Volume. The stress test requires loan-level data for all rural utility program volume. The specific loan data fields required for calculating the credit risk are outstanding principal, maturity date of the loan, maturity date of the AgVantage Plus contract (if applicable), and the rural utility guarantee fee percentage for each loan in Farmer Mac's rural utility loan portfolio on the date at which the stress test is conducted.

f. Weighted Haircuts for Non-Program Investments. For non-program investments, the stress test adjusts the weighted average yield data referenced in section 4.1.b. to reflect counterparty risk. Non-program investments are defined in § 652.5. The Corporation must calculate the haircut to be applied to each investment based on the lowest whole-letter credit rating the investment received from an NRSRO using the haircut levels in effect at the time. Haircut levels shall be the same amounts calculated for the GOA factor in section 2.4.b.3 above. The first table provides the mappings of NRSRO ratings to whole-letter ratings for purposes of applying haircuts. Any "+" or "-" signs appended to NRSRO ratings that are not shown in the table should be ignored for purposes of mapping NRSRO ratings to FCA whole-letter ratings. The second table provides the haircut levels by whole-letter rating category.

FCA WHOLE-LETTER CREDIT RATINGS MAPPED TO RATING AGENCY CREDIT RATINGS

FCA Ratings Category	AAA	AA	A	BBB	Below BBB and Unrated
Standard & Poor's Long-Term	AAA	AA	A	BBB	Below BBB and unrated
Fitch Long-Term	AAA	AA	A	BBB	Below BBB and Unrated
Standard & Poor's Short-Term	A-1+ SP-1+	A-1 SP-1	A-2 SP-2	A-3	SP-3, B, or Below and Unrated
Fitch Short-Term	F-1+	F-1	F-2	F-3	below F-3 and Unrated
Moody's		Prime- MIG12 VMIG1	Prime-2 MIG2 VMIG2	Prime-3 MIG3 VMIG3	Not Prime, SG and Unrated
Fitch Bank Ratings	A	B A/B	C B/C	D C/D	E D/E
Moody's Bank Financial Strength Rating	A	B	C	D	E

FARMER MAC RBCST MAXIMUM HAIRCUT BY RATINGS CLASSIFICATION

Ratings Classification	Non-Program Investment Counterparties (Excluding Derivatives) (Percent)
Cash	0.00
AAA	1.41%
AA	3.70%
A	5.13%
BBB	11.48%
Below BBB or Unrated	44.52%

4.2 Assumptions and Relationships.

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 (with the exception of AgVantage Plus volume, in which case maturities are recognized by the model), 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:

- (v) Loans held for securitization;
- (vi) Farmer Mac II program assets; and
- (vii) Rural Utility program volume on balance sheet.

(B) * * * The exceptions are that expiring pre-1996 Act program assets are replaced with post-1996 Act program assets and AgVantage Plus volume maturities are recognized by the model.

(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, rural utility 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. * * *

(3) *Elements related to income and expense assumptions.* * * * These parameters are the gain on agricultural mortgage-backed securities (AMBS) sales, miscellaneous income, operating expenses, reserve requirement, guarantee fees, rural utility guarantee fees, and loan loss resolution timing.
* * * * *

4.3 Risk Measures.

* * * * *

e. The credit loss exposure on rural utility volume, described in section 2.6, "Calculation of Loss Rates on Rural Utility Volume for Use in the Stress Test," is entered into the "Risk Measures" worksheet applied to the volume balance. All losses arising from rural utility loans are expressed as annual loss rates and distributed over the weighted average maturity of the rural utility AgVantage Plus Volume, or as annual loss across the full 10-year modeling horizon in the case of rural utility Cash Window loans.

* * * * *

4.4 Loan and Cashflow Accounts.

* * * The steady-state formulation results in account balances that remain constant except for the effects of discontinued programs, maturing AgVantage Plus positions, and the LLRT adjustment. * * *

Dated: January 19, 2010

**Roland E. Smith,
Secretary,
Farm Credit Administration Board.**