

AMERICAN ACADEMY *of* ACTUARIES

February 15, 2012

Felix Schirripa
Chair, Contingent Deferred Annuity (A) Subgroup
National Association of Insurance Commissioners

Dear Mr. Schirripa:

The Contingent Annuity Work Group (CAWG) of the American Academy of Actuaries¹ appreciates the opportunity to review and provide comments on the materials² you provided for discussion of the NAIC Contingent Deferred Annuity (A) Subgroup during its January 26 call. We appreciate that you meant this presentation to be a thought-provoking piece to stimulate discussion about the product, and was not intended to reflect the current market or current pricing for Contingent Deferred Annuities (CDAs). With that understanding in mind, we respectfully submit the following comments as part of the learning experience.

The historic comparison is a valid demonstration of the operation of a CDA compared to self-insurance under one specific set of circumstances, but a prospective view is needed to fully understand the risk protection that CDAs provide. The historic analysis is based on 613 different market return periods (and based on 613 corresponding starting points); however, the analysis is based on one deterministic scenario. A prospective stochastic model would take into account a broad array of future scenarios, giving a more realistic picture of the number of times the CDA guarantee would be triggered and the value provided. We have prepared graphs similar in format and content to those in your presentation, showing the results using the NAIC Scenario Generator for C3-Phase II RBC (a stochastic approach). We have examined, as you did, both residual assets and longevity protection (under your definition of those terms), and made the same consumer behavior assumptions that you did (e.g., life expectancy to age 100; full utilization of the CDA withdrawal allowance under both CDAs and self-insurance, in recognition that the purchaser is buying a CDA for lifetime income protection). The attached addendums provides CAWG graphs side-by-side with your graphs, along with commentary on the comparative results.

A key conclusion from this stochastic analysis is that the likelihood of an individual outliving his or her assets, and the benefits received through the lifetime income guarantee provided by the CDA, are significant. In addition, a general conclusion drawn from this analysis is similar to your conclusion: the value to the consumer is maximized by investing in a higher risk/reward portfolio. The primary reason for purchasing a CDA is to protect against outliving one's assets. However, the presence of a

¹ The American Academy of Actuaries is a 17,000-member professional association whose mission is to serve the public and the U.S. actuarial profession. The Academy assists public policymakers on all levels by providing leadership, objective expertise, and actuarial advice on risk and financial security issues. The Academy also sets qualification, practice, and professionalism standards for actuaries in the United States.

² *Contingent Deferred Annuities Longevity Protection, Market Risk & Fee Drag, What can we learn from history?*, dated January 25, 2012

guarantee could potentially motivate a buyer to invest in a slightly higher risk/reward portfolio, subject to the restrictions established by the issuer of the CDA, if that investment strategy is suitable for the individual.

Please feel free to contact us to discuss any questions you might have about our analysis.

Sincerely,

Andy Ferris, Chair
Contingent Annuity Work Group
American Academy of Actuaries

Cande Olsen, Vice-President
Life Practice Council
American Academy of Actuaries

Addendum
Historical Market Returns vs.
NAIC C-3 Phase II Scenario Generator Market Returns

Contingent Deferred Annuity (CDA)
Compared to Self Insuring

Contingent Annuity Work Group

American Academy of Actuaries

February 16, 2012



“Residual Assets”

Separate Comparisons for Portfolios A, B, and C

Portfolio A (Aggressive = 75% Equities/25% bonds)

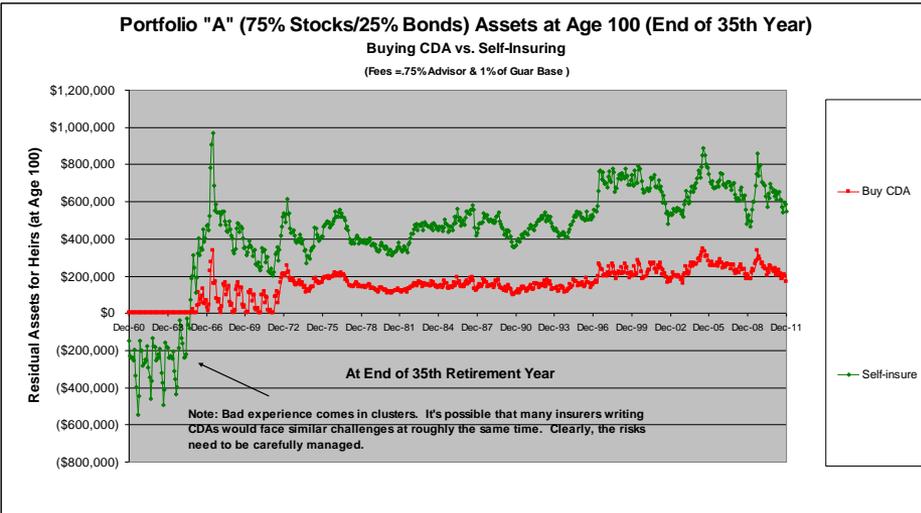
Portfolio B (Balanced = 50% Equities/50% bonds)

Portfolio C (Conservative = 25% Equities/75% bonds)



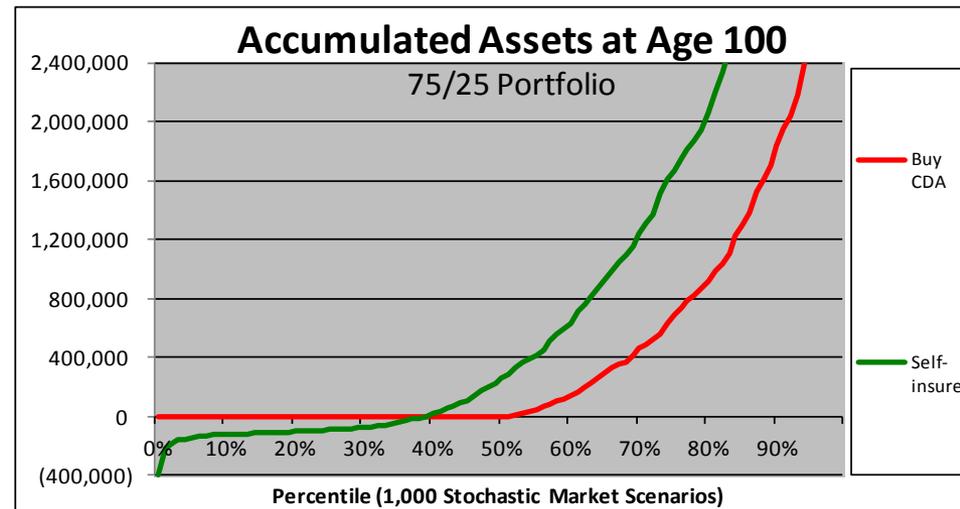
Portfolio A (75% Stocks/25% Bonds)

Historical Market Returns



Source: Felix Schirripa

"NAIC Scenario Generator" Market Returns



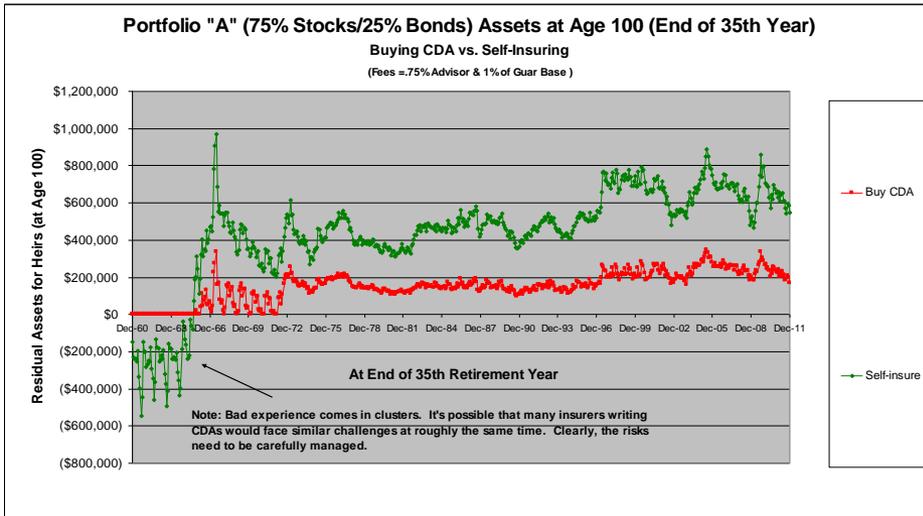
Source: CAWG

Notes and Observations (applicable to comparisons of all three portfolios)

- “Residual Assets” are defined as accumulated premium, net of fees and withdrawals (5% of the CDAs Guaranteed Benefit Base for both the CDA and self-insurance), which we will refer to as “accumulated assets.” After assets are exhausted, the historical demonstration accumulates “negative assets” at market returns, whereas the stochastic analysis aggregates amounts at 0% interest. While neither approach is incorrect, the difference in methodology results in an understatement of the magnitude of stochastically projected self-insurance losses relative to historical self-insurance losses.
- All comparisons assume full utilization of the 5% maximum withdrawal option, in recognition of the fact that the CDA is an income protection product
- Historical demonstration results are arranged in chronological order; “NAIC scenario generator” results are arranged in magnitude order (lowest to highest in each graph)
- Both the historical and the stochastic tests show that an individual would end up with higher accumulated assets under self-insurance than with the CDA, if the individual does not outlive his/her assets
- Both tests show that if an individual does outlive his/her assets, the presence of the CDA allows the policyholder to avoid losing income or depleting other assets (flat portion of red line in each graph)

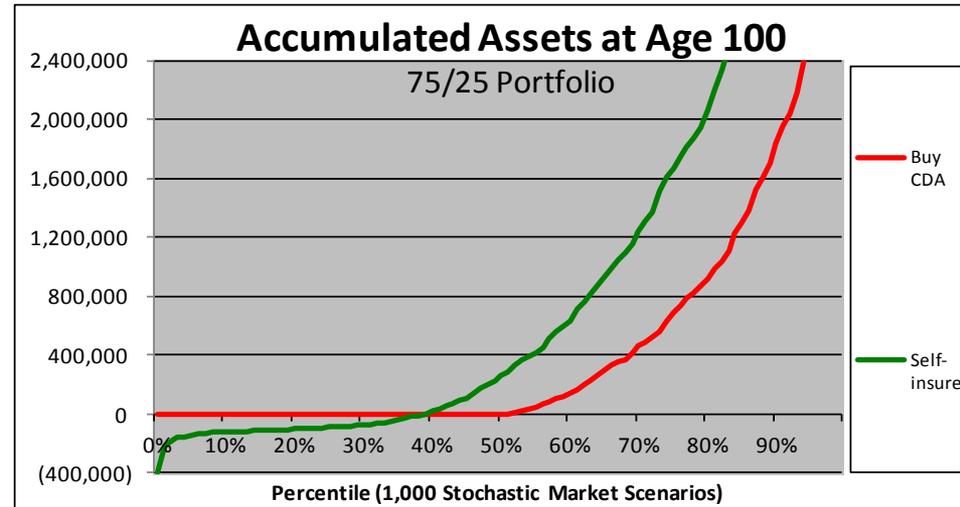
Portfolio A (75% Stocks/25% Bonds)

Historical Market Returns



Source: Felix Schirripa

“NAIC Scenario Generator” Market Returns



Source: CAWG

Notes and Observations (applicable to comparisons of all three portfolios, continued)

- The lower amount of accumulated assets beyond the point where the green and red lines cross, as well as the higher incidence of assets reaching \$0 (51% vs. 39% in this graph), are caused by the additional account value depletion due to the deduction of CDA fees.

Notes and Observations (applicable to Portfolio A comparison)

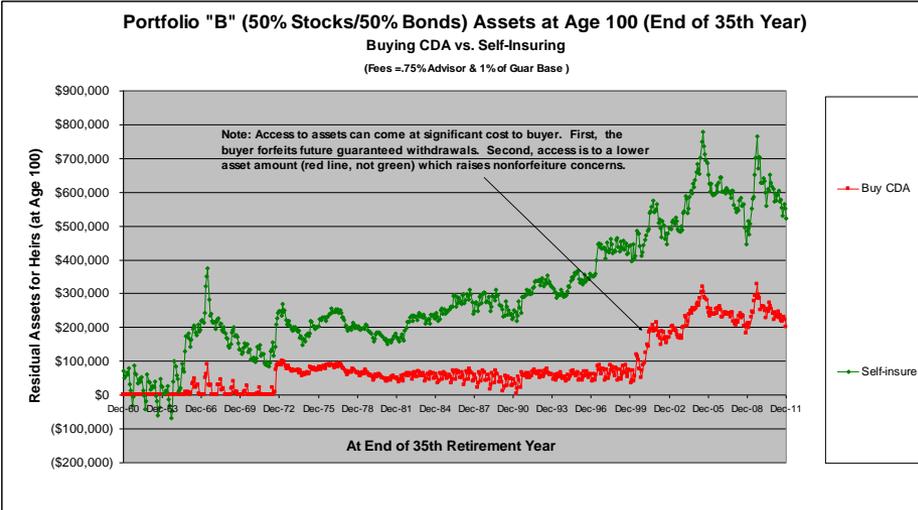
- The use of stochastic market scenarios rather than historical returns shows a higher likelihood of outliving one’s assets (when self-insuring, approx. 39% of stochastic scenarios vs. approx. 9% of historical periods; with the CDA, approx. 51% of stochastic scenarios vs. approx. 12% of historical periods).

Embedded Comment from Historical Demonstration Above: “Bad experience comes in clusters. It’s possible that many insurers writing CDAs would face similar challenges at roughly the same time. Clearly, the risks need to be carefully managed.”

CAWG Response: Unlike longevity / mortality risk, market risk is not diversified through pooling. Instead, market risk is managed through investment restrictions and hedging activities.

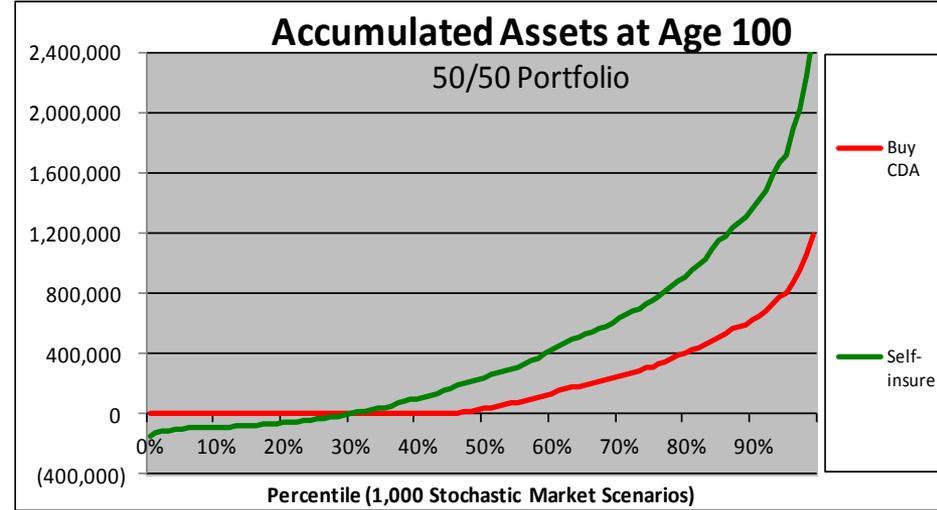
Portfolio B (50% Stocks/50% Bonds)

Historical Market Returns



Source: Felix Schirripa

“NAIC Scenario Generator” Market Returns



Source: CAWG

Notes and Observations (applicable to Portfolio B comparison)

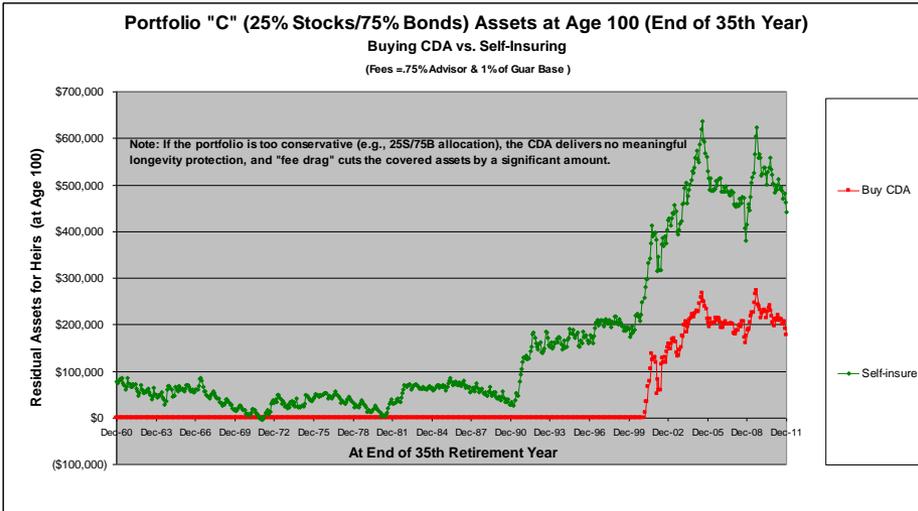
- The use of stochastic market scenarios rather than historical returns shows a higher likelihood of outliving one’s assets (when self-insuring, approx. 30% of stochastic scenarios vs. approx. 2% of historical periods; with the CDA, approx. 46% of stochastic scenarios vs. approx. 17% of historical periods)
- Both the historical demonstration and the stochastic analysis show that, compared to the more aggressive portfolio, the balanced portfolio results in:
 - Less downside risk – lower likelihood of outliving one’s assets
 - Less upside potential – lower accumulated assets
 (This is true for both self-insurance and the CDA)

Embedded Comment from Historical Demonstration Above: “Access to assets can come at significant cost to buyer. First, the buyer forfeits future guaranteed withdrawals. Second, access is to a lower asset amount (red line, not green) which raises nonforfeiture concerns.”

CAWG Response: Insuring risks requires the pooling of risk charges. The pooling mechanism is undermined if insureds can withdraw their prior charges upon partial withdrawal or termination of coverage. This is to be distinguished from funded accumulations, which should be made available to the insured. Within the CDA environment, the latter is covered by the value of the mutual funds.

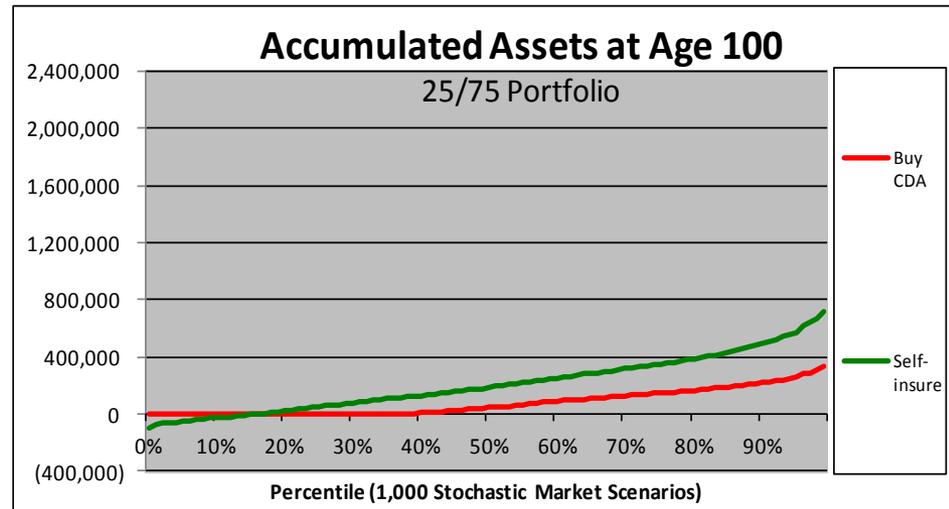
Portfolio C (25% Stocks/75% Bonds)

Historical Market Returns



Source: Felix Schirripa

“NAIC Scenario Generator” Market Returns



Source: CAWG

Notes and Observations (applicable to Portfolio C comparison)

- The use of stochastic market scenarios rather than historical returns shows a higher likelihood of outliving one’s assets under self-insurance although a lower likelihood with the CDA (when self-insuring, approx. 16% of stochastic scenarios vs. approx. 1% of historical periods; with the CDA, approx. 38% of stochastic scenarios vs. approx. 79% of historical periods)
- Both the historical demonstration and the stochastic analysis show that, compared to the aggressive (75/25) and balanced (50/50) portfolios, the conservative portfolio results in:
 - Less downside risk – lower likelihood of outliving one’s assets
 - Less upside potential – lower accumulated assets
 (This is true for both self-insurance and the CDA)

Embedded Comment from Historical Demonstration Above: “If the portfolio is too conservative (e.g. 25S/75B allocation), the CDA delivers no meaningful longevity protection, and the “fee drag” cuts the covered assets by a significant amount.”

CAWG Response: While the probability with a CDA of outliving one’s assets is lower as investment allocations become more conservative, there is still a significant percentage of scenarios (38% under the CDA and 15% under self-insurance for the 25%/75% allocation) in which assets are depleted under the stochastic analysis

“Longevity Protection”

Summary for Portfolios A, B, and C

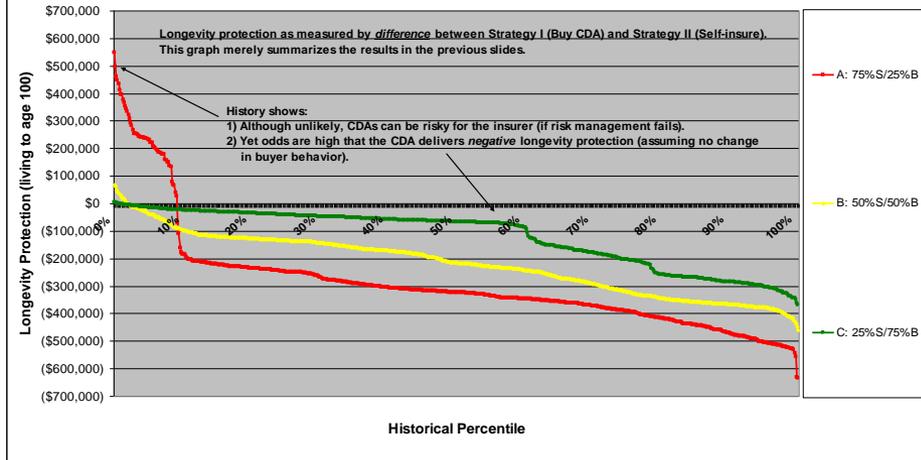


“Longevity Protection” Delivered by CDA

Historical Market Returns

“NAIC Scenario Generator” Market Returns

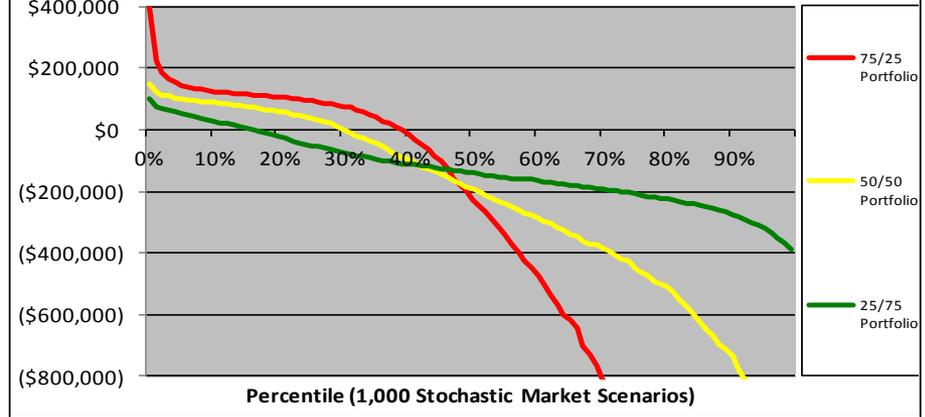
Historical Longevity Protection Delivered By CDA
Summary for Portfolios A, B, and C (Start w/ \$100,000)



Source: Felix Schirripa

Value Comparison

CDA minus Self-Insurance



Source: CAWG

Notes and Observations

•“Longevity Protection” is defined in the historical demonstration as the difference between accumulated assets when a CDA is purchased and accumulated assets under self-insurance (including accumulated negative withdrawals). The CAWG feels that a more appropriate term for this calculation is “value comparison.”

•Like the historical demonstration, the stochastic analysis shows that the value of the CDA relative to self-insurance is greatest, both in frequency of payout and in greater magnitude, the more aggressively the individual has invested. Also, the frequency of CDA benefit advantage ranges from 20% to 40%, depending upon the aggressiveness of the investments.

•While the level of accumulated assets is an important consideration for retirees, maximizing accumulated assets is not the intended purpose of a CDA, and so should not be used as the sole measure of value.

Embedded Comment from Historical Demonstration Above: “History shows : (1) Although unlikely, CDAs can be risky for the insurer (if risk management fails); (2) Yet odds are high that the CDA delivers negative longevity protection (assuming no change in buyer behavior).”

CAWG Response: (1) The risk can be managed by the purchase of hedges. (2) The stochastic analysis shows a significant level of longevity protection that varies with the aggressiveness of the allocation of invested assets.

Summary

- The stochastic analyses show the following likelihood of outliving one's assets under the "living to age 100" assumption when taking maximum withdrawals for a typical CDA:

Investment Portfolio	Self-Insurance	CDA
Aggressive	39%	51%
Balanced	30%	46%
Conservative	16%	38%

- The stochastic analysis shows that the relative value of the CDA to self-insurance is greatest, both in frequency of payout and in greater magnitude, the more aggressively the individual has invested.

