



CANNEX RESEARCH

Guaranteed Income Across Annuity Products: Withdrawal Guarantees Compete with Income Annuities

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Guaranteed Income Across Annuity Products: Withdrawal Guarantees Compete with Income Annuities

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EXECUTIVE SUMMARY

Income annuities have been viewed as the most efficient form of income guarantee available to clients due to their product design. Savings annuities, however, often provide higher guaranteed income through withdrawal benefits with very different guarantee structures.

CANNEX recently conducted research to explore the dynamic among these guarantees and determine the value of a comparison across different products for clients who are near or at retirement.

In this CANNEX study we found that:

- Different types of annuities provided the highest income guarantee depending on the scenario. Any individual seeking to maximize guaranteed income should consider different product types.
- The single premium immediate annuity (SPIA) often provided the highest income guarantee when there was no delay in receiving income.
- For single life contracts with a delay, fixed indexed annuities (FIAs) with a guaranteed lifetime withdrawal benefit (GLWB) generally provided the highest income guarantee.
- For couples, variable annuities (VAs) often provided the highest income guarantee. This is particularly true where there is a difference in spouses' ages.
- Most savings annuities do not have different prices according to gender. Consequently, women are more likely to achieve higher income from guarantees on these contracts. Furthermore, in situations where income annuities have "unisex" pricing, savings annuities may provide the highest income guarantee.
- There are many cases shown within this research where the income guarantee for one of the savings annuities is nominally lower, but where there is a significant potential for upside due to market increases.

Based on the results of this CANNEX study, it is important for advisors who are looking to provide clients with guaranteed income to consider both income annuities and savings annuity contracts that offer GLWBs in order to secure the highest amount of income. Savings annuities also offer the potential to take advantage of market increases, often with the safety net of a guarantee that is similar to or higher than that of the income annuity. There may be additional reasons to select a particular contract or product type. Nevertheless, the amount of guaranteed income remains an important consideration for any purchase.

"Income" and "Savings" Annuities

CANNEX generally divides annuities into two categories: those designed primarily to provide income, and those designed primarily as savings vehicles. All annuities can generate income through annuitization. However, the underlying designs and features are focused in either of those two ways. Many savings annuities offer income guarantees beyond annuitization through an optional rider, although we still consider them savings annuities because that is primarily how they are used.

Income Annuities: Include single premium immediate annuities (SPIAs) and deferred income annuities (DIAs). This category also includes qualified longevity annuity contracts (QLACs), which are qualified DIAs that allow for income deferral past the age of required minimum distributions.

Savings Annuities: Include variable annuities (VAs), fixed indexed annuities (FIAs), fixed rate annuities (FRAs), which are also known as multi-year guaranteed annuities. This category also includes registered index-linked annuities (RILAs), which are also known as structured, buffered or variable indexed annuities.

OBJECTIVE

The CANNEX research within this report is designed to examine the value proposition of different annuities for guaranteed income. One aim is to identify possible inflection points where a consumer with a pure income security goal would receive greater income by considering one product type over the other.

This research is also useful in evaluating the relative trade-off of other contract features to the consumer. For example, one kind of annuity may provide higher income while another allows for greater flexibility and greater upside potential. The difference in guaranteed income is effectively the cost of the other features, all other things being equal. There are nuances in structure and assumptions among product types that produce results that vary by scenario.

For advisors and consumers, the assessment of these products is not a simple exercise, nor does it stem from a small set of variables. There are many aspects of client preference that can also play a role in decision making, of which guaranteed income is not the only one but remains important.

There is currently no commonly available framework to assess income across annuity product types in the retail sales environment. Furthermore, newer product designs challenge traditional understanding of the roles of different product types. Even in the absence of real-time comparisons across annuities, this research provides useful perspective around their value relative to each other.

BACKGROUND

Annuities are all designed to increase retirement security. Notwithstanding this singular goal, there are many different types available to investors, all with unique properties. The value proposition for each product relates to the performance characteristics as well as other features. However, that renders it difficult to compare them on a level playing field.

Nevertheless, lifetime income remains core to all of them. Traditionally, product comparisons have been done separately by product type. By using quantitative analysis, it is possible to compare the performance of different products on an equivalent basis.

Of course, all annuities provide the option of life annuitization. Typically, this feature is only used through income annuities, whether SPIAs or DIAs. Living benefits are commonly available on both VAs and FIAs, and they add another avenue for retirees to receive guaranteed income for life through a savings annuity while retaining full liquidity.

One key difference between income annuities and savings annuities is that the life annuitization is fully exercised with the income annuities. Furthermore, there are GLWBs available on VAs and FIAs that provide a flexible lifetime income payment that may or may not be exercised, even if elected. With these products, there is always going to be a segment of buyers that never take payments on their guarantees. Assumptions around utilization are built into the cost and, therefore, are ultimately reflected in the value to the client.

On the other hand, a key difference between life annuitization and GLWBs is that life annuitization takes advantage of mortality credits; all of the buyers intend to start taking income. Of course, some will die “early” and those that live “late” are the beneficiaries of that statistical fact. In this instance, the assumptions built into the pricing are based on death rather than elective utilization. The latter varies considerably by insurer, since different sets of clients are likely to have different needs and behave differently.

One very straightforward example for this is qualified versus non-qualified annuities. This is evident in the most recent [Variable Annuity Guaranteed Living Benefits Utilization](#), a joint study by the Society of Actuaries and LIMRA (published January 2018, based on 2015 data). The required minimum distribution starting at age 70½ greatly increases utilization of the GLWB. By age 72, 60% of policyholders with a

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VA within an IRA are using their GLWBs, but less than 30% of those using non-qualified assets do so.

Clearly, expectations around the ratio of buyers using qualified money to purchase their annuities would greatly affect utilization assumptions.

Utilization assumptions also extend to advisor behavior and how efficiently these professionals use a contract. There are many assumptions, pricing preferences, and differences in clientele that multiply to create variations in how insurers manage these

businesses. Externally, it is difficult if not impossible to ascertain how these factors will affect the income the client receives.

The new era of innovation in both the annuity contracts themselves and the available guarantees—compounded by fundamental pricing and assumption differences in the products—creates the possibility that the type of annuity that generates the most income may be different depending on the characteristics of the buyer(s).

A Note About Taxes

In the U.S. tax system, there is an important difference between withdrawals, including those taken within the context of a guarantee, and payments through annuitization. The taxable portions for both are taxed at the income rate and the principal is returned tax-free. However, withdrawals are taxed on a first-in, last-out basis. This means that the starting principal comes out in withdrawals after all of the gains. With annuitization, each payment represents a portion of return of the original premium. This “exclusion ratio” is dictated by an Internal Revenue Service actuarial table and is designed to return principal over the life of the annuitant. Once the annuitant recovers the cost of the annuity, deeper into old age, payments represent gains only and are fully taxable.

As a result, withdrawals incur more taxes in early years and very little in later years. Annuitization incurs some taxes, although less, from the get-go, and then higher taxes in very late years. Over the course of a long life, the buyer gets back the initial premium with either scenario and the total taxes paid reflect gains, not a discrepancy in tax treatment. This CANNEX analysis takes into consideration income received over a lifetime, meaning that the tax treatment of the totality of payments is not going to vary as it would for an analysis that looks at taxation of income in a specific year.

To further muddy the waters, it is impossible to predict what tax rates will be in the future; the taxes paid on the same amount of income can fluctuate if the income rate changes, either due to changes in total income or the tax code.

The examination of the effect of tax differences is valuable and an exercise that is of interest to us for non-qualified annuities. Furthermore, many annuities are invested in qualified accounts where there is no tax assessed on that income. While we recognize that there is also a difference in taxation between products examined here, that consideration does not have a natural place within this research.

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RESEARCH METHODOLOGY

We compare income from three types of annuities (SPIA/DIA, VA and FIA) based on a number of case studies using CANNEX services. For SPIA/DIA quotes, we use the [CANNEX Income Annuity Exchange](#). For VAs and FIAs, we use the [CANNEX VA Benefit Analysis](#) and [CANNEX FIA Benefit Analysis](#) services.

The scenarios (see Exhibit 1) represent investors at or near retirement, both single and joint, and who may start income immediately or delay five or 10 years. We also included data for a 55-year old woman and, for these scenarios, we did not include the option of immediate income because that is well before a plausible need for income. The scenarios for a couple include those where the individuals are the same age, as well as those where the woman is five years younger. We chose to model the younger woman and the couple with the age discrepancy to determine if the starting age would make a notable difference. The higher longevity expectations for a woman are most likely to illustrate differences in income among the products. In addition, GLWBs usually use the younger of two clients as a basis for the income calculation.

In order to better discern differences in rates for men and women, we also ran scenarios at age 70 and added rates for a unisex income annuity.

Exhibit 1

Scenarios for Income Comparisons

Primary Client	Secondary Client	No Delay	5-Year Delay	10-Year Delay
Woman, Age 55			●	●
Woman, Age 60		●	●	●
Woman, Age 65		●	●	●
Man, Age 60		●	●	●
Man, Age 65		●	●	●
Man, Age 60	Woman, Age 55		●	●
Man, Age 60	Woman, Age 60	●	●	●
Man, Age 65	Woman, Age 60	●	●	●
Man, Age 65	Woman, Age 65	●	●	●
Woman, Age 70		●	●	●
Man, Age 70		●	●	●
Unisex, Age 70		●	●	●

In all cases, the results include an annualized income guarantee figure that can be used to compare across product types. The calculations are based on a starting premium of \$100,000. For SPIA/DIA, the CANNEX Income Annuity Exchange generates guaranteed quotes for all insurers in our system. To provide an equitable result across products, we selected life with cash refund, which is most similar to the deferred contracts that offer a death benefit. For joint products, this includes a 100% continuation for the surviving spouse, which is analogous to the structure of the GLWB guarantees on the VAs and FIAs. Based on 2017 CANNEX quote statistics, cash refund is the most commonly selected death benefit option and 100% continuation is the most commonly selected spousal continuation option.

Both VAs and FIAs offer GLWBs that provide an income guarantee. The average annual income for the guarantee, assuming no rise related to the markets, is included among the results in both the VA and FIA analysis. In addition, both services provide a calculation of the projected performance under market simulation; this figure represents upside above and beyond the base guarantee.

This analysis includes actuarial assumptions and therefore is specific to age, gender, and income delay. The figures assume that income withdrawals begin after the delay period and continue without interruption.

The analytic platforms use a simulation engine to test the performance of the strategies under a range of random scenarios. This allows us to come up with an average effective return along with statistical metrics of the distribution of results. In the case of VAs, the generalized return assumption uses a 60% equity/40% bond allocation. Modeling assumptions for the equity component use an average return of 8.0% with an index volatility of 16%. Modeling assumptions for the fixed income component are an average return of 4.0% with an index volatility of 8%. Correlation between the two is 30%.

The VA analysis includes B share contracts only and

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GLWBs that have a simple income guarantee, meaning that there is only a single guarantee rate from the inception of the contract (some benefits have income tiers where the percentage changes, commonly at the point that the account value runs out and the guarantee payments begin). Results include unique benefits to eliminate the redundancy that comes with contract/benefit combinations available that have only minor differences.

We analyzed FIA strategies that use the S&P 500 Index, which is ubiquitous among these products and excluded fee-based contracts. Model assumptions for the S&P 500 Index use an average return of 8.0%

with an index volatility of 16%. For our modeling, the strategy remains static from inception although it is possible in practice for investors to change strategies and for insurers to change rates after the first year.

Certain FIA guarantees have a rising withdrawal percentage that increases gradually on an annual basis. This increase may or may not stop even if the contract runs out of money. We excluded these designs because it is inadvisable to compare them on a level playing field with the other guarantees.

The analysis is based on rates and products available on August 10, 2018.

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RESULTS

As the only pure income-generating vehicle, the general assumption has traditionally been that the income annuities always produce the highest guarantee amount. However, due to product design variations and utilization assumptions, other deferred annuities can outperform the SPIA/DIA. Our findings demonstrate that there are scenarios where each of the three product types produces the greatest amount of guarantee. Furthermore, there are situations where a modest reduction in the guarantee can yield a significant potential for upside.

The guarantee amount provides an apples-to-apples comparison across all product types. For clients concerned purely with income that will not decrease and with no tolerance for market risk, there is no need to look further. However, it is common among VAs and FIAs that greater market potential comes with a lower guarantee. Consequently, it is also useful to analyze performance in the context of upside potential even though the income annuities have no market variance. Therefore, we also examine the findings along both metrics to elucidate product differences and circumstances where this analysis can be appropriate and valuable for clients.

Guaranteed Income

On the basis of the guarantee alone, the income annuities tend to provide the greatest income for scenarios with immediate income and can also be more valuable for a man. With a delay in income, FIAs often perform best. However, VAs excelled in a number of joint life cases. Complete tabular results with statistical details on performance are available in the appendix of this report.

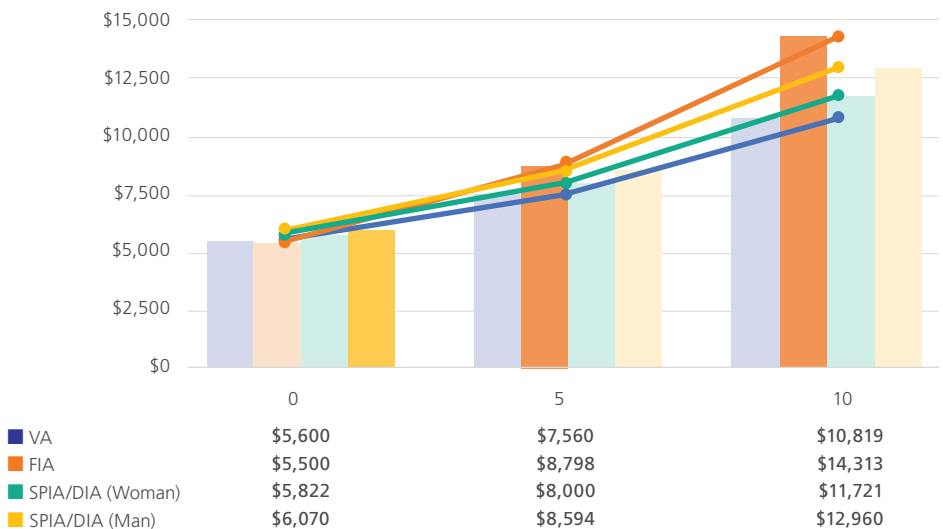
Single Life Scenarios

For single life, the greater the delay, the more that the FIA typically provides a greater income guarantee than either the DIA or the VA (See Exhibit 2 below). In some instances, the VA also has higher guaranteed income than the DIA, although not as much as the FIA does. The effect is more pronounced for women than it is for men because DIA rates are lower at the same age due to longevity expectations. To better explore this difference, we conducted additional analysis at age 70.

Gender-Based Pricing and “Unisex” Income Annuity Rates

Gender-based rate differences are rare outside of income annuities, although such pricing does exist

Exhibit 2: Highest Guaranteed Income at 65: by Annuity Type, Years of Income Delay



Source: CANNEX VA Benefit Analysis, CANNEX FIA Benefit Analysis, CANNEX Income Annuity Exchange.

Note: Annual income is based on a starting account value of \$100,000 and assumes no positive market contribution to the benefit base for the VA and FIA guarantees. Rates are effective August 10, 2018 and represent the highest rate available for each product type.

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among FIAs. Therefore, it is fair to say that a woman with a single life contract is likely to see an even greater gain from an income guarantee in a savings annuity. After examining the preliminary data, we expanded our research to further explore this issue.

At age 70, there is a stark difference between guaranteed income for men and women, and is past the inflection line where different products provide the highest income depending on gender. If there is no delay, the

income annuities provide higher income for both men and women. However, with a delay, men obtain higher income from income annuities, while women receive higher income from FIAs (See Exhibit 3 below).

Of particular interest is the “unisex” income annuity rate that applies in certain situations and does not ask for gender. We retrieved income annuity rates for the 70-year-old scenarios in Montana, which has unisex pricing. As the data in Exhibit 4 below shows,

Exhibit 3: Guaranteed Income by Product at Age 70, Top Rates

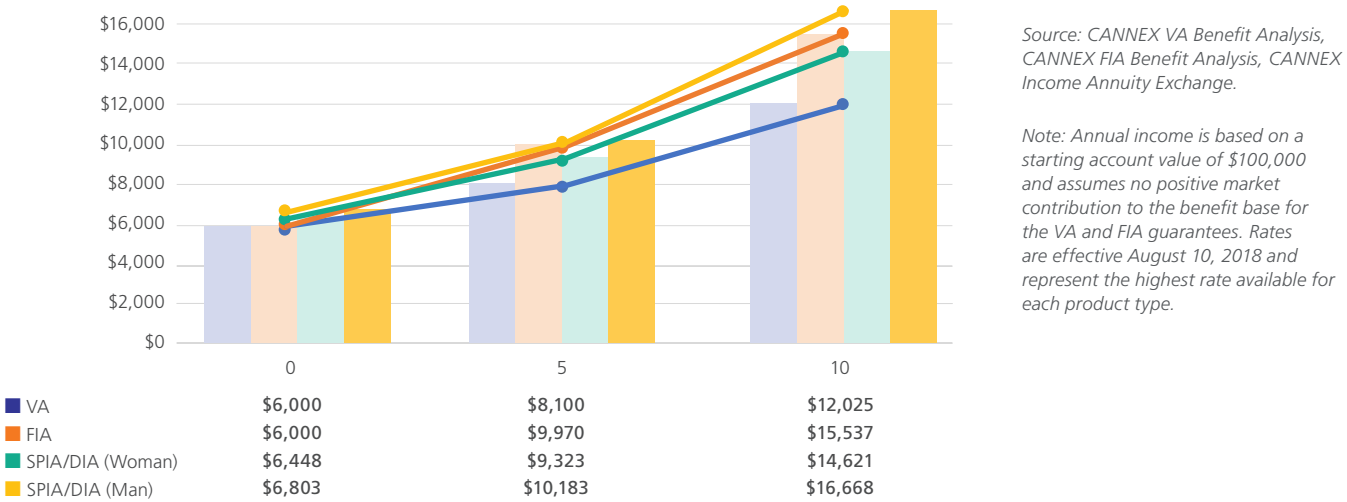


Exhibit 4: Guaranteed Income by Product at Age 70, Top 5 Products

	VA	FIA	SPIA/DIA		
			Woman	Man	Unisex
10-Year Delay	\$12,025	\$15,537	\$14,621	\$16,668	\$14,822
	\$11,193	\$14,030	\$14,285	\$15,197	\$14,783
	\$11,050	\$13,000	\$13,716	\$15,074	\$14,214
	\$10,819	\$12,914	\$13,581	\$14,961	\$14,168
	\$10,625	\$12,868	\$13,483	\$14,945	\$13,983
5-Year Delay	\$8,100	\$9,970	\$9,323	\$10,183	\$9,410
	\$7,898	\$9,660	\$9,106	\$9,516	\$9,330
	\$7,800	\$8,704	\$8,960	\$9,513	\$9,186
	\$7,714	\$8,700	\$8,869	\$9,506	\$9,134
	\$7,425	\$8,700	\$8,830	\$9,398	\$9,088
No Delay	\$6,000	\$6,000	\$6,448	\$6,803	\$6,639
	\$5,600	\$6,000	\$6,343	\$6,606	\$6,479
	\$5,600	\$6,000	\$6,292	\$6,587	\$6,397
	\$5,600	\$6,000	\$6,276	\$6,485	\$6,391
	\$5,400	\$6,000	\$6,240	\$6,480	\$6,378

Source: CANNEX VA Benefit Analysis, CANNEX FIA Benefit Analysis, CANNEX Income Annuity Exchange.
 Note: Annual income is based on a starting account value of \$100,000 and assumes no positive market contribution to the benefit base for the VA and FIA guarantees. Rates are effective August 10, 2018. Also, there is a modest difference in one result between FIA guarantees for a man and woman, so we show the rates for a woman.

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unisex rates are only modestly higher than rates for a woman. This is also quite different from the guarantee from a savings annuity.

Several interesting observations emerge from the unisex rates. First, it is clear that the approach is very different from that generally used for savings annuities, despite the fact that both ignore gender. With such divergent results, we avoid the term unisex when referring to typical savings annuity pricing practices.

Second, in practice, a client is generally unable to choose whether or not to use a unisex rate. If the income annuity rate for a single man is simply not available, it does not matter if it theoretically would produce the highest income. In that case, it may be better for him to select the FIA. With a five-year delay, the FIA guarantee is 6% higher than the unisex rate for both men and women.

Finally, these results and the existence of unisex income annuity rates is a complication that need not clutter the planning process for the advisor or the client. The rationale for a rate difference is not

important in the face of a comparison of guarantees across both savings and income annuities.

Joint Life Scenarios

For joint life, the picture looks quite different, with each category of annuity performing best depending on the specific scenario (See Exhibit 5 below).

Effect of Withdrawal Age Tiers on Results

In GLWBs, withdrawal percentages that utilize age tiers drive the value of the income guarantee. Especially within VAs, these tiers are often wide and may embrace a range such as 65 – 72 years of age and so forth. In this example, there is no difference in the guarantee between a person who buys the contract at 60 or 65 and then delays income for five years. In both cases, the age at the income start lands within the same withdrawal percentage tier.

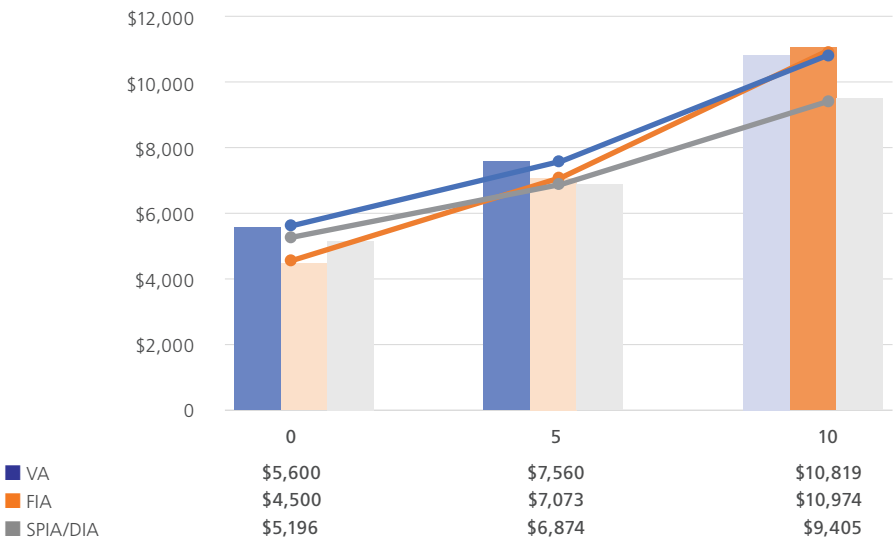
This phenomenon is common enough that it is apparent in the VA results and explains some of the

sharp divergence in performance between the VA and FIA. We did verify that the products that gave these results all had age tiers that included both age 65 and 70.

As age tiering varies by product, there is no consistent rule that dictates the point at which the percentage—and, therefore, the guaranteed income—increases. Between and beyond the ages in the scenarios we researched, there may be junctures at which a particular product excels because of the shift in age tiers.

With constant product changes, it is important to run client-specific scenarios to determine the best fit for a given situation.

Exhibit 5: Highest Guaranteed Income for Couple (65-Year-Old Man, 60-Year-Old Woman): by Annuity Type, Years of Income Delay



Source: CANNEX VA Analysis, CANNEX FIA Analysis, CANNEX Income Annuity Exchange.
Note: Annual income is based on a starting account value of \$100,000 and assumes no positive market contribution to the benefit base for the VA and FIA guarantees. Rates are effective August 10, 2018 and represent the highest rate available for each product type.

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Upside Potential

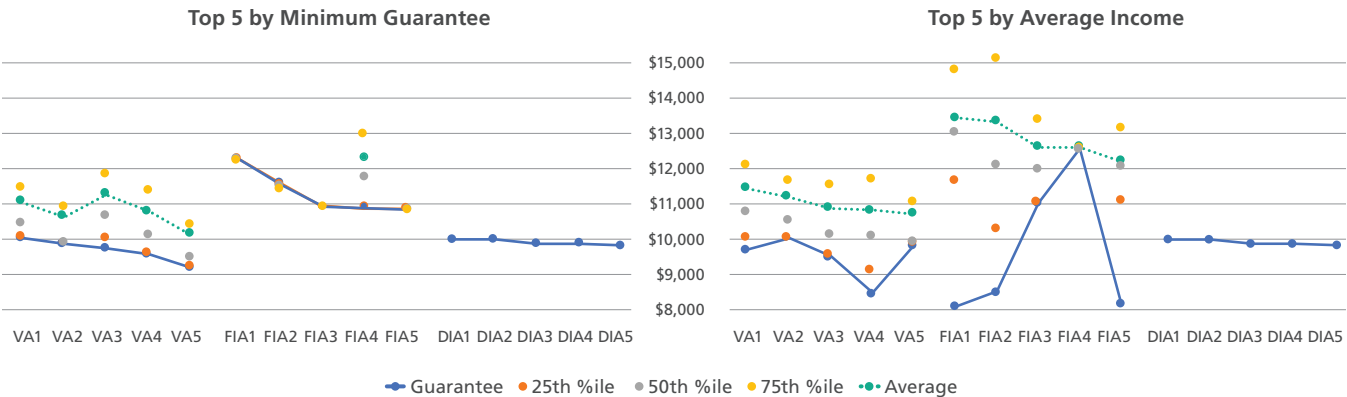
While the income annuities have a very straightforward value proposition, the VA and FIA include both inherent and enhanced benefits for policyholders. Germane to the income discussion, the structure of GLWBs usually includes the possibility of guarantee-based or market-driven increases to the income. The CANNEX analytics around benefits allows a comparison of the performance of these benefits under lifelike market conditions and a way to gauge the upside potential from these designs.

There are circumstances where the upside potential is effectively a “bonus” on top of a guarantee that is already higher than the corresponding income annuity. In the two illustrations for Exhibit 6 that follow, the blue line shows the guarantee for each of the top five contracts. The dots above the blue line represent the increase to income based on market performance, or the upside potential, with the green being the average. Since income annuities have no

upside potential, there is only a blue line shown for the income guarantee. Some FIAs have a guarantee that is so rich that there is effectively no market component, in which case all of the dots lie on the blue line. In those cases, the average result is the same as the guarantee. While the averages of two products may be similar, it is possible that one has no chance for providing higher income while another has a good chance of doing so.

Although the average is useful and is our basis for sorting performance, the distribution of results further illustrates where outliers can skew the average and not fairly represent “typical” results. Through this lens, we can describe market performance for the 25th percentile as “mediocre,” the 50th percentile as “fair,” and the 75th percentile as “good.” This sets the stage for performance expectations and an understanding of how much a mediocre, fair, or good market can bump up income.

Exhibit 6
Annuity Income Performance: 60-Year-Old Woman, 10-Year Income Delay



Source: CANNEX VA Benefit Analysis, CANNEX FIA Benefit Analysis, CANNEX Income Annuity Exchange.
Note: Annual income is based on a starting account value of \$100,000. Rates are effective August 10, 2018.

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When considering the five contracts in each annuity category based on the highest possible guarantees, the FIAs in Exhibit 6 consistently have the highest guarantee rate, and FIA 4 potentially provides even higher income if the market does reasonably well. The VAs also warrant consideration. The top VA also has a guarantee that is higher than the DIAs and provides some upside potential to the guaranteed income. This is especially relevant for an advisor that does not have FIAs available to offer to clients or who has other reasons for selecting a VA.

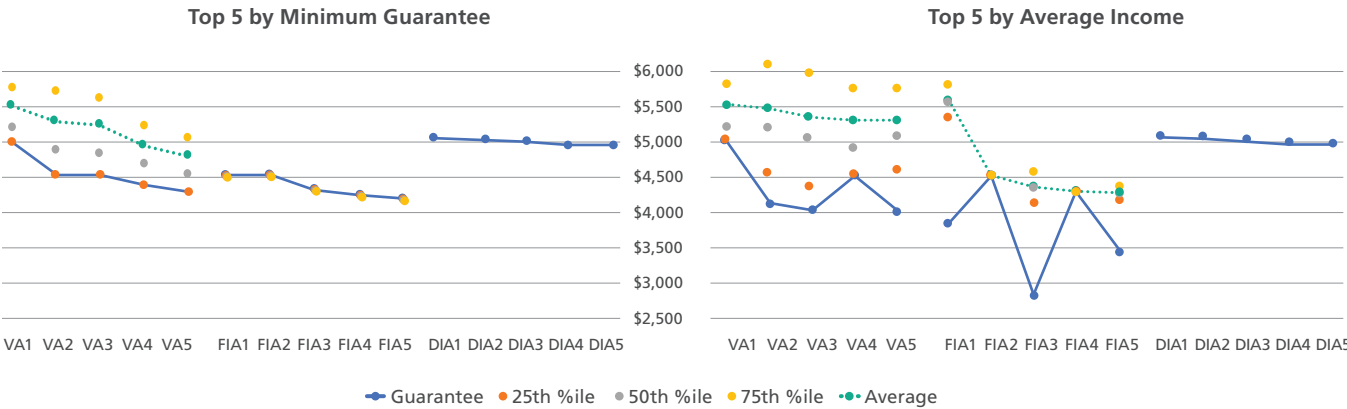
When sorted by average income, there is an inverse relationship between the strength of the guarantee and the upside potential, as evident on the right side of Exhibit 6. The green dotted line represents the average income and the blue represents the guarantee. FIA 1 has an average income of \$13,327 and guaranteed income of only \$8,141. It is possible to get an FIA with a guarantee as high as \$12,532 (FIA 1 on the half sorted by guarantee), but that contract has no upside

potential at all. The DIA provides income of \$9,993. Sorting to maximize upside, the FIA guarantee is 19% lower than the DIA; sorting to maximize guarantee, the FIA guarantee is 25% higher.

There are also cases where the guarantee offered outside the income annuity is lower, but the trade-off for potential gains warrants consideration for all but the most conservative client. This is illustrated in Exhibit 7 below. In this case, the DIA generates the highest guaranteed income, \$5,078. VA 1 has a minimum guarantee of \$5,000, only \$78 or 1.5% less than the SPIA. However, this \$78 per year buys the potential for a market-related bump that provides higher income between the 25th percentile and 50th percentile (\$5,013 and \$5,238, respectively), which are on either side of the DIA guarantee.

Two of the top five VA contracts as judged by minimum guarantees are also included in the top five by average income (See illustrations for Exhibit 7). Nevertheless,

Exhibit 7
Annuity Income Performance: 60-Year-Old Couple, No Income Delay



Source: CANNEX VA Benefit Analysis, CANNEX FIA Benefit Analysis, CANNEX Income Annuity Exchange.
Note: Annual income is based on a starting account value of \$100,000. Rates are effective August 10, 2018.

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for clients that are interested in a VA able to provide guaranteed income, the decision is not simply about which products land on both lists. In this case, the same VA has both the highest minimum guarantee and average income. These are not the only criteria that drive a decision, as a client may have an appetite for more income at the price of a bit more risk. For a client looking to leverage market performance for potentially higher income, VA 2 (ranked by average income) actually has a greater potential for upside in exchange for a lower guarantee. The distribution of results shows that there is very little difference between VA 1 and VA 2 at the 50th percentile but that VA 2 excels in more favorable markets, providing the highest possible income of all the products. Thus, a client with a positive view of markets and tolerance for a lower guarantee may lean towards VA 2.

The dynamic between the minimum guarantee and the income potential on the VA side is less dramatic than it is for FIAs. There are some differences in our analysis. Much of the variation from FIAs stems from the underlying crediting strategy, as certain strategies have more embedded upside potential. (For more detail on strategy performance, please see [Accumulation Value of Fixed Annuities \(MYGA & FIA\): Understanding Yields by Product Design](#)) On the other hand, the VA analysis uses a 60% equity/40% fixed income portfolio that dampens wide equity swings. This creates an even playing field to compare VA benefits with each other. Future CANNEX research will explore variations in allocation requirements.

CONCLUSIONS

There are various annuity designs that provide clients with guaranteed income. Although income annuities are designed to be efficient vehicles for that purpose, there are circumstances where living benefit guarantees provide higher levels of guaranteed income and the possibility of even greater income due to market upside.

In the scenarios CANNEX examines, SPIAs generally provide the highest guaranteed income for those looking to start payments right away. However, FIAs and VAs are more likely to fare better with a delay. Why is this so often true?

Most GLWBs include deferral bonuses and other incentives to start taking income years after contract inception; these increases appear to exceed the income boost that the DIA provides from a similar delay. The DIA benefits from mortality credits in combination with the underlying return assumptions for assets that the insurer holds during the delay period, but the income definitively begins at that point. In contrast, withdrawals may begin at any point in the contracts with GLWBs. Therefore, insurers position most of these riders to encourage policyholders to delay their use and, in fact, early utilization is quite rare.

Of course, with greater delays, it becomes increasingly less likely that policyholders will spend through their own money, even after the boost of a higher benefit base or withdrawal percentage. Many never start taking income at all. **All of these factors and more are included in the pricing assumptions that underlie the products, making it impossible to be certain ahead of time that a single product will provide the greatest guaranteed income.** The core lesson of this research: check and compare results across categories for each client scenario before settling on a specific product.

It is important to bear in mind that this research looks specifically at maximum guarantee amounts but does not address the other differences in products that would cause an advisor to make a recommendation. For example, a DIA may not have the highest guaranteed income for a client but it is difficult to misuse. By contrast, the flexibility of a GLWB that is a boon to one client may constitute a dangerous flaw to another. It is possible for the client to take out too much money and unintentionally disrupt the income guarantee and investment decisions for the portfolio may be confusing and onerous.

GUARANTEED INCOME ACROSS ANNUITY PRODUCTS: WITHDRAWAL GUARANTEES COMPETE WITH INCOME ANNUITIES

For clients who have income needs, determining the guarantee values and potential for additional upside is important and there is ample reason to assess a broader array of products to meet those needs. While it is ultimately up to the advisor and client to select the appropriate annuity product solutions for a situation,

there is no conventional wisdom that dictates which is the best product to generate guaranteed income.

The findings of this CANNEX research suggest that the best armed professionals are those who have access to multiple types of annuities and superior analytics.

Excluded Product Designs

Despite some consistencies in these results, there are no handy, nor hard and fast, rules of thumb. For instance, we know that age tiers in VAs mean that there are points between those we studied where one product or another abruptly generates higher income. Furthermore, pricing for all products shifts constantly. Moreover, there is no reason to think that even a single factor plays out the same among product types. We suspect that there is no strong competitive pressure to compare rates across annuity products.

For the savings annuities, we excluded two types of GLWB structures that are impossible to compare on an apples-to-apples basis against the other level guarantees. These are important to bear in mind because they each offer a different value proposition that may fit well with the investor's needs. For the VAs, we left out GLWBs that had a tiered guarantee, meaning that the guarantee amount is based on changing conditions of the contract. Many such designs offer a trade-off between higher income earlier in retirement and a lower lifetime guarantee. While CANNEX does include these calculations in the VA analysis service, it is impossible to fairly compare on the strict basis of the annual guaranteed income, which is the foundational premise of this study.

Similarly, we left out FIAs with a rising guaranteed withdrawal rate. This structure gradually increases the withdrawal percentage. Those with a more rapid rise are likely to freeze once the account is depleted and guaranteed payments continue. Others with a slower increase may continue to go up even after account depletion. Either way, the guaranteed lifetime income does end up higher than it starts, even with unfavorable market conditions.

GUARANTEED INCOME ACROSS ANNUITY PRODUCTS: WITHDRAWAL GUARANTEES COMPETE WITH INCOME ANNUITIES

APPENDIX: DATA TABLES

Exhibit 8A

Top 5 Guaranteed Minimum Income Results by Age, Delay—Single Female

Age 55	VA Minimum Income	Avg Income	25%	50%	75%	FIA Minimum Income	Avg Income	25%	50%	75%	SPIA/DIA Minimum Income
10-Year Delay	\$10,021	\$11,160	\$10,048	\$10,517	\$11,611	\$11,575	\$11,575	\$11,575	\$11,575	\$11,575	\$9,004
	\$9,836	\$10,681	\$9,862	\$9,911	\$11,005	\$10,580	\$10,580	\$10,580	\$10,580	\$10,580	\$8,847
	\$9,706	\$11,402	\$10,030	\$10,753	\$12,047	\$10,181	\$11,609	\$10,181	\$11,054	\$12,297	\$8,619
	\$9,520	\$10,854	\$9,546	\$10,140	\$11,502	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$8,595
	\$9,095	\$10,163	\$9,120	\$9,412	\$10,457	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$8,584
5-Year Delay	\$6,381	\$7,310	\$6,396	\$6,820	\$7,752	\$7,073	\$7,073	\$7,073	\$7,073	\$7,073	\$6,574
	\$6,075	\$6,921	\$6,089	\$6,333	\$7,264	\$6,750	\$6,750	\$6,750	\$6,750	\$6,750	\$6,413
	\$5,873	\$6,601	\$5,886	\$6,111	\$6,876	\$6,700	\$7,343	\$6,700	\$7,047	\$7,665	\$6,411
	\$5,850	\$6,867	\$5,864	\$6,283	\$7,295	\$6,525	\$6,662	\$6,525	\$6,525	\$6,627	\$6,373
	\$5,663	\$6,662	\$5,676	\$6,049	\$7,017	\$6,525	\$6,525	\$6,525	\$6,525	\$6,525	\$6,348
Age 60	VA Minimum Income	Avg Income	25%	50%	75%	FIA Minimum Income	Avg Income	25%	50%	75%	SPIA/DIA Minimum Income
10-Year Delay	\$10,021	\$11,168	\$10,054	\$10,524	\$11,627	\$12,532	\$12,532	\$12,532	\$12,532	\$12,532	\$9,993
	\$9,836	\$10,696	\$9,868	\$9,916	\$11,028	\$11,730	\$11,730	\$11,730	\$11,730	\$11,730	\$9,993
	\$9,706	\$11,400	\$10,034	\$10,756	\$12,041	\$11,000	\$11,000	\$11,000	\$11,000	\$11,000	\$9,865
	\$9,520	\$10,869	\$9,551	\$10,156	\$11,519	\$10,995	\$12,537	\$10,995	\$11,939	\$13,281	\$9,865
	\$9,095	\$10,155	\$9,124	\$9,414	\$10,454	\$10,928	\$10,967	\$10,928	\$10,928	\$10,928	\$9,822
5-Year Delay	\$7,560	\$8,338	\$7,581	\$7,804	\$8,702	\$8,062	\$8,062	\$8,062	\$8,062	\$8,062	\$7,157
	\$7,373	\$8,543	\$7,600	\$8,117	\$9,006	\$7,935	\$7,935	\$7,935	\$7,935	\$7,935	\$7,157
	\$7,280	\$8,204	\$7,300	\$7,683	\$8,645	\$7,500	\$7,500	\$7,500	\$7,500	\$7,500	\$7,068
	\$7,223	\$7,986	\$7,242	\$7,446	\$8,279	\$7,350	\$7,350	\$7,350	\$7,350	\$7,350	\$7,068
	\$7,079	\$7,924	\$7,098	\$7,459	\$8,272	\$7,339	\$8,042	\$7,339	\$7,718	\$8,395	\$7,055
No Delay	\$5,000	\$5,568	\$5,012	\$5,243	\$5,855	\$5,000	\$5,017	\$5,000	\$5,000	\$5,000	\$5,409
	\$4,500	\$5,347	\$4,511	\$4,913	\$5,817	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,409
	\$4,500	\$5,297	\$4,511	\$4,858	\$5,728	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,349
	\$4,350	\$4,982	\$4,360	\$4,711	\$5,303	\$4,800	\$4,800	\$4,800	\$4,800	\$4,800	\$5,349
	\$4,250	\$4,821	\$4,260	\$4,546	\$5,110	\$4,725	\$4,828	\$4,725	\$4,725	\$4,875	\$5,335
Age 65	VA Minimum Income	Avg Income	25%	50%	75%	FIA Minimum Income	Avg Income	25%	50%	75%	SPIA/DIA Minimum Income
10-Year Delay	\$10,819	\$11,734	\$10,862	\$10,908	\$12,090	\$14,313	\$14,313	\$14,313	\$14,313	\$14,313	\$11,721
	\$10,200	\$11,621	\$10,240	\$10,874	\$12,320	\$12,880	\$12,880	\$12,880	\$12,880	\$12,880	\$11,677
	\$10,021	\$11,200	\$10,061	\$10,535	\$11,655	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$11,199
	\$9,945	\$11,064	\$9,984	\$10,284	\$11,393	\$11,921	\$11,952	\$11,921	\$11,921	\$11,921	\$11,185
	\$9,850	\$11,130	\$9,889	\$10,327	\$11,697	\$11,830	\$11,830	\$11,830	\$11,830	\$11,830	\$11,162
5-Year Delay	\$7,560	\$8,354	\$7,584	\$7,817	\$8,720	\$8,798	\$8,798	\$8,798	\$8,798	\$8,798	\$8,000
	\$7,373	\$8,535	\$7,604	\$8,120	\$8,999	\$8,729	\$8,729	\$8,729	\$8,729	\$8,729	\$7,962
	\$7,280	\$8,216	\$7,304	\$7,700	\$8,661	\$8,400	\$8,400	\$8,400	\$8,400	\$8,400	\$7,771
	\$7,223	\$7,975	\$7,246	\$7,446	\$8,269	\$7,977	\$8,741	\$7,977	\$8,389	\$9,126	\$7,715
	\$7,079	\$7,928	\$7,101	\$7,464	\$8,288	\$7,975	\$8,106	\$7,975	\$7,975	\$8,052	\$7,696
No Delay	\$5,600	\$6,307	\$5,731	\$6,062	\$6,609	\$5,500	\$5,515	\$5,500	\$5,500	\$5,500	\$5,822
	\$5,600	\$6,119	\$5,615	\$5,763	\$6,377	\$5,500	\$5,500	\$5,500	\$5,500	\$5,500	\$5,775
	\$5,600	\$6,093	\$5,615	\$5,737	\$6,335	\$5,500	\$5,500	\$5,500	\$5,500	\$5,500	\$5,749
	\$5,400	\$5,961	\$5,415	\$5,625	\$6,245	\$5,400	\$5,400	\$5,400	\$5,400	\$5,400	\$5,739
	\$5,350	\$5,907	\$5,365	\$5,590	\$6,197	\$5,290	\$5,290	\$5,290	\$5,290	\$5,290	\$5,735

Source: CANNEX VA Benefit Analysis, CANNEX FIA Benefit Analysis, CANNEX Income Annuity Exchange.

Note: Minimum income is based on a starting account value of \$100,000 and assumes no positive market contribution to the benefit base for the VA and FIA guarantees. Average income illustrates performance under lifelike market conditions. Rates are effective August 10, 2018 and represent the highest rate available for each product type.

GUARANTEED INCOME ACROSS ANNUITY PRODUCTS: WITHDRAWAL GUARANTEES COMPETE WITH INCOME ANNUITIES

Exhibit 8B

Top 5 Guaranteed Minimum Income Results by Age, Delay—Single Male

Age 60	VA Minimum Income	Avg Income	25%	50%	75%	FIA Minimum Income	Avg Income	25%	50%	75%	SPIA/DIA Minimum Income
10-Year Delay	\$10,021	\$11,162	\$10,058	\$10,527	\$11,627	\$12,532	\$12,532	\$12,532	\$12,532	\$12,532	\$10,693
	\$9,836	\$10,693	\$9,872	\$9,921	\$11,022	\$11,730	\$11,730	\$11,730	\$11,730	\$11,730	\$10,513
	\$9,706	\$11,396	\$10,038	\$10,757	\$12,033	\$11,000	\$11,000	\$11,000	\$11,000	\$11,000	\$10,382
	\$9,520	\$10,866	\$9,555	\$10,154	\$11,518	\$10,995	\$12,537	\$10,995	\$11,939	\$13,281	\$10,218
	\$9,095	\$10,149	\$9,129	\$9,417	\$10,453	\$10,928	\$10,966	\$10,928	\$10,928	\$10,928	\$10,218
5-Year Delay	\$7,560	\$8,333	\$7,583	\$7,806	\$8,697	\$8,062	\$8,062	\$8,062	\$8,062	\$8,062	\$7,502
	\$7,373	\$8,536	\$7,602	\$8,119	\$8,997	\$7,935	\$7,935	\$7,935	\$7,935	\$7,935	\$7,424
	\$7,280	\$8,197	\$7,302	\$7,685	\$8,639	\$7,500	\$7,500	\$7,500	\$7,500	\$7,500	\$7,296
	\$7,223	\$7,978	\$7,245	\$7,446	\$8,274	\$7,350	\$7,350	\$7,350	\$7,350	\$7,350	\$7,291
	\$7,079	\$7,912	\$7,100	\$7,458	\$8,260	\$7,339	\$8,042	\$7,339	\$7,718	\$8,395	\$7,247
No Delay	\$5,000	\$5,553	\$5,013	\$5,238	\$5,832	\$5,000	\$5,016	\$5,000	\$5,000	\$5,000	\$5,586
	\$4,500	\$5,317	\$4,512	\$4,907	\$5,773	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,522
	\$4,500	\$5,269	\$4,512	\$4,854	\$5,689	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,499
	\$4,350	\$4,961	\$4,361	\$4,702	\$5,277	\$4,815	\$4,815	\$4,815	\$4,815	\$4,815	\$5,455
	\$4,250	\$4,802	\$4,261	\$4,539	\$5,091	\$4,800	\$4,800	\$4,800	\$4,800	\$4,800	\$5,424

Age 65	VA Minimum Income	Avg Income	25%	50%	75%	FIA Minimum Income	Avg Income	25%	50%	75%	SPIA/DIA Minimum Income
10-Year Delay	\$10,819	\$11,737	\$10,870	\$10,916	\$12,090	\$14,313	\$14,313	\$14,313	\$14,313	\$14,313	\$12,960
	\$10,200	\$11,621	\$10,248	\$10,876	\$12,324	\$12,880	\$12,880	\$12,880	\$12,880	\$12,880	\$12,381
	\$10,021	\$11,191	\$10,068	\$10,541	\$11,650	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,214
	\$9,945	\$11,061	\$9,992	\$10,289	\$11,387	\$11,921	\$11,953	\$11,921	\$11,921	\$11,921	\$12,110
	\$9,850	\$11,120	\$9,896	\$10,334	\$11,687	\$11,830	\$11,830	\$11,830	\$11,830	\$11,830	\$11,972
5-Year Delay	\$7,560	\$8,347	\$7,588	\$7,820	\$8,715	\$8,798	\$8,798	\$8,798	\$8,798	\$8,798	\$8,594
	\$7,373	\$8,526	\$7,607	\$8,116	\$8,983	\$8,729	\$8,729	\$8,729	\$8,729	\$8,729	\$8,302
	\$7,280	\$8,207	\$7,307	\$7,698	\$8,656	\$8,400	\$8,400	\$8,400	\$8,400	\$8,400	\$8,182
	\$7,223	\$7,966	\$7,249	\$7,448	\$8,260	\$8,018	\$8,018	\$8,018	\$8,018	\$8,018	\$8,166
	\$7,079	\$7,912	\$7,105	\$7,465	\$8,265	\$7,977	\$8,741	\$7,977	\$8,389	\$9,126	\$8,131
No Delay	\$5,600	\$6,289	\$5,731	\$6,053	\$6,589	\$5,500	\$5,515	\$5,500	\$5,500	\$5,500	\$6,070
	\$5,600	\$6,103	\$5,617	\$5,762	\$6,357	\$5,500	\$5,500	\$5,500	\$5,500	\$5,500	\$5,984
	\$5,600	\$6,078	\$5,617	\$5,736	\$6,319	\$5,500	\$5,500	\$5,500	\$5,500	\$5,500	\$5,972
	\$5,400	\$5,942	\$5,417	\$5,620	\$6,224	\$5,400	\$5,400	\$5,400	\$5,400	\$5,400	\$5,911
	\$5,350	\$5,890	\$5,366	\$5,587	\$6,173	\$5,350	\$5,350	\$5,350	\$5,350	\$5,350	\$5,893

Source: CANNEX VA Benefit Analysis, CANNEX FIA Benefit Analysis, CANNEX Income Annuity Exchange.

Note: Minimum income is based on a starting account value of \$100,000 and assumes no positive market contribution to the benefit base for the VA and FIA guarantees. Average income illustrates performance under lifelike market conditions. Rates are effective August 10, 2018 and represent the highest rate available for each product type.

GUARANTEED INCOME ACROSS ANNUITY PRODUCTS: WITHDRAWAL GUARANTEES COMPETE WITH INCOME ANNUITIES

Exhibit 8C

Top 5 Guaranteed Minimum Income Results by Age, Delay—Male/Female Couple

Man Age 60/ Woman Age 55	VA Minimum Income	Avg Income	25%	50%	75%	FIA Minimum Income	Avg Income	25%	50%	75%	SPIA/DIA Minimum Income
10-Year Delay	\$10,021	\$11,162	\$10,058	\$10,527	\$11,627	\$10,017	\$10,017	\$10,017	\$10,017	\$10,017	\$8,395
	\$9,836	\$10,693	\$9,872	\$9,921	\$11,022	\$9,430	\$9,430	\$9,430	\$9,430	\$9,430	\$8,395
	\$9,706	\$11,396	\$10,038	\$10,757	\$12,033	\$9,366	\$10,680	\$9,366	\$10,170	\$11,313	\$8,230
	\$9,520	\$10,866	\$9,555	\$10,154	\$11,518	\$9,000	\$9,000	\$9,000	\$9,000	\$9,000	\$8,230
	\$9,095	\$10,149	\$9,129	\$9,417	\$10,453	\$9,000	\$9,000	\$9,000	\$9,000	\$9,000	\$8,188
5-Year Delay	\$7,560	\$8,333	\$7,583	\$7,806	\$8,697	\$6,210	\$6,210	\$6,210	\$6,210	\$6,210	\$6,318
	\$7,373	\$8,536	\$7,602	\$8,119	\$8,997	\$6,062	\$6,643	\$6,062	\$6,376	\$6,935	\$6,318
	\$7,280	\$8,197	\$7,302	\$7,685	\$8,639	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,155
	\$7,223	\$7,978	\$7,245	\$7,446	\$8,274	\$5,832	\$5,832	\$5,832	\$5,832	\$5,832	\$6,155
	\$7,079	\$7,912	\$7,100	\$7,458	\$8,260	\$5,719	\$6,222	\$6,098	\$6,203	\$6,364	\$6,140
Man/Woman Age 60	VA Minimum Income	Avg Income	25%	50%	75%	FIA Minimum Income	Avg Income	25%	50%	75%	SPIA/DIA Minimum Income
10-Year Delay	\$10,021	\$11,162	\$10,058	\$10,527	\$11,627	\$10,974	\$10,974	\$10,974	\$10,974	\$10,974	\$9,014
	\$9,836	\$10,693	\$9,872	\$9,921	\$11,022	\$10,580	\$10,580	\$10,580	\$10,580	\$10,580	\$9,014
	\$9,706	\$11,396	\$10,038	\$10,757	\$12,033	\$10,181	\$11,609	\$10,181	\$11,054	\$12,297	\$9,004
	\$9,520	\$10,866	\$9,555	\$10,154	\$11,518	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$8,766
	\$9,095	\$10,149	\$9,129	\$9,417	\$10,453	\$9,900	\$9,900	\$9,900	\$9,900	\$9,900	\$8,745
5-Year Delay	\$7,560	\$8,333	\$7,583	\$7,806	\$8,697	\$7,073	\$7,073	\$7,073	\$7,073	\$7,073	\$6,638
	\$7,373	\$8,536	\$7,602	\$8,119	\$8,997	\$6,977	\$6,977	\$6,977	\$6,977	\$6,977	\$6,586
	\$7,280	\$8,197	\$7,302	\$7,685	\$8,639	\$6,750	\$6,750	\$6,750	\$6,750	\$6,750	\$6,468
	\$7,223	\$7,978	\$7,245	\$7,446	\$8,274	\$6,700	\$7,343	\$6,700	\$7,047	\$7,665	\$6,442
	\$7,079	\$7,912	\$7,100	\$7,458	\$8,260	\$6,650	\$6,650	\$6,650	\$6,650	\$6,650	\$6,413
No Delay	\$5,000	\$5,553	\$5,013	\$5,238	\$5,832	\$4,500	\$4,521	\$4,500	\$4,500	\$4,500	\$5,078
	\$4,500	\$5,317	\$4,512	\$4,907	\$5,773	\$4,500	\$4,500	\$4,500	\$4,500	\$4,500	\$5,068
	\$4,500	\$5,269	\$4,512	\$4,854	\$5,689	\$4,280	\$4,280	\$4,280	\$4,280	\$4,280	\$5,023
	\$4,350	\$4,961	\$4,361	\$4,702	\$5,277	\$4,200	\$4,200	\$4,200	\$4,200	\$4,200	\$4,978
	\$4,250	\$4,802	\$4,261	\$4,539	\$5,091	\$4,140	\$4,140	\$4,140	\$4,140	\$4,140	\$4,977
Man Age 65/ Woman Age 60	VA Minimum Income	Avg Income	25%	50%	75%	FIA Minimum Income	Avg Income	25%	50%	75%	SPIA/DIA Minimum Income
10-Year Delay	\$10,819	\$11,737	\$10,870	\$10,916	\$12,090	\$10,974	\$10,974	\$10,974	\$10,974	\$10,974	\$9,505
	\$10,200	\$11,621	\$10,248	\$10,876	\$12,324	\$10,580	\$10,580	\$10,580	\$10,580	\$10,580	\$9,476
	\$10,021	\$11,191	\$10,068	\$10,541	\$11,650	\$10,181	\$11,609	\$10,181	\$11,054	\$12,297	\$9,196
	\$9,945	\$11,061	\$9,992	\$10,289	\$11,387	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$9,171
	\$9,850	\$11,120	\$9,896	\$10,334	\$11,687	\$9,900	\$9,900	\$9,900	\$9,900	\$9,900	\$9,142
5-Year Delay	\$7,560	\$8,347	\$7,588	\$7,820	\$8,715	\$7,073	\$7,073	\$7,073	\$7,073	\$7,073	\$6,874
	\$7,373	\$8,526	\$7,607	\$8,116	\$8,983	\$6,977	\$6,977	\$6,977	\$6,977	\$6,977	\$6,850
	\$7,280	\$8,207	\$7,307	\$7,698	\$8,656	\$6,750	\$6,750	\$6,750	\$6,750	\$6,750	\$6,704
	\$7,223	\$7,966	\$7,249	\$7,448	\$8,260	\$6,700	\$7,343	\$6,700	\$7,047	\$7,665	\$6,688
	\$7,079	\$7,912	\$7,105	\$7,465	\$8,265	\$6,650	\$6,650	\$6,650	\$6,650	\$6,650	\$6,637
No Delay	\$5,600	\$6,289	\$5,731	\$6,053	\$6,589	\$4,500	\$4,521	\$4,500	\$4,500	\$4,500	\$5,196
	\$5,600	\$6,103	\$5,617	\$5,762	\$6,357	\$4,500	\$4,500	\$4,500	\$4,500	\$4,500	\$5,168
	\$5,600	\$6,078	\$5,617	\$5,736	\$6,319	\$4,280	\$4,280	\$4,280	\$4,280	\$4,280	\$5,161
	\$5,400	\$5,942	\$5,417	\$5,620	\$6,224	\$4,200	\$4,200	\$4,200	\$4,200	\$4,200	\$5,113
	\$5,350	\$5,890	\$5,366	\$5,587	\$6,173	\$4,140	\$4,140	\$4,140	\$4,140	\$4,140	\$5,108

Source: CANNEX VA Benefit Analysis, CANNEX FIA Benefit Analysis, CANNEX Income Annuity Exchange.

Note: Minimum income is based on a starting account value of \$100,000 and assumes no positive market contribution to the benefit base for the VA and FIA guarantees. Average income illustrates performance under lifelike market conditions. Rates are effective August 10, 2018 and represent the highest rate available for each product type.

GUARANTEED INCOME ACROSS ANNUITY PRODUCTS: WITHDRAWAL GUARANTEES COMPETE WITH INCOME ANNUITIES

Exhibit 8C

Top 5 Guaranteed Minimum Income Results by Age, Delay—Male/Female Couple *continued*

Man/Woman Age 65	VA Minimum Income	Avg Income	25%	50%	75%	FIA Minimum Income	Avg Income	25%	50%	75%	SPIA/DIA Minimum Income
10-Year Delay	\$10,819	\$11,737	\$10,870	\$10,916	\$12,090	\$12,754	\$12,754	\$12,754	\$12,754	\$12,754	\$10,663
	\$10,200	\$11,621	\$10,248	\$10,876	\$12,324	\$11,730	\$11,730	\$11,730	\$11,730	\$11,730	\$10,416
	\$10,021	\$11,191	\$10,068	\$10,541	\$11,650	\$11,000	\$11,000	\$11,000	\$11,000	\$11,000	\$10,110
	\$9,945	\$11,061	\$9,992	\$10,289	\$11,387	\$10,995	\$12,537	\$10,995	\$11,939	\$13,281	\$10,060
	\$9,850	\$11,120	\$9,896	\$10,334	\$11,687	\$10,585	\$10,585	\$10,585	\$10,585	\$10,585	\$9,978
5-Year Delay	\$7,560	\$8,347	\$7,588	\$7,820	\$8,715	\$7,935	\$7,935	\$7,935	\$7,935	\$7,935	\$7,439
	\$7,373	\$8,526	\$7,607	\$8,116	\$8,983	\$7,700	\$7,700	\$7,700	\$7,700	\$7,700	\$7,333
	\$7,280	\$8,207	\$7,307	\$7,698	\$8,656	\$7,644	\$7,644	\$7,644	\$7,644	\$7,644	\$7,124
	\$7,223	\$7,966	\$7,249	\$7,448	\$8,260	\$7,339	\$8,042	\$7,339	\$7,718	\$8,395	\$7,114
	\$7,079	\$7,912	\$7,105	\$7,465	\$8,265	\$7,125	\$7,125	\$7,125	\$7,125	\$7,125	\$7,085
No Delay	\$5,600	\$6,289	\$5,731	\$6,053	\$6,589	\$5,000	\$5,018	\$5,000	\$5,000	\$5,000	\$5,444
	\$5,600	\$6,103	\$5,617	\$5,762	\$6,357	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,431
	\$5,600	\$6,078	\$5,617	\$5,736	\$6,319	\$4,800	\$4,800	\$4,800	\$4,800	\$4,800	\$5,397
	\$5,400	\$5,942	\$5,417	\$5,620	\$6,224	\$4,750	\$4,750	\$4,750	\$4,750	\$4,750	\$5,378
	\$5,350	\$5,890	\$5,366	\$5,587	\$6,173	\$4,715	\$4,715	\$4,715	\$4,715	\$4,715	\$5,371

Source: CANNEX VA Benefit Analysis, CANNEX FIA Benefit Analysis, CANNEX Income Annuity Exchange.

Note: Minimum income is based on a starting account value of \$100,000 and assumes no positive market contribution to the benefit base for the VA and FIA guarantees. Average income illustrates performance under lifelike market conditions. Rates are effective August 10, 2018 and represent the highest rate available for each product type.

GUARANTEED INCOME ACROSS ANNUITY PRODUCTS: WITHDRAWAL GUARANTEES COMPETE WITH INCOME ANNUITIES

Exhibit 8

Top 5 Guaranteed Minimum Income Results by Age, Delay—Unisex

Woman Age 70	VA Minimum Income	Avg Income	25%	50%	75%	FIA Minimum Income	Avg Income	25%	50%	75%	SPIA/DIA Minimum Income
10-Year Delay	\$12,025	\$13,335	\$12,086	\$12,620	\$13,889	\$15,537	\$15,537	\$15,537	\$15,537	\$15,537	\$14,621
	\$11,193	\$12,581	\$11,249	\$11,717	\$13,210	\$14,030	\$14,030	\$14,030	\$14,030	\$14,030	\$14,285
	\$11,050	\$12,563	\$11,106	\$11,764	\$13,320	\$13,000	\$13,000	\$13,000	\$13,000	\$13,000	\$13,716
	\$10,819	\$11,768	\$10,874	\$10,920	\$12,129	\$12,914	\$12,944	\$12,914	\$12,914	\$12,914	\$13,581
	\$10,625	\$11,751	\$10,679	\$10,917	\$12,066	\$12,868	\$12,868	\$12,868	\$12,868	\$12,868	\$13,483
5-Year Delay	\$8,100	\$8,913	\$8,132	\$8,358	\$9,304	\$9,970	\$9,970	\$9,970	\$9,970	\$9,970	\$9,323
	\$7,898	\$8,672	\$7,929	\$8,126	\$8,986	\$9,660	\$9,660	\$9,660	\$9,660	\$9,660	\$9,106
	\$7,800	\$8,731	\$7,831	\$8,214	\$9,202	\$8,704	\$8,704	\$8,704	\$8,704	\$8,704	\$8,960
	\$7,714	\$8,361	\$7,745	\$7,784	\$8,627	\$8,700	\$8,837	\$8,700	\$8,700	\$8,782	\$8,869
	\$7,425	\$8,897	\$7,893	\$8,519	\$9,459	\$8,700	\$8,700	\$8,700	\$8,700	\$8,700	\$8,830
No Delay	\$6,000	\$6,602	\$6,019	\$6,238	\$6,912	\$6,000	\$6,015	\$6,000	\$6,000	\$6,000	\$6,448
	\$5,600	\$6,283	\$5,732	\$6,053	\$6,580	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,343
	\$5,600	\$6,134	\$5,618	\$5,780	\$6,414	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,292
	\$5,600	\$6,118	\$5,618	\$5,748	\$6,385	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,276
	\$5,400	\$5,933	\$5,417	\$5,617	\$6,209	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,240
Man Age 70	VA Minimum Income	Avg Income	25%	50%	75%	FIA Minimum Income	Avg Income	25%	50%	75%	SPIA/DIA Minimum Income
10-Year Delay	\$12,025	\$13,341	\$12,099	\$12,631	\$13,895	\$15,537	\$15,537	\$15,537	\$15,537	\$15,537	\$16,668
	\$11,193	\$12,582	\$11,262	\$11,728	\$13,211	\$14,030	\$14,030	\$14,030	\$14,030	\$14,030	\$15,197
	\$11,050	\$12,570	\$11,118	\$11,771	\$13,324	\$13,000	\$13,000	\$13,000	\$13,000	\$13,000	\$15,074
	\$10,819	\$11,773	\$10,886	\$10,932	\$12,133	\$12,914	\$12,946	\$12,914	\$12,914	\$12,914	\$14,961
	\$10,625	\$11,753	\$10,690	\$10,927	\$12,074	\$12,868	\$12,868	\$12,868	\$12,868	\$12,868	\$14,945
5-Year Delay	\$8,100	\$8,908	\$8,138	\$8,361	\$9,298	\$9,970	\$9,970	\$9,970	\$9,970	\$9,970	\$10,183
	\$7,898	\$8,667	\$7,935	\$8,129	\$8,980	\$9,660	\$9,660	\$9,660	\$9,660	\$9,660	\$9,516
	\$7,800	\$8,727	\$7,837	\$8,215	\$9,194	\$8,747	\$8,747	\$8,747	\$8,747	\$8,747	\$9,513
	\$7,714	\$8,356	\$7,750	\$7,789	\$8,622	\$8,704	\$8,704	\$8,704	\$8,704	\$8,704	\$9,506
	\$7,425	\$8,884	\$7,897	\$8,518	\$9,450	\$8,700	\$8,836	\$8,700	\$8,700	\$8,781	\$9,398
No Delay	\$6,000	\$6,572	\$6,022	\$6,230	\$6,872	\$6,000	\$6,014	\$6,000	\$6,000	\$6,000	\$6,803
	\$5,600	\$6,260	\$5,733	\$6,042	\$6,553	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,606
	\$5,600	\$6,112	\$5,621	\$5,777	\$6,381	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,587
	\$5,600	\$6,096	\$5,621	\$5,748	\$6,352	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,485
	\$5,400	\$5,910	\$5,420	\$5,609	\$6,179	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,480
Unisex											SPIA/DIA Minimum Income
10-Year Delay											\$14,822
											\$14,783
											\$14,214
											\$14,168
											\$13,983
5-Year Delay											\$9,410
											\$9,330
											\$9,186
											\$9,134
											\$9,088
No Delay											\$6,639
											\$6,479
											\$6,397
											\$6,391
											\$6,378

Source: CANNEX VA Benefit Analysis, CANNEX FIA Benefit Analysis, CANNEX Income Annuity Exchange.

Note: Minimum income is based on a starting account value of \$100,000 and assumes no positive market contribution to the benefit base for the VA and FIA guarantees. Average income illustrates performance under lifelike market conditions. Rates are effective August 10, 2018 and represent the highest rate available for each product type.

GUARANTEED INCOME ACROSS ANNUITY PRODUCTS: WITHDRAWAL GUARANTEES COMPETE WITH INCOME ANNUITIES

Exhibit 9A

Top 5 Average Income Results by Age, Delay—Single Female

Age 55	VA Minimum Income	Avg Income	25%	50%	75%	FIA Minimum Income	Avg Income	25%	50%	75%	SPIA/DIA Minimum Income
10-Year Delay	\$9,706	\$11,402	\$10,030	\$10,753	\$12,047	\$7,401	\$12,107	\$10,556	\$11,782	\$13,336	\$9,004
	\$10,021	\$11,160	\$10,048	\$10,517	\$11,611	\$6,750	\$11,986	\$11,109	\$11,906	\$12,783	\$8,847
	\$9,520	\$10,854	\$9,546	\$10,140	\$11,502	\$7,114	\$11,893	\$9,139	\$10,825	\$13,534	\$8,619
	\$8,500	\$10,783	\$9,151	\$10,104	\$11,650	\$6,500	\$11,777	\$10,915	\$11,699	\$12,561	\$8,595
	\$9,836	\$10,681	\$9,862	\$9,911	\$11,005	\$10,181	\$11,609	\$10,181	\$11,054	\$12,297	\$8,584
5-Year Delay	\$6,381	\$7,310	\$6,396	\$6,820	\$7,752	\$7,073	\$7,073	\$7,073	\$7,073	\$7,073	\$6,574
	\$5,400	\$7,119	\$5,993	\$6,709	\$7,786	\$6,750	\$6,750	\$6,750	\$6,750	\$6,750	\$6,413
	\$6,075	\$6,921	\$6,089	\$6,333	\$7,264	\$6,700	\$7,343	\$6,700	\$7,047	\$7,665	\$6,411
	\$5,400	\$6,917	\$5,786	\$6,349	\$7,452	\$6,525	\$6,662	\$6,525	\$6,525	\$6,627	\$6,373
	\$5,398	\$6,896	\$5,676	\$6,297	\$7,522	\$6,525	\$6,525	\$6,525	\$6,525	\$6,525	\$6,348
Age 60	VA Minimum Income	Avg Income	25%	50%	75%	FIA Minimum Income	Avg Income	25%	50%	75%	SPIA/DIA Minimum Income
10-Year Delay	\$9,706	\$11,400	\$10,034	\$10,756	\$12,041	\$8,250	\$13,814	\$12,878	\$13,691	\$14,714	\$9,993
	\$10,021	\$11,168	\$10,054	\$10,524	\$11,627	\$8,141	\$13,327	\$11,606	\$12,956	\$14,679	\$9,993
	\$9,520	\$10,869	\$9,551	\$10,156	\$11,519	\$8,541	\$13,226	\$10,282	\$12,065	\$14,961	\$9,865
	\$8,500	\$10,797	\$9,158	\$10,116	\$11,668	\$7,500	\$12,813	\$11,942	\$12,700	\$13,649	\$9,865
	\$9,836	\$10,696	\$9,868	\$9,916	\$11,028	\$10,995	\$12,537	\$10,995	\$11,939	\$13,281	\$9,822
5-Year Delay	\$7,373	\$8,543	\$7,600	\$8,117	\$9,006	\$5,750	\$9,244	\$8,718	\$9,173	\$9,767	\$7,157
	\$7,560	\$8,338	\$7,581	\$7,804	\$8,702	\$5,750	\$9,152	\$8,631	\$9,081	\$9,669	\$7,157
	\$7,280	\$8,204	\$7,300	\$7,683	\$8,645	\$6,347	\$8,673	\$7,135	\$8,071	\$9,517	\$7,068
	\$6,750	\$8,183	\$7,183	\$7,775	\$8,715	\$5,696	\$8,250	\$7,925	\$8,236	\$8,538	\$7,068
	\$7,223	\$7,986	\$7,242	\$7,446	\$8,279	\$8,062	\$8,062	\$8,062	\$8,062	\$8,062	\$7,055
No Delay	\$5,000	\$5,568	\$5,012	\$5,243	\$5,855	\$4,300	\$6,172	\$5,929	\$6,145	\$6,394	\$5,409
	\$4,100	\$5,537	\$4,541	\$5,255	\$6,206	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,409
	\$4,000	\$5,417	\$4,370	\$5,098	\$6,090	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,349
	\$4,000	\$5,381	\$4,608	\$5,136	\$5,883	\$3,250	\$4,961	\$4,709	\$4,948	\$5,206	\$5,349
	\$4,500	\$5,347	\$4,511	\$4,913	\$5,817	\$4,500	\$4,908	\$4,500	\$4,758	\$5,122	\$5,335
Age 65	VA Minimum Income	Avg Income	25%	50%	75%	FIA Minimum Income	Avg Income	25%	50%	75%	SPIA/DIA Minimum Income
10-Year Delay	\$9,350	\$11,777	\$10,067	\$11,087	\$12,710	\$10,342	\$14,946	\$12,229	\$14,018	\$16,736	\$11,721
	\$10,819	\$11,734	\$10,862	\$10,908	\$12,090	\$8,881	\$14,558	\$12,704	\$14,166	\$16,022	\$11,677
	\$10,200	\$11,621	\$10,240	\$10,874	\$12,320	\$14,313	\$14,313	\$14,313	\$14,313	\$14,313	\$11,199
	\$9,706	\$11,401	\$10,041	\$10,761	\$12,042	\$8,750	\$13,844	\$13,001	\$13,735	\$14,714	\$11,185
	\$9,600	\$11,237	\$9,638	\$10,505	\$12,018	\$8,500	\$13,722	\$12,887	\$13,615	\$14,585	\$11,162
5-Year Delay	\$7,373	\$8,535	\$7,604	\$8,120	\$8,999	\$6,500	\$9,849	\$9,314	\$9,801	\$10,375	\$8,000
	\$7,560	\$8,354	\$7,584	\$7,817	\$8,720	\$6,973	\$9,413	\$7,781	\$8,806	\$10,309	\$7,962
	\$7,280	\$8,216	\$7,304	\$7,700	\$8,661	\$6,250	\$9,376	\$8,866	\$9,330	\$9,876	\$7,771
	\$6,750	\$8,199	\$7,189	\$7,789	\$8,743	\$6,417	\$8,957	\$8,607	\$8,947	\$9,276	\$7,715
	\$6,000	\$8,193	\$6,737	\$7,760	\$9,165	\$7,977	\$8,741	\$7,977	\$8,389	\$9,126	\$7,696
No Delay	\$5,600	\$6,307	\$5,731	\$6,062	\$6,609	\$4,800	\$6,531	\$6,302	\$6,521	\$6,743	\$5,822
	\$5,600	\$6,119	\$5,615	\$5,763	\$6,377	\$5,500	\$5,500	\$5,500	\$5,500	\$5,500	\$5,775
	\$5,600	\$6,093	\$5,615	\$5,737	\$6,335	\$5,500	\$5,500	\$5,500	\$5,500	\$5,500	\$5,749
	\$5,250	\$5,986	\$5,397	\$5,738	\$6,298	\$4,543	\$5,439	\$5,325	\$5,439	\$5,541	\$5,739
	\$5,000	\$5,983	\$5,040	\$5,644	\$6,497	\$5,400	\$5,400	\$5,400	\$5,400	\$5,400	\$5,735

Source: CANNEX VA Benefit Analysis, CANNEX FIA Benefit Analysis, CANNEX Income Annuity Exchange.

Note: Minimum income is based on a starting account value of \$100,000 and assumes no positive market contribution to the benefit base for the VA and FIA guarantees.

Average income illustrates performance under lifelike market conditions. Rates are effective August 10, 2018 and represent the highest rate available for each product type.

GUARANTEED INCOME ACROSS ANNUITY PRODUCTS: WITHDRAWAL GUARANTEES COMPETE WITH INCOME ANNUITIES

Exhibit 9B

Top 5 Average Income Results by Age, Delay—Single Male

Age 60	VA Minimum Income	Avg Income	25%	50%	75%	FIA Minimum Income	Avg Income	25%	50%	75%	SPIA/DIA Minimum Income
10-Year Delay	\$9,706	\$11,396	\$10,038	\$10,757	\$12,033	\$8,141	\$13,321	\$11,617	\$12,941	\$14,631	\$10,693
	\$10,021	\$11,162	\$10,058	\$10,527	\$11,627	\$8,250	\$13,308	\$12,459	\$13,197	\$14,135	\$10,513
	\$9,520	\$10,866	\$9,555	\$10,154	\$11,518	\$8,541	\$13,212	\$10,282	\$12,065	\$14,961	\$10,382
	\$8,500	\$10,780	\$9,162	\$10,117	\$11,646	\$10,995	\$12,537	\$10,995	\$11,939	\$13,281	\$10,218
	\$9,836	\$10,693	\$9,872	\$9,921	\$11,022	\$12,532	\$12,532	\$12,532	\$12,532	\$12,532	\$10,218
5-Year Delay	\$7,373	\$8,536	\$7,602	\$8,119	\$8,997	\$5,750	\$8,876	\$8,377	\$8,825	\$9,355	\$7,502
	\$7,560	\$8,333	\$7,583	\$7,806	\$8,697	\$5,750	\$8,788	\$8,304	\$8,737	\$9,261	\$7,424
	\$7,280	\$8,197	\$7,302	\$7,685	\$8,639	\$6,347	\$8,657	\$7,133	\$8,069	\$9,497	\$7,296
	\$6,750	\$8,166	\$7,184	\$7,772	\$8,703	\$8,062	\$8,062	\$8,062	\$8,062	\$8,062	\$7,291
	\$7,223	\$7,978	\$7,245	\$7,446	\$8,274	\$5,696	\$8,048	\$7,733	\$8,038	\$8,312	\$7,247
No Delay	\$5,000	\$5,553	\$5,013	\$5,238	\$5,832	\$4,300	\$5,956	\$5,732	\$5,936	\$6,155	\$5,586
	\$4,100	\$5,490	\$4,531	\$5,221	\$6,136	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,522
	\$4,000	\$5,350	\$4,354	\$5,049	\$5,994	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,499
	\$4,500	\$5,317	\$4,512	\$4,907	\$5,773	\$4,500	\$4,890	\$4,500	\$4,749	\$5,100	\$5,455
	\$4,000	\$5,312	\$4,584	\$5,085	\$5,794	\$4,815	\$4,815	\$4,815	\$4,815	\$4,815	\$5,424

Age 65	VA Minimum Income	Avg Income	25%	50%	75%	FIA Minimum Income	Avg Income	25%	50%	75%	SPIA/DIA Minimum Income
10-Year Delay	\$9,350	\$11,769	\$10,073	\$11,092	\$12,704	\$10,342	\$14,939	\$12,223	\$14,017	\$16,736	\$12,960
	\$10,819	\$11,737	\$10,870	\$10,916	\$12,090	\$8,881	\$14,557	\$12,712	\$14,153	\$15,985	\$12,381
	\$10,200	\$11,621	\$10,248	\$10,876	\$12,324	\$14,313	\$14,313	\$14,313	\$14,313	\$14,313	\$12,214
	\$9,706	\$11,397	\$10,047	\$10,765	\$12,038	\$11,809	\$13,466	\$11,809	\$12,823	\$14,264	\$12,110
	\$9,600	\$11,236	\$9,645	\$10,511	\$12,020	\$8,750	\$13,378	\$12,566	\$13,289	\$14,224	\$11,972
5-Year Delay	\$7,373	\$8,526	\$7,607	\$8,116	\$8,983	\$6,500	\$9,470	\$8,948	\$9,441	\$9,979	\$8,594
	\$7,560	\$8,347	\$7,588	\$7,820	\$8,715	\$6,973	\$9,398	\$7,773	\$8,801	\$10,269	\$8,302
	\$7,280	\$8,207	\$7,307	\$7,698	\$8,656	\$6,250	\$9,015	\$8,517	\$8,987	\$9,499	\$8,182
	\$6,750	\$8,177	\$7,190	\$7,786	\$8,723	\$8,798	\$8,798	\$8,798	\$8,798	\$8,798	\$8,166
	\$6,000	\$8,164	\$6,734	\$7,741	\$9,124	\$7,977	\$8,741	\$7,977	\$8,389	\$9,126	\$8,131
No Delay	\$5,600	\$6,289	\$5,731	\$6,053	\$6,589	\$4,800	\$6,312	\$6,108	\$6,309	\$6,508	\$6,070
	\$5,600	\$6,103	\$5,617	\$5,762	\$6,357	\$5,500	\$5,500	\$5,500	\$5,500	\$5,500	\$5,984
	\$5,600	\$6,078	\$5,617	\$5,736	\$6,319	\$5,500	\$5,500	\$5,500	\$5,500	\$5,500	\$5,972
	\$5,250	\$5,965	\$5,397	\$5,731	\$6,268	\$5,400	\$5,400	\$5,400	\$5,400	\$5,400	\$5,911
	\$5,000	\$5,936	\$5,040	\$5,619	\$6,426	\$5,350	\$5,350	\$5,350	\$5,350	\$5,350	\$5,893

Source: CANNEX VA Benefit Analysis, CANNEX FIA Benefit Analysis, CANNEX Income Annuity Exchange.

Note: Minimum income is based on a starting account value of \$100,000 and assumes no positive market contribution to the benefit base for the VA and FIA guarantees. Average income illustrates performance under lifelike market conditions. Rates are effective August 10, 2018 and represent the highest rate available for each product type.

GUARANTEED INCOME ACROSS ANNUITY PRODUCTS: WITHDRAWAL GUARANTEES COMPETE WITH INCOME ANNUITIES

Exhibit 9C

Top 5 Average Income Results by Age, Delay—Male/Female Couple

Man Age 60/ Woman Age 55	VA Minimum Income	Avg Income	25%	50%	75%	FIA Minimum Income	Avg Income	25%	50%	75%	SPIA/DIA Minimum Income
10-Year Delay	\$9,706	\$11,396	\$10,038	\$10,757	\$12,033	\$6,250	\$11,149	\$10,330	\$11,070	\$11,893	\$8,395
	\$10,021	\$11,162	\$10,058	\$10,527	\$11,627	\$6,517	\$11,028	\$8,412	\$10,032	\$12,490	\$8,395
	\$9,520	\$10,866	\$9,555	\$10,154	\$11,518	\$6,000	\$10,921	\$10,119	\$10,844	\$11,650	\$8,230
	\$8,500	\$10,780	\$9,162	\$10,117	\$11,646	\$9,366	\$10,680	\$9,366	\$10,170	\$11,313	\$8,230
	\$9,836	\$10,693	\$9,872	\$9,921	\$11,022	\$10,017	\$10,017	\$10,017	\$10,017	\$10,017	\$8,188
5-Year Delay	\$7,373	\$8,536	\$7,602	\$8,119	\$8,997	\$4,500	\$7,791	\$7,319	\$7,721	\$8,292	\$6,318
	\$7,560	\$8,333	\$7,583	\$7,806	\$8,697	\$5,261	\$7,406	\$5,983	\$6,831	\$8,220	\$6,318
	\$7,280	\$8,197	\$7,302	\$7,685	\$8,639	\$6,062	\$6,643	\$6,062	\$6,376	\$6,935	\$6,155
	\$6,750	\$8,166	\$7,184	\$7,772	\$8,703	\$5,018	\$6,464	\$5,323	\$6,054	\$7,122	\$6,155
	\$7,223	\$7,978	\$7,245	\$7,446	\$8,274	\$4,254	\$6,448	\$6,161	\$6,425	\$6,691	\$6,140
No Delay											

Man/Woman Age 60	VA Minimum Income	Avg Income	25%	50%	75%	FIA Minimum Income	Avg Income	25%	50%	75%	SPIA/DIA Minimum Income
10-Year Delay	\$9,706	\$11,396	\$10,038	\$10,757	\$12,033	\$7,750	\$13,191	\$12,288	\$13,113	\$14,040	\$9,014
	\$10,021	\$11,162	\$10,058	\$10,527	\$11,627	\$7,335	\$12,208	\$9,405	\$11,157	\$13,887	\$9,014
	\$9,520	\$10,866	\$9,555	\$10,154	\$11,518	\$7,000	\$12,157	\$11,319	\$12,085	\$12,940	\$9,004
	\$8,500	\$10,780	\$9,162	\$10,117	\$11,646	\$10,181	\$11,609	\$10,181	\$11,054	\$12,297	\$8,766
	\$9,836	\$10,693	\$9,872	\$9,921	\$11,022	\$7,323	\$11,110	\$10,628	\$11,089	\$11,494	\$8,745
5-Year Delay	\$7,373	\$8,536	\$7,602	\$8,119	\$8,997	\$5,250	\$8,655	\$8,146	\$8,586	\$9,143	\$6,638
	\$7,560	\$8,333	\$7,583	\$7,806	\$8,697	\$5,250	\$8,569	\$8,069	\$8,500	\$9,051	\$6,586
	\$7,280	\$8,197	\$7,302	\$7,685	\$8,639	\$5,798	\$8,029	\$6,544	\$7,434	\$8,797	\$6,468
	\$6,750	\$8,166	\$7,184	\$7,772	\$8,703	\$6,700	\$7,343	\$6,700	\$7,047	\$7,665	\$6,442
	\$7,223	\$7,978	\$7,245	\$7,446	\$8,274	\$4,975	\$7,325	\$7,030	\$7,304	\$7,590	\$6,413
No Delay	\$5,000	\$5,553	\$5,013	\$5,238	\$5,832	\$3,800	\$5,609	\$5,356	\$5,586	\$5,843	\$5,078
	\$4,100	\$5,490	\$4,531	\$5,221	\$6,136	\$4,500	\$4,500	\$4,500	\$4,500	\$4,500	\$5,068
	\$4,000	\$5,350	\$4,354	\$5,049	\$5,994	\$2,750	\$4,348	\$4,114	\$4,328	\$4,581	\$5,023
	\$4,500	\$5,317	\$4,512	\$4,907	\$5,773	\$4,280	\$4,280	\$4,280	\$4,280	\$4,280	\$4,978
	\$4,000	\$5,312	\$4,584	\$5,085	\$5,794	\$3,393	\$4,258	\$4,157	\$4,254	\$4,352	\$4,977

Man Age 65/ Woman Age 60	VA Minimum Income	Avg Income	25%	50%	75%	FIA Minimum Income	Avg Income	25%	50%	75%	SPIA/DIA Minimum Income
10-Year Delay	\$9,350	\$11,769	\$10,073	\$11,092	\$12,704	\$7,750	\$12,983	\$12,102	\$12,868	\$13,833	\$9,505
	\$10,819	\$11,737	\$10,870	\$10,916	\$12,090	\$7,335	\$12,197	\$9,405	\$11,157	\$13,887	\$9,476
	\$10,200	\$11,621	\$10,248	\$10,876	\$12,324	\$7,000	\$11,965	\$11,153	\$11,859	\$12,749	\$9,196
	\$9,706	\$11,397	\$10,047	\$10,765	\$12,038	\$10,181	\$11,609	\$10,181	\$11,054	\$12,297	\$9,171
	\$9,600	\$11,236	\$9,645	\$10,511	\$12,020	\$7,323	\$10,995	\$10,526	\$10,979	\$11,378	\$9,142
5-Year Delay	\$7,373	\$8,526	\$7,607	\$8,116	\$8,983	\$5,250	\$8,498	\$8,012	\$8,432	\$8,987	\$6,874
	\$7,560	\$8,347	\$7,588	\$7,820	\$8,715	\$5,250	\$8,414	\$7,932	\$8,348	\$8,896	\$6,850
	\$7,280	\$8,207	\$7,307	\$7,698	\$8,656	\$5,798	\$8,020	\$6,543	\$7,432	\$8,796	\$6,704
	\$6,750	\$8,177	\$7,190	\$7,786	\$8,723	\$6,700	\$7,343	\$6,700	\$7,047	\$7,665	\$6,688
	\$6,000	\$8,164	\$6,734	\$7,741	\$9,124	\$4,975	\$7,240	\$6,952	\$7,228	\$7,508	\$6,637
No Delay	\$5,600	\$6,289	\$5,731	\$6,053	\$6,589	\$3,800	\$5,513	\$5,275	\$5,495	\$5,726	\$5,196
	\$5,600	\$6,103	\$5,617	\$5,762	\$6,357	\$4,500	\$4,500	\$4,500	\$4,500	\$4,500	\$5,168
	\$5,600	\$6,078	\$5,617	\$5,736	\$6,319	\$4,280	\$4,280	\$4,280	\$4,280	\$4,280	\$5,161
	\$5,250	\$5,965	\$5,397	\$5,731	\$6,268	\$2,750	\$4,261	\$4,047	\$4,245	\$4,489	\$5,113
	\$5,000	\$5,936	\$5,040	\$5,619	\$6,426	\$3,393	\$4,218	\$4,118	\$4,212	\$4,307	\$5,108

Source: CANNEX VA Benefit Analysis, CANNEX FIA Benefit Analysis, CANNEX Income Annuity Exchange.

Note: Minimum income is based on a starting account value of \$100,000 and assumes no positive market contribution to the benefit base for the VA and FIA guarantees. Average income illustrates performance under lifelike market conditions. Rates are effective August 10, 2018 and represent the highest rate available for each product type.

GUARANTEED INCOME ACROSS ANNUITY PRODUCTS: WITHDRAWAL GUARANTEES COMPETE WITH INCOME ANNUITIES

Exhibit 9C

Top 5 Average Income Results by Age, Delay—Male/Female Couple *continued*

Man/Woman Age 65	VA Minimum Income	Avg Income	25%	50%	75%	FIA Minimum Income	Avg Income	25%	50%	75%	SPIA/DIA Minimum Income
10-Year Delay	\$9,350	\$11,769	\$10,073	\$11,092	\$12,704	\$9,000	\$13,872	\$10,823	\$12,667	\$15,676	\$10,663
	\$10,819	\$11,737	\$10,870	\$10,916	\$12,090	\$8,250	\$13,187	\$12,360	\$13,108	\$14,011	\$10,416
	\$10,200	\$11,621	\$10,248	\$10,876	\$12,324	\$8,000	\$13,047	\$12,230	\$12,970	\$13,864	\$10,110
	\$9,706	\$11,397	\$10,047	\$10,765	\$12,038	\$12,754	\$12,754	\$12,754	\$12,754	\$12,754	\$10,060
	\$9,600	\$11,236	\$9,645	\$10,511	\$12,020	\$10,995	\$12,537	\$10,995	\$11,939	\$13,281	\$9,978
5-Year Delay	\$7,373	\$8,526	\$7,607	\$8,116	\$8,983	\$6,000	\$9,256	\$8,733	\$9,207	\$9,754	\$7,439
	\$7,560	\$8,347	\$7,588	\$7,820	\$8,715	\$6,537	\$8,894	\$7,341	\$8,290	\$9,745	\$7,333
	\$7,280	\$8,207	\$7,307	\$7,698	\$8,656	\$5,750	\$8,782	\$8,306	\$8,735	\$9,253	\$7,124
	\$6,750	\$8,177	\$7,190	\$7,786	\$8,723	\$5,696	\$8,046	\$7,718	\$8,036	\$8,322	\$7,114
	\$6,000	\$8,164	\$6,734	\$7,741	\$9,124	\$7,339	\$8,042	\$7,339	\$7,718	\$8,395	\$7,085
No Delay	\$5,600	\$6,289	\$5,731	\$6,053	\$6,589	\$4,300	\$5,991	\$5,766	\$5,974	\$6,206	\$5,444
	\$5,600	\$6,103	\$5,617	\$5,762	\$6,357	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,431
	\$5,600	\$6,078	\$5,617	\$5,736	\$6,319	\$3,968	\$4,818	\$4,715	\$4,812	\$4,913	\$5,397
	\$5,250	\$5,965	\$5,397	\$5,731	\$6,268	\$4,800	\$4,800	\$4,800	\$4,800	\$4,800	\$5,378
	\$5,000	\$5,936	\$5,040	\$5,619	\$6,426	\$3,250	\$4,784	\$4,540	\$4,758	\$5,022	\$5,371

Source: CANNEX VA Benefit Analysis, CANNEX FIA Benefit Analysis, CANNEX Income Annuity Exchange.

Note: Minimum income is based on a starting account value of \$100,000 and assumes no positive market contribution to the benefit base for the VA and FIA guarantees. Average income illustrates performance under lifelike market conditions. Rates are effective August 10, 2018 and represent the highest rate available for each product type.

GUARANTEED INCOME ACROSS ANNUITY PRODUCTS: WITHDRAWAL GUARANTEES COMPETE WITH INCOME ANNUITIES

Exhibit 9D

Top 5 Average Income Results by Age, Delay—Unisex

Woman Age 70	VA Minimum Income	Avg Income	25%	50%	75%	FIA Minimum Income	Avg Income	25%	50%	75%	SPIA/DIA Minimum Income
10-Year Delay	\$12,025	\$13,335	\$12,086	\$12,620	\$13,889	\$12,015	\$17,263	\$14,143	\$16,172	\$19,381	\$14,621
	\$11,193	\$12,581	\$11,249	\$11,717	\$13,210	\$9,622	\$15,806	\$13,816	\$15,356	\$17,363	\$14,285
	\$11,050	\$12,563	\$11,106	\$11,764	\$13,320	\$15,537	\$15,537	\$15,537	\$15,537	\$15,537	\$13,716
	\$9,350	\$11,784	\$10,080	\$11,101	\$12,723	\$9,500	\$14,558	\$13,684	\$14,487	\$15,468	\$13,581
	\$10,819	\$11,768	\$10,874	\$10,920	\$12,129	\$12,624	\$14,395	\$12,624	\$13,707	\$15,248	\$13,483
5-Year Delay	\$8,100	\$8,913	\$8,132	\$8,358	\$9,304	\$7,250	\$10,371	\$9,819	\$10,316	\$10,936	\$9,323
	\$7,425	\$8,897	\$7,893	\$8,519	\$9,459	\$8,119	\$10,331	\$8,876	\$9,809	\$11,129	\$9,106
	\$7,800	\$8,731	\$7,831	\$8,214	\$9,202	\$9,970	\$9,970	\$9,970	\$9,970	\$9,970	\$8,960
	\$7,898	\$8,672	\$7,929	\$8,126	\$8,986	\$9,660	\$9,660	\$9,660	\$9,660	\$9,660	\$8,869
	\$7,373	\$8,530	\$7,610	\$8,126	\$8,997	\$6,750	\$9,559	\$9,050	\$9,508	\$10,079	\$8,830
No Delay	\$6,000	\$6,602	\$6,019	\$6,238	\$6,912	\$5,300	\$6,850	\$6,637	\$6,839	\$7,043	\$6,448
	\$5,600	\$6,283	\$5,732	\$6,053	\$6,580	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,343
	\$5,600	\$6,134	\$5,618	\$5,780	\$6,414	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,292
	\$5,600	\$6,118	\$5,618	\$5,748	\$6,385	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,276
	\$5,400	\$5,954	\$5,417	\$5,640	\$6,245	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,240
Man Age 70	VA Minimum Income	Avg Income	25%	50%	75%	FIA Minimum Income	Avg Income	25%	50%	75%	SPIA/DIA Minimum Income
10-Year Delay	\$12,025	\$13,341	\$12,099	\$12,631	\$13,895	\$12,015	\$17,258	\$14,142	\$16,167	\$19,381	\$16,668
	\$11,193	\$12,582	\$11,262	\$11,728	\$13,211	\$9,622	\$15,806	\$13,816	\$15,356	\$17,363	\$15,197
	\$11,050	\$12,570	\$11,118	\$11,771	\$13,324	\$15,537	\$15,537	\$15,537	\$15,537	\$15,537	\$15,074
	\$9,350	\$11,776	\$10,089	\$11,103	\$12,709	\$12,624	\$14,395	\$12,624	\$13,707	\$15,248	\$14,961
	\$10,819	\$11,773	\$10,886	\$10,932	\$12,133	\$9,718	\$14,347	\$13,112	\$14,183	\$15,460	\$14,945
5-Year Delay	\$8,100	\$8,908	\$8,138	\$8,361	\$9,298	\$8,119	\$10,323	\$8,872	\$9,809	\$11,129	\$10,183
	\$7,425	\$8,884	\$7,897	\$8,518	\$9,450	\$7,250	\$10,029	\$9,496	\$9,983	\$10,575	\$9,516
	\$7,800	\$8,727	\$7,837	\$8,215	\$9,194	\$9,970	\$9,970	\$9,970	\$9,970	\$9,970	\$9,513
	\$7,898	\$8,667	\$7,935	\$8,129	\$8,980	\$9,660	\$9,660	\$9,660	\$9,660	\$9,660	\$9,506
	\$7,373	\$8,519	\$7,613	\$8,123	\$8,983	\$8,615	\$9,441	\$8,615	\$9,060	\$9,856	\$9,398
No Delay	\$6,000	\$6,572	\$6,022	\$6,230	\$6,872	\$5,300	\$6,629	\$6,433	\$6,609	\$6,779	\$6,803
	\$5,600	\$6,260	\$5,733	\$6,042	\$6,553	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,606
	\$5,600	\$6,112	\$5,621	\$5,777	\$6,381	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,587
	\$5,600	\$6,096	\$5,621	\$5,748	\$6,352	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,485
	\$5,400	\$5,930	\$5,420	\$5,630	\$6,211	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,480
Unisex											SPIA/DIA Minimum Income
10-Year Delay											\$14,822
											\$14,783
											\$14,214
											\$14,168
											\$13,983
5-Year Delay											\$9,410
											\$9,330
											\$9,186
											\$9,134
											\$9,088
No Delay											\$6,639
											\$6,479
											\$6,397
											\$6,391
											\$6,378

Source: CANNEX VA Benefit Analysis, CANNEX FIA Benefit Analysis, CANNEX Income Annuity Exchange.

Note: Minimum income is based on a starting account value of \$100,000 and assumes no positive market contribution to the benefit base for the VA and FIA guarantees. Average income illustrates performance under lifelike market conditions. Rates are effective August 10, 2018 and represent the highest rate available for each product type.



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CANNEX supports the exchange of **pricing information** for annuity and bank products across North America. We provide financial institutions with the ability to evaluate and compare various guarantees associated with retirement savings and retirement income products.

Our **quantitative research** team provides methodologies that help optimize the selection and allocation of annuity and insurance guarantees in support of retirement programs and practices.

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