

To: RMA

Re: Actuarial Review for Price Volatility Factor Methodology

Date: 10-29-2014

The following comments are in response to the RMA public request for review and feedback of the Actuarial Review for Price Volatility Factor Methodology, a contracted study performed by Sumaria Systems for RMA.

First, we would like to thank RMA for providing the Sumaria Review paper in a public forum, and the opportunity to submit feedback on the study. We would also like to thank Sumaria systems for taking the time to fully document their comprehensive work product for ease of understanding.

From our view, the Sumaria Systems contract study addressed two essential questions about the Volatility Factor Methodology used in computing the premium associated with the price risk portion of MPCl Crop Insurance.

1. Is the Black-Scholes methodology legitimate and do the volatility factors measure the price risk?
2. Is there a more valid and transparent methodology available?

The fundamental results of the Sumaria study were as follows:

1. While the conclusion is that the Black-Scholes method is a legitimate one, there fails to be correlation between the price volatility and magnitude of the actual price change. As a result the approach may not provide an adequate measure of price risk within a given year for MPCl crop insurance.
2. Unable to identify or recommend any meaningful improved or acceptable alternatives.

As previously mentioned, Sumaria's comprehensive analysis is understood and their thorough documentation is appreciated.

However, because the implications of the study conclusions have not been addressed, we hope that RMA and Sumaria Systems will recognize and appreciate our recommendation for their further involvement to address the following outstanding matters.

Specifically, the Volatility Factor Methodology is admittedly unable to address the price risk embedded in the MPCl Crop Insurance program. The implication is an understanding that years exhibiting low volatility factors may have (or even observe) significant price change and that premiums associated with the price risk will be inadequate.

We would request that RMA consider addressing the issue in two ways.

A. Consider a floor in the volatility factor calculation.

The floor would, in low volatility years, serve as a means to ensure a reasonable but not excessive price-risk premium is generated to directly recognize that significant price risk may not be unlikely to occur (i.e. it may be more than just a tail probability).

It is our estimate that low vol factors in the presence of volatile market conditions will exist more frequently than high vol factors in the presence of significant market stabilization. Thus, the logical framework for an upside LR bias is developed and the discussion/solution involving a floor should be the more immediate concern.

B. Consider risk management alternatives within the confines of the existing SRA Risk Share formulas in order to mitigate the leveraged damage resulting from observed price volatility in the presence of low volatility factors (inadequate premiums).

The underlying motivation is a result of the general acknowledgement that price risk cannot be appropriately measured and experience is likely to exhibit an upward LR bias. As a result, it is logical to implement stop loss relief when price reduction/increase exceeds a specific value. This value may be determined by specified percentiles associated with the price curve implied by the volatility factor. Our recommendation is to address one of two ways:

- i. to implement an RMA stop loss at 200% gross LR for these outlying losses or
- ii. create harvest price bands around a base volatility factor. As the volatility factor/measurement changes from year to year, the price bands would expand/contract appropriately with loss cessions outside of those harvest price ranges.

In recent years, companies have generally observed Gross Indemnities exceed Gross Premiums on a regular basis. The majority of the coverage risk in the program can be classified as a Low Deductible Revenue Product (i.e. high coverage level). In the meantime 2 recent and significant MPCl Program Development concerns of TA option and APH modernization provide vehicles to increase a farmers "effective coverage level".

Our view and expectation is that further pricing and risk management problems will arise given the program development trend.

As such, we also recommend RMA and RMA Contractor's begin to incorporate stakeholders in the crop insurance program in advance of finalizing contract project scope.

We appreciate RMA's efforts to understand industry concerns, and would like to thank RMA for the opportunity to comment on this important issue.

Sincerely,
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