# RMA'S RESPONSE TO COMMENTS ON THE "MILLIMAN STUDY"

Background

Crop insurance is a critical component of the farm safety net that helps producers manage their risk. Over the past twenty years, the program has seen significant increases in participation and coverage. Against the backdrop of the crop insurance program's success and increased participation levels, however, concerns have been expressed by academics, oversight bodies, and members of Congress regarding the program's cost. It has become evident that the program's success has come at a price for taxpayers in the form of expenditures from the Federal Crop Insurance Corporation (FCIC) to Approved Insurance Providers (AIPs). The program's two key government crop insurance expenditure items to AIPs—the A&O subsidy (which is intended to cover AIPs administrative and operating costs) and underwriting gains (which provides AIPs with the opportunity to earn a reasonable profit for the insurance risks they assume) have risen significantly in recent years. These two expenditure items, along with the change in the number of insurance policies, are shown in the following graph:
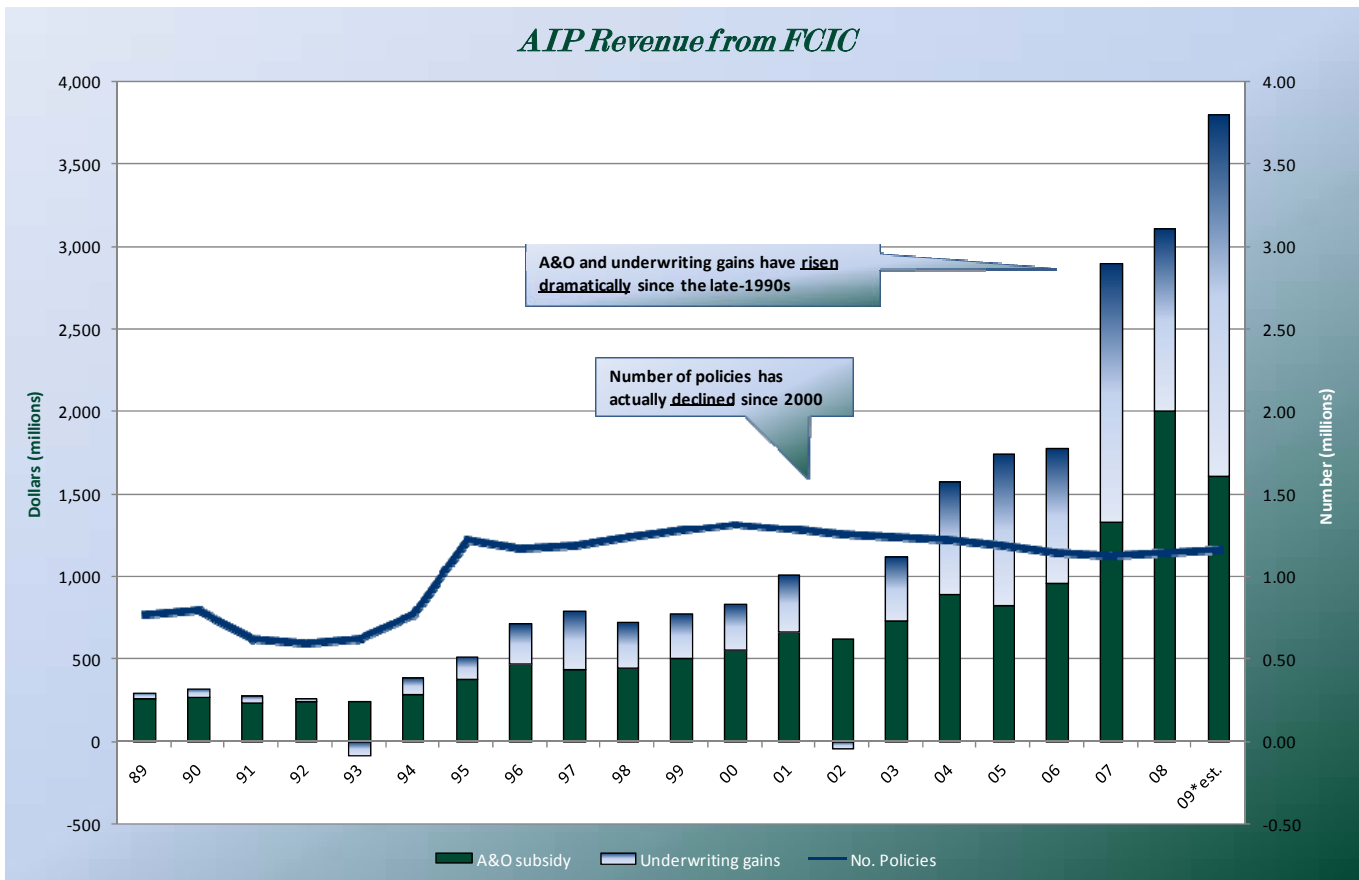
During the 2008 Farm Bill debate, the Risk Management Agency (RMA) listened to and evaluated various approaches by government, academia, and industry-sponsored organizations to measure AIP profitability. For RMA, none of these studies appeared to provide an unbiased,

accurate, and credible approach to the measurement of company profitability—certainly not one that could be used and defended in a regulatory setting. RMA determined that an approach used by Milliman, Inc. (Milliman) in a previous study met RMA's requirements for being independent, rigorous, and definitive. It was also consistent with the approach used by many government regulatory authorities – including those charged with regulating insurers.
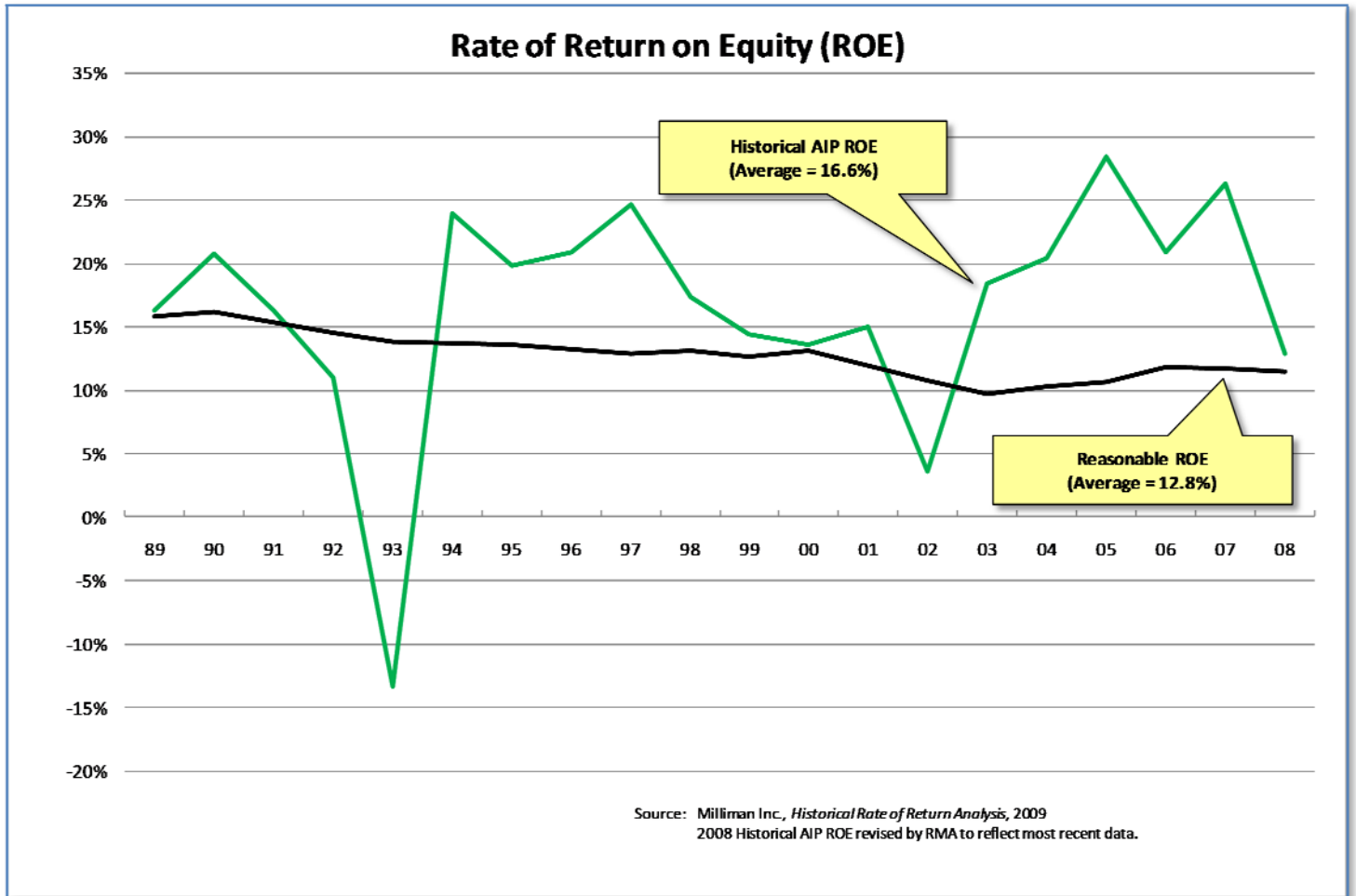
Consequently, RMA commissioned Milliman to review and update the methodology used in the prior study to measure profitability for AIPs against the economic standard of a reasonable rate of return for the years 1989 through 2008. RMA presented Milliman's findings to the crop insurance industry on September 17, 2009, and posted Milliman's two reports on its website shortly thereafter. The two reports are:

- *Reasonable Rate of Return.* Derives the annual rate of return that crop insurance companies should be expected to earn, including a normal profit, to equal earnings from alternative investment opportunities relative to the risk assumed. (Also known as the industry cost of capital.) This calculation serves as the benchmark return against which actual returns can be compared to determine profitability; and

- *Historical Rate of Return.* Calculates actual rates of return, expressed in term that can be directly compared to the reasonable rate of return.

Interested parties have evaluated the reports and their findings, raised various issues, and provided comments to RMA. Below are concerns that have been raised, as well as RMA's response:

#1. The 2008 rate of return reported by Milliman. *"2008 numbers used are out-dated and overstate returns…"*

RMA provided Milliman with data for the 2008 reinsurance year in February 2009. At the time RMA supplied these data for Milliman's analysis, they were accurate and the most current. In response to the industry's comment, however, RMA has re-calculated the rate of return to account for the unusual 2008 losses reported after February 2009. RMA has also revised the return on invested assets, which had been a preliminary estimate in the Milliman report. The revised historical rate of return for the industry for 2008 is 12.9 percent. With this revision, the 20-year average historical rate of return is 16.6 percent, which exceeds the average Reasonable Rate of Return by 3.7 percent. The 2008 reasonable rate of return presented in the original report remains 11.5 percent and the 20-year average reasonable rate of return remains 12.8 percent. The following graph shows the historical and reasonable rates of return with revised 2008 data:

Rate of Return on Equity (ROE)

Historical AIP ROE
(Average = 16.6%)

Reasonable ROE
(Average = 12.8%)

Source: Milliman Inc., *Historical Rate of Return Analysis*, 2009
2008 Historical AIP ROE revised by RMA to reflect most recent data.

#2. The time period chosen. *"The time period analyzed doesn't recognize the full catastrophic potential of crop insurance."*

The Data Acceptance System (DAS) used by RMA to monitor policy-level crop insurance data was established in 1989. The time period analyzed by Milliman encompasses the entire DAS data set currently available at RMA. Although a longer historical time period may have been desirable, the Milliman analysis reflects the longest historical data set of all AIP profitability studies currently available. Indeed, the study sponsored by the crop insurance industry and conducted by Grant Thornton, LLP (Grant Thornton) examines data only back to 1992.

Milliman acknowledged in its report that surveying only 20 years limits the conclusions one may draw as to the likelihood of potential catastrophic events. To more fully consider this possibility, it performed a hypothetical analysis in which the 20-year span includes a second "disaster" year, similar to that of 1993 in place of an average year. The result of this hypothetical exercise is an average historical rate of return which still exceeds the reasonable rate of return by 2.3 percent. (This value includes the impact of the correction for 2008.)

#3. The assumption that AIP expenses equal the A&O subsidy. *"A&O subsidies no longer equal or exceed the cost of delivering the program."*

Knowing precisely the true cost of delivering crop insurance is problematic. RMA receives certain delivery expense reports from AIPs annually. Although these financial statements indicate actual expenses somewhat greater than the A&O subsidy for most AIPs, these reports are not audited.

On the other hand, findings by the Government Accountability Office (GAO) support the opposite position—that the A&O subsidy exceeds appropriate program delivery expenses. In reviews conducted in 1997 and again in 2008, GAO examined AIPs crop insurance delivery expenses, how much AIPs were actually spending on program delivery and whether AIPs were spending government A&O subsidies appropriately. It found that some program delivery expenditures reported by AIPs were either excessive or inappropriate for a government-sponsored program. GAO concluded that opportunities existed for the government to reduce the A&O subsidy without jeopardizing program delivery.

Given the two competing claims—that the A&O subsidy has been either (a) insufficient in covering program delivery expenses, or (b) excessive relative to reasonable delivery expenses—Milliman relied on a middle position, which was to assume that the A&O subsidy was equal to appropriate program delivery expenses.

#4. Consideration of commercial reinsurance costs. *"Private reinsurance costs are expenses too." "…the cost of private market reinsurance that companies need in order to satisfy the eligibility standards for participation in the program is not considered."*

FCIC does not require commercial reinsurance as a condition for program participation. If an AIP has insufficient policyholder surplus to write its desired level of crop insurance premiums, the AIP may elect to obtain commercial reinsurance to qualify to write its desired level of premiums. An AIP may also elect to obtain commercial reinsurance if it simply wishes to reduce the risk in its book of business. It should be noted that FCIC is the primary reinsurer for the crop insurance program. FCIC's unique reinsurance package is a benefit available to all AIPs. When AIPs go to the commercial reinsurance market, it is to cover only those risks that are not covered by FCIC under the SRA. Thus, commercial reinsurers of AIPs are "residual reinsurers."

Commercial reinsurance obtained by AIPs is usually in one of two forms: quota share, in which the reinsurance company shares in a percentage of the AIP's premiums and liabilities; and stop loss, in which the reinsurance company assumes portions of the AIPs losses at various layers of loss ratios. Commercial quota share reinsurers pay AIPs a ceding commission, because the reinsurer effectively "invests" in the AIP's book of business. By contrast, commercial stop loss reinsurers collect reinsurance premiums from AIPs. A complicating factor is that stop loss reinsurance often has profit sharing terms by which AIPs can recover a portion of reinsurance expenses. These factors make it difficult to determine AIPs' net costs or revenues from commercial insurance.

Milliman's calculation of AIP profitability is after the effect of FCIC's extensive reinsurance structure but before other, residual reinsurance that AIPs may elect to obtain. The commenters suggest that Milliman should incorporate commercial reinsurance premiums for stop loss reinsurance as a separate expense beyond those intended to be covered by the A&O subsidy. However, the commenters remain silent on potential profit sharing benefits or ceding commissions received by AIPs from commercial reinsurers. Although Milliman acknowledges that private reinsurance may result in net costs, the collection of data on reinsurance commission and premium cash flows and the determination as to AIPs overall net expenses or revenues from reinsurance was beyond the scope of the project.

#5. Consideration of 2008 Farm Bill cuts. *"2008 Farm Bill cuts are not included."*

Milliman was tasked with measuring reasonable and actual historical rates of return for the crop insurance industry through the 2008 reinsurance year. Although one should consider how the 2008 Farm Bill changes will potentially affect profitability for the 2009 and later reinsurance years (see comment #6 response), these factors are not relevant for understanding or interpreting Milliman's historical findings.

#6. The appropriateness of measuring profitability with historical returns.
"Historical rates of return are not appropriate measures of the profitability of the current SRA."

RMA agrees with the industry that the Milliman findings should not be the only consideration for estimating future profitability of the crop insurance industry. In various disclaimers in its reports, Milliman also urges caution in this regard. (Refer to comment #2 above, for instance.) The commenter observes other factors that could potentially result in lower profits for insurance companies relative to Milliman's historical benchmark.

On the other hand, objective consideration of still other factors can indicate the opposite conclusion—that the Milliman findings on historical earnings may understate the potential for future company profitability. In particular, RMA has conducted historical analyses which tend to show much better underwriting results than reported historically when current premium rates and the current mix of insurance plans are applied throughout the historical sample.

Therefore, RMA agrees with the industry that many factors, both positive and negative, could impact future profitability and should be considered. In this context, Milliman's findings provide a credible, historical benchmark from which one can consider other factors.

#7. Allocating surplus by line. *"The methodology for allocating surplus by line appears to create unreasonable results."*

Milliman employs the National Association of Insurance Commissioners (NAIC)-sanctioned method for allocating surplus across lines. From the NAIC method, one can determine a "premium-to-surplus" ratio for calculating rates of return. (Holding all other factors constant, a larger premium-to-surplus ratio results in a larger rate of return calculation.) Milliman observes that its initial calculations using this approach results in an unusually large premium-to-surplus

ratio; it observes that, unlike other insurance lines, crop insurance premiums are not "loaded" with delivery expenses. To ensure that AIP profitability is not overstated by this unique feature of the crop insurance program, Milliman recalculates the allocation using crop insurance premiums which have been "loaded" with the A&O subsidy. This appropriately allocates additional surplus to MPCI, which lowers the premium-to-surplus ratio and ensures that AIP profitability is not overstated.

The industry commenter apparently sees a problem with using the A&O subsidy as a proxy for a premium "load" because if one were to cut A&O subsidy rate and hold everything else constant, the calculated premium-to-surplus ratio would increase. Such a change, of course, would cause an increase in calculated profitability. However, not making this adjustment would inappropriately overstate AIP's rates of return. The commenter indicates an adjustment should be made but does not offer an alternative to Milliman.

The commenter also has concerns that Milliman's allocation determination does not include the effect of commercial reinsurance. (See comment #4 for a discussion on the impact of commercial reinsurance on AIP profitability.)

#8. The investment return on equity. *"A lower yielding asset mix would lower the historical returns of the industry"* and *"The assumption of using 2007 returns for 2008 overstates the 2008 return of the industry by an estimated 2 points."*

Milliman assumes that investments earned from policyholder surplus are the same rate for crop insurance as for other property and casualty (P&C) lines of the company. The commenter observes that crop insurance is a "short-tailed" line relative to other insurance—the time period between crop insurance coming into force and claims being paid is relatively short. The commenter concludes that Milliman should have used shorter-term investments for crop insurance relative to other lines; shorter-term investments generally yield less than longer-term. This comment would be relevant if the analysis focused only on earnings from operations, where it is more critical to match the term of investments to the timing of claims payments. This is not a consideration for crop insurance, however, because AIPs have few opportunities for investment earnings from operations. Indeed, Milliman assumes zero earnings for AIPs from operations investments. For the company's decision on the term for investment earnings from policyholder surplus, which is shared by all lines, however, the "tail" of the company's individual lines is less relevant than is the average tail for all lines.

Another consideration that mitigates in favor of using an industry average asset mix is that Milliman's analysis compares the historical return to a reasonable rate of return that is based on insurance industry average risk. Since one important aspect of industry risk is the risk of the asset portfolio, it is appropriate to use the industry average asset mix to estimate the return on investment. If a lower risk asset mix was assumed for MPCI, it would be reasonable to adjust the reasonable rate of return downward as well.

In the second comment related to the investment return on policyholder surplus, the commenter observes that Milliman assumes that the 2008 rate of return is equal to 2007, because 2008 data were not available at the time Milliman completed its analysis. RMA has evaluated Milliman's

investment returns for 2008 using most current data and determined that the post-tax return on invested assets should be 3.0%, down from Milliman's original assumption of a return of 3.8%. The revised data for investment returns are included in the response to comment #1 and the accompanying graph.

#9. Milliman's use of assumptions. *"Unlike the Grant Thornton report, which relies on publicly available information and actual company expense data, the results presented in the Milliman reports require a vast number of assumptions and proxies for the many parameters needed to evaluate profitability."*

The foundation for the Milliman analysis starts with publicly available data. However, Milliman also recognizes the influence of the government on the Federal crop insurance program and that a simple comparison with other lines of insurance from public information alone is problematic. Important differences between crop insurance and other lines must be considered to make any comparison meaningful. Grant Thornton begins its report with a similar acknowledgement. Milliman considers the unique features of crop insurance and uses a methodology that properly accounts for the most important features. All assumptions used by Milliman are specifically stated and are all necessary for a meaningful accounting of crop insurance profitability and comparisons to a reasonable rate of return.

An example of why certain assumptions are needed for meaningful profitability comparisons is the consideration of investment earnings. Investment earnings are an important contributor to the profits of all insurance companies, including those of crop insurance companies. However, the two major sources of investment earnings—(a) operations and (b) policyholder surplus—should be treated differently between crop insurance and other lines. Milliman recognizes that crop insurance companies do not collect premiums upfront for investment prior to claims being paid, as with other lines. The resulting assumption by Milliman is that the companies do not earn any investment income from operations. On the other hand, crop insurance inherently shares investment earnings from policyholder surplus with the company's other insurance lines. Milliman uses the guidance provided by the National Association of Insurance Commissioners for allocating policyholder surplus across lines of insurance to properly attribute these investment earnings to AIPs.

In contrast to the Milliman approach, the methodology in the Grant Thornton study employs an unstated (and incorrect) assumption that the crop line of insurance earns no investment income from policyholder surplus. For P&C companies, on the other hand, Grant Thornton includes all investment earnings from policyholder surplus. In its comparisons between AIPs and other P&C companies, therefore, the Grant Thornton study significantly understates AIP profitability by failing to properly attribute any investment earnings from policyholder surplus.

#10. The divisibility of policyholder surplus. *"…Milliman continues by allocating GAAP surplus to individual lines of insurance, disregarding its own observation that 'an insurer's surplus is inherently indivisible.'"*

Milliman's observation regarding the indivisibility of policyholder surplus simply recognizes that an insurance company's policyholder surplus is shared by all lines of insurance written by

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the company. Consequently, being able to attribute any portion of the surplus to a particular line of insurance is complicated and requires a method for allocating the surplus across lines of insurance. Milliman's observation <u>does not imply</u> that there are never instances for which allocation is required for analyzing particular lines of insurance. On the contrary, one <u>must</u> consider allocations of surplus to specific lines of insurance to solve an extensive range of financial and regulatory problems common to the insurance industry, as evidenced by the various surplus allocation methods noted by Milliman that have been advanced and defended.

Milliman demonstrates that, when considering the profitability of a specific line of insurance, an allocation of policyholder surplus to that specific line is required. After explaining alternative methods for allocating surplus, Milliman uses the method recommended by the National Association of Insurance Commissioners for such problems.   Milliman finds that investment earnings from policyholder surplus are a significant element of AIP profitability. Properly accounting for these earnings is not possible without a credible surplus allocation method.

#11. Use of two methods for calculating a reasonable rate of return. *"A serious concern with the Milliman analysis is highlighted by the fact that two distinct methods are needed to evaluate the cost of capital."*

The Milliman analysis describes in detail the two customary methods by which the cost of capital (reasonable rate of return) may be calculated and provides the rationale supporting each approach. The first method, Discounted Cash Flow (DCF also known as the Gordon growth model), is the most widely used approach in the regulation of the utilities industry and many other regulatory settings. The second method, Capital Asset Pricing Model (CAPM) is the preferred approach of financial analysts in academic work and has become more common in insurance rate hearings.

Milliman observes that both methods produce roughly the same result; over the 20-year period analyzed, the difference between the average of the two is less than ½ of 1 percent (refer to chart below). Milliman provides the details for both methods and, in the end, justifies an average of the two as a reasonable assumption. Nevertheless, the strength of the Milliman analysis is that one has the information to select either method, if desired.

Reasonable Rate of Return Measures
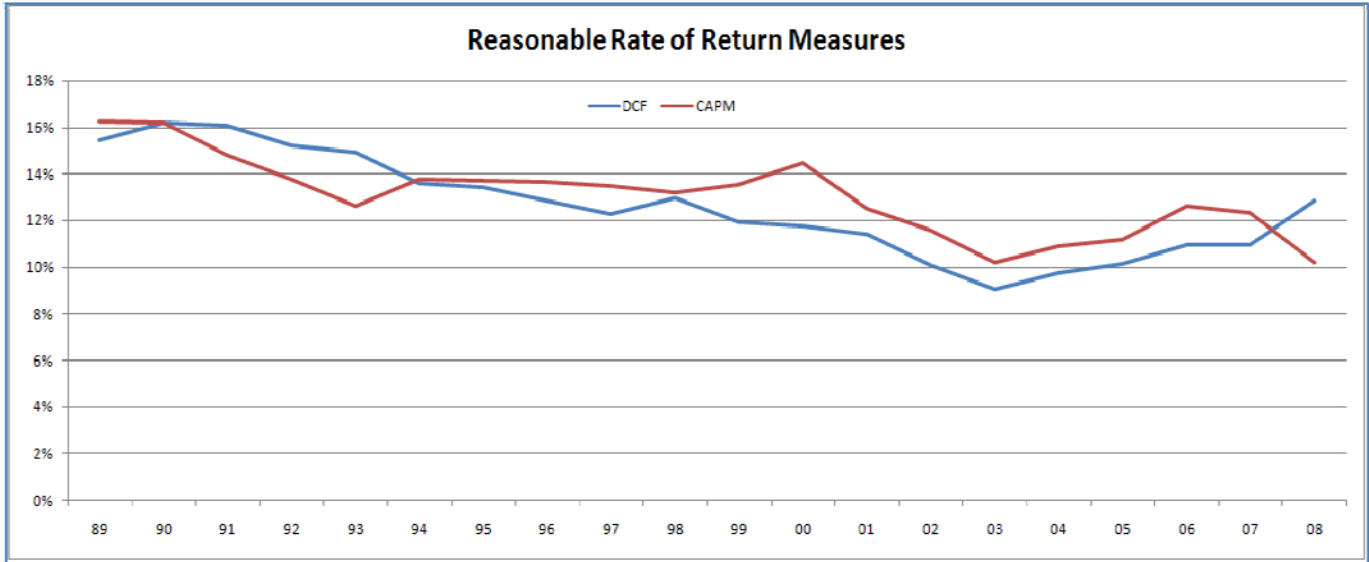
Summary

The marketplace for crop insurance has changed dramatically over the past two decades. Milliman provides the most rigorous, credible, and effective methodology currently available for describing and measuring how those changes have impacted the profitability of AIPs. The study measures AIP profitability in a manner that has attractive features for all stakeholders in the program. Specifically, the study is:

- Unbiased. Milliman uses the same basic methodology in this study as it has used in preparing analyses for private industry for government regulatory hearings;

- Methodologically sound and rigorous. The methodology used by Milliman has an established history as being sound, both in academic circles and in government regulatory findings, and is rigorous in accounting for relevant factors to the maximum extent possible; and

- Transparent. Although the methodology is sometimes complex so as to equitably and properly account for relevant factors, Milliman's reports show each step in the collection of the data used in the study, the derivation of all calculation formulas, and the rationale for making assumptions when such assumptions are appropriate.

Most importantly, the study can provide all stakeholders with important information and measurements, as changes in the SRA's financial terms are considered. It gives all stakeholders a credible measure of the industry's reasonable and historical rates of return. This can serve RMA and the industry as a critical benchmark for ensuring that taxpayers' interests are protected, that AIPs earn a rate of return sufficient to remain financially strong, and ensure that farmers continue to benefit from what has become their most important risk management tool—crop insurance.

Appendix – Data Used in Charts

Data for Chart 1:   **AIP Revenue from FCIC**

Year	A&O Subsidy	Underwriting Gains	Policies
	Dollars	Dollars	Number
1989	262,368,004	28,892,316	768,801
90	268,195,421	51,134,007	798,363
91	234,676,271	41,309,936	630,185
92	240,016,763	21,811,739	603,851
93	242,684,632	(83,326,250)	625,533
94	281,612,706	103,270,641	772,516
95	377,482,626	132,302,113	1,230,780
96	468,150,343	247,571,252	1,180,158
97	437,840,045	352,070,977	1,192,831
98	443,261,499	279,208,820	1,241,858
99	500,658,031	271,756,850	1,289,060
00	552,136,965	281,781,555	1,324,176
01	664,403,012	346,371,756	1,298,070
02	625,827,785	(46,678,793)	1,259,143
03	736,046,145	381,403,682	1,241,230
04	889,424,605	690,870,576	1,228,434
05	829,160,230	917,018,786	1,191,141
06	958,338,737	821,688,842	1,154,977
07	1,332,473,396	1,571,848,934	1,137,442
08	2,009,408,048	1,104,819,028	1,148,819
09 est.	1,606,358,668	2,194,093,980	1,168,909

Data for Chart 2:   **Rate of Return on Equity (ROE)**

	Historical AIP ROE	Reasonable ROE
1989	16.3%	15.9%
90	20.8%	16.2%
91	16.3%	15.4%
92	11.0%	14.5%
93	-13.4%	13.8%
94	23.9%	13.7%
95	19.8%	13.6%
96	20.9%	13.2%
97	24.6%	12.9%
98	17.3%	13.1%
99	14.4%	12.7%
00	13.6%	13.1%
01	15.0%	12.0%
02	3.5%	10.8%
03	18.4%	9.7%
04	20.4%	10.3%
05	28.4%	10.7%
06	20.9%	11.8%
07	26.3%	11.7%
08	12.9%	11.5%

Data for Chart 3:   **Reasonable Rate of Return Measures**

Year	Discounted Cash Flow	Capital Asset Pricing Model
1989	15.44%	16.26%
90	16.17%	16.19%
91	16.04%	14.80%
92	15.18%	13.80%
93	14.90%	12.64%
94	13.62%	13.79%
95	13.44%	13.75%
96	12.83%	13.67%
97	12.31%	13.48%
98	12.97%	13.18%
99	11.94%	13.53%
00	11.79%	14.50%
01	11.42%	12.54%
02	10.10%	11.58%
03	9.08%	10.22%
04	9.76%	10.92%
05	10.18%	11.17%
06	10.94%	12.64%
07	10.96%	12.35%
08	12.86%	10.21%