Benefits of integrating insurance products into a retirement plan

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Introduction

Although facing challenges, the US life insurance and retirement industry has enormous potential to grow. EY researchers estimate that by 2030, there will be a $240 trillion retirement savings gap and a $160 trillion protection gap.[1] Insurers are uniquely positioned to address these gaps with products that offer legacy protection, tax-deferred savings growth and guaranteed income for life.

In this paper, we explore how two products can be used to meet investors' savings and protection needs: permanent life insurance (PLI) and a deferred income annuity with increasing income potential (DIA with IIP), which represents deferred income annuities with persistency bonuses and non-guaranteed dividends. Our analysis focuses on whether integrating PLI and a DIA with IIP into a financial plan provides value relative to an investment-only strategy. Specifically, we conducted case study analyses to determine the optimal allocation of an investor's assets to the insurance products.

[1] "NextWave Insurance: life insurance and retirement," *EY website*, https://assets.ey.com/content/dam/ey-sites/ey-com/en_gl/topics/insurance/insurance-pdfs/ey-nextwave-insurance-life-retirement.pdf, accessed 10 February 2021.

Methodology

Strategies and product specifications

We considered five strategies in our analysis:

Investment-only

With this strategy, the investor uses a mix of only equity and fixed income assets. We assume the investor follows Morningstar's moderate glide path asset allocation strategy with annual rebalancing. The investor prioritizes savings to qualified assets (up to the IRS contribution limit) and then saves to the taxable account after the limit is reached.

Term life + investments

Under this approach, the investor purchases annual renewable term life insurance for legacy protection until age 65 (the planned age for retirement). The rest of the investor's assets is allocated toward investments. We use a term life product representative of the industry in our analysis.

PLI + investments[2]

With this strategy, the investor allocates a portion of their assets to PLI premiums (specifically whole life insurance that is paid up at age 65) and allocates the rest to investments. We assume the investor uses dividends to purchase paid-up additions (PUAs). Just like term life, we use a PLI product representative of the industry in our analysis.

DIA with IIP + investments[3]

This strategy entails allocating a portion of the investor's assets to acquire a DIA with IIP, with the rest going to investments. We use a product that broadly represents DIA with IIP products. We model the increasing income potential feature in the form of dividends.

PLI + DIA with IIP + investments

This strategy combines strategies 3 and 4, with the investor incorporating both PLI and DIA with IIP products into their financial plan.

For strategies that include PLI and a DIA with IIP, the value of these products is included in the total financial assets and considered part of the fixed income allocation. Thus, for strategies where an investor allocates a portion of their wealth to an insurance product, the amount invested in bonds decreases compared with the investment-only strategy.

Further, we use PLI as a volatility buffer, meaning that PLI cash value (accessed via surrenders or loans) is used to fund retirement income during periods of market volatility. This allows investors to avoid liquidating assets from their traditional investments that have fallen in value.

[2] Refer to the "PLI and DIA with IIP forecasting methodology" section in the Appendix for more detail on how we forecast the cash flows associated with these products.

[3] Ibid.

Process

To compare our five strategies, we use a Monte Carlo analysis to generate 1,000 scenarios, each of which contains a time series of interest rates, inflation rates, equity returns and bond returns across the planning horizon. We then analyze two outcome metrics generated through these simulations.

The first is the after-tax retirement income that can be sustained at 90% probability of success, unless otherwise stated. The income is derived from systematic withdrawals from investments, dividends and income payments from the DIA with IIP, and surrenders or policy loans from the PLI cash value. When calculating retirement income, we apply ordinary income tax rates (federal and state) to withdrawals from qualified assets and DIA with IIP income. Income taxes typically do not apply to any cash flows from PLI, since we assume that the investor surrenders the cash value until the basis is exhausted and then takes policy loans thereafter.[4]

The second metric is the legacy value at the end of the time horizon. We focus on the median legacy amount at the end of the projection period.[5] The legacy value is calculated as the sum of the face amount of life insurance (term or PLI) and investments, after taxes on qualified assets and estate taxes, if applicable.

[4] PLI follows the first-in, first-out accounting principle, meaning that withdrawals come from the investor's contributions first (i.e., basis) and gains second. Once the basis is exhausted (i.e., the remaining cash value is considered gains), we assume the investor uses policy loans that provide tax-free access to the cash value. The investor is assumed to repay the policy loan once their portfolio recovers sufficiently from the down market. However, if the investor is unable to repay the loan and the policy lapses, then we apply income taxes to the gains.

[5] The legacy at the end of the time horizon is based on the investor spending the retirement income solved for at the 90% probability of success.

Case studies

Case study: Mike and Courtney, a 25-year-old couple

Table 1: Data and assumptions for 25-year-old couple

Household salary	Total annual savings	Qualified savings	Taxable savings
$80,000	20% of salary	20% of salary	$0
Total initial wealth	**Qualified wealth**	**Taxable wealth**	**Time horizon**
$45,000	$35,000	$10,000	70 years

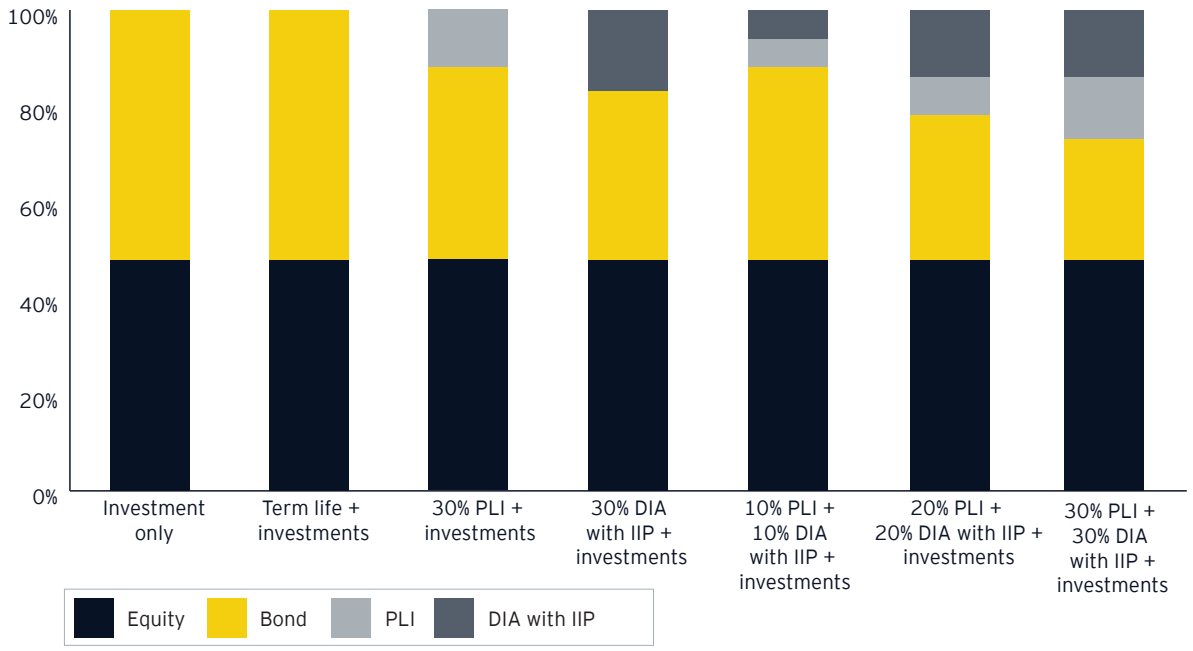
We divided their assets between the investments and the insurance products per the strategies listed above. We simulate different product allocation combinations in increments of 10% of total annual savings for PLI and projected wealth at age 55 for DIAs with IIP. For term life strategies, we purchase the same face amount as in the comparable PLI strategy (i.e., 10% term life strategy face amount equals 10% PLI strategy face amount).[6] We cap the allocations percentage at 60% of annual savings purchased at the starting age for PLI and 30% of projected wealth at age 55 for the DIA with IIP.

For example, the strategy 10% PLI + 10% DIA with IIP + investments indicates that Mike and Courtney allocate 10% of their savings to PLI premiums and then allocate 10% of their wealth at age 55 toward a DIA with IIP. The remaining assets are put into investments.

[6] PLI and term are funded with after-tax dollars, while the other strategies are typically funded by qualified dollars. To fairly compare strategies in scenarios where we use savings to purchase life insurance that would have otherwise been invested in qualified savings, we use a pretax savings amount such that the take-home pay is the same between the PLI + investments strategy and the investments-only strategy.

Figure 1 below shows sample product allocations as a percentage of total wealth at age 65 to illustrate the composition of integrated strategies. Note that the equity allocation stays constant, but the mix of capital preservation assets (i.e., bonds, PLI and DIAs with IIP) changes because integrated strategies use PLI and DIAs with IIP as an alternative to bonds.

Figure 1: Sample product allocations as a percentage of total wealth at retirement



We analyzed the outcome metrics for all strategies and now will walk through the findings and results from our analysis. Our first finding is as follows.

1. PLI + investments strategies outperform investment-only and term life + investments strategies.

Table 2 contains retirement income, legacy and wealth at retirement dollar values that support this finding.

Table 2: Projected retirement income and legacy for investment-only, PLI + investments and term life + investments strategies for 25-year-old couple

Retirement income values are on an after-tax basis and calculated at the 90% probability of success. Legacy values also reflect the impact of any applicable taxes (i.e., taxes on qualified assets or estate taxes) and are from the median of the distribution.

Strategy	Retirement income	% change vs. investment-only	Legacy at end of time horizon	% change vs. investment-only
Investment-only	$61,250	n.a.	$3,015,937	n.a.
10% PLI + investments	$61,875	1.0%	$3,148,482	4.4%
30% PLI + investments	$62,500	2.0%	$3,421,457	13.4%
50% PLI + investments	$61,875	1.0%	$3,631,661	20.4%
10% term life + investments	$60,000	-2.0%	$3,022,455	0.2%
30% term life + investments	$59,375	-3.1%	$2,978,411	-1.2%
50% term life + investments	$58,438	-4.6%	$2,949,081	-2.2%

While term life can be an affordable and efficient product for pure life insurance coverage over a certain period of time, we find that PLI + investments strategies are more appropriate for long-term retirement investors because they provide more retirement income and more legacy (at the end of the planning horizon).[7] This result is also true when comparing PLI strategies to the investment-only strategy.

There are a couple of reasons for this. For one, PLI tends to provide superior returns over fixed income in long-run scenarios due to the combined effect of the guaranteed growth of cash value and dividends.[8] Term life premiums do not boost long-term savings, instead acting as a drag on portfolio performance. The second reason is that using PLI as a volatility buffer improves returns because the investor does not have to sell and realize losses on their investments.

Now, we turn our attention to strategies that include DIAs with increasing income potential. We find that:

2. DIA with IIP + investments strategies outperform other strategies in retirement income.

Table 3 contains retirement income and legacy dollar values for the investment-only and DIA with IIP + investments strategies supporting our conclusion.

Table 3: Projected retirement income and legacy for investment-only and DIA with IIP + investments strategies for 25-year-old couple

Retirement income values are on an after-tax basis and calculated at the 90% probability of success. Legacy values also reflect the impact of any applicable taxes (i.e., taxes on qualified assets or estate taxes) and are from the median of the distribution.

Strategy	Retirement income	% change vs. investment-only	Legacy at end of time horizon	% change vs. investment-only
Investment-only	$61,250	n.a.	$3,015,937	n.a.
10% DIA with IIP + investments	$63,125	3.1%	$3,037,380	0.7%
20% DIA with IIP + investments	$64,688	5.6%	$3,074,274	1.9%
30% DIA with IIP + investments	$66,250	8.2%	$3,128,817	3.7%

The DIA with IIP + investments strategies are the most focused on retirement income. The investor uses a portion of their portfolio balance at age 55 to purchase the DIA with IIP, which provides a stream of retirement income but does not have a tangible account balance or provide any payments upon death. Thus, compared with the other strategies, the retirement income tends to be higher, but the projected legacy is lower. Interestingly, the legacy from the DIA with IIP + investments strategy is still higher than the legacy from the investment-only strategy. This is a result of the DIA with IIP outperforming fixed income due to the impact of mortality credits and dividends.[9]

Now, we incorporate strategies that combine PLI with DIA with IIP into our discussion. This leads us to our next finding.

[7] PLI also provides more legacy at the end of the projection period, but the legacy is comparable during the accumulation period.

[8] Participating insurance products tend to outperform fixed income because mutual life insurance companies, as institutional investors, have access to asset classes that individual investors do not. These companies also have professionals managing their assets, which has been proven to provide value for fixed income. This result is further supported by the fact that our projection starts with the yield curve as of October 31, 2020, where interest rates are very low, before grading up to long-term interest rate assumptions.

[9] Ibid.

3. Integrated strategies are more efficient than investment-only strategies.

Table 4 contains income and legacy values for the investment-only and PLI + DIA with IIP + investments strategies. It also includes results from the strategies in **Table 2** and **Table 3.**

Table 4: Projected retirement income and legacy for investment-only, PLI + DIA with IIP + investments, PLI + investments, and DIA with IIP + investments strategies for 25-year-old couple

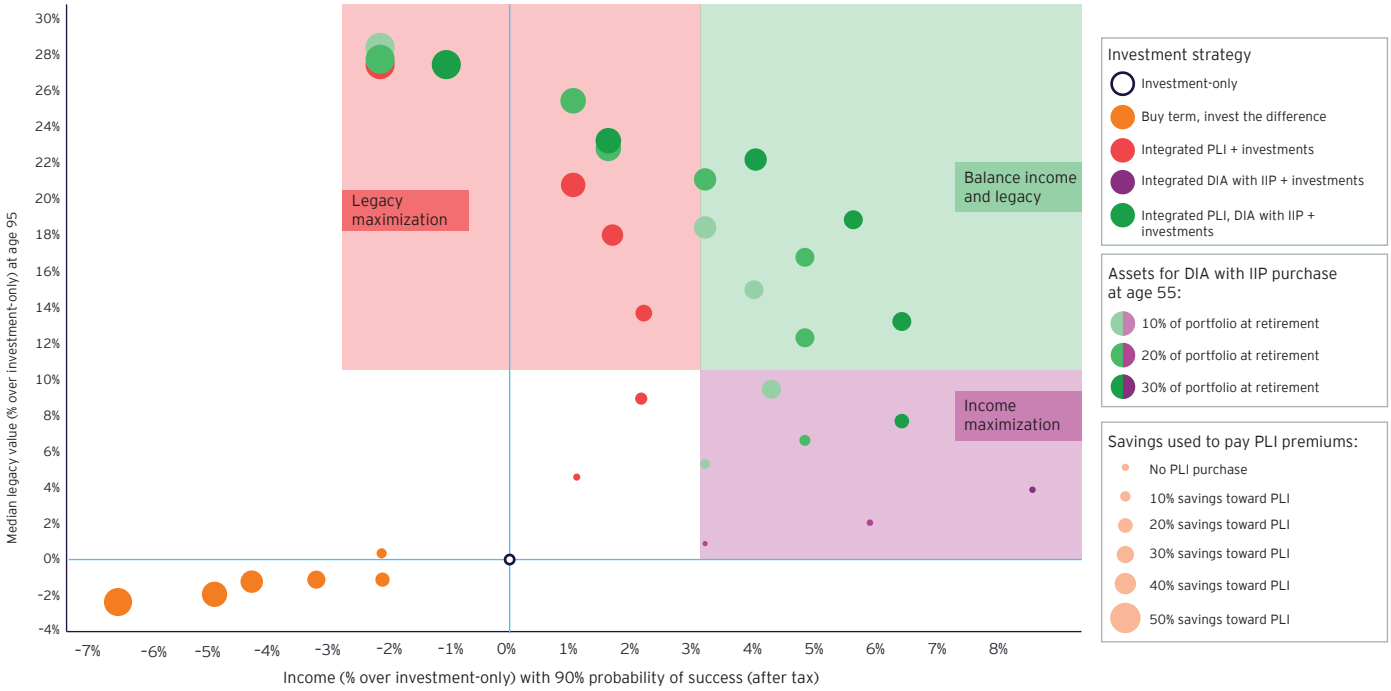
Retirement income values are on an after-tax basis and calculated at the 90% probability of success. Legacy values also reflect the impact of any applicable taxes (i.e., taxes on qualified assets or estate taxes) and are from the median of the distribution.

Strategy	Retirement income	% change vs. investment-only	Legacy at end of time horizon	% change vs. investment-only
Investment-only	$61,250	n.a.	$3,015,937	n.a.
10% PLI + 10% DIA with IIP investments	$63,125	3.1%	$3,168,788	5.1%
20% PLI + 20% DIA with IIP investments	$64,063	4.6%	$3,382,146	12.1%
30% PLI + 30% DIA with IIP investments	$64,531	5.4%	$3,580,807	18.7%
10% PLI + investments	$61,875	1.0%	$3,148,482	4.4%
30% PLI + investments	$62,500	2.0%	$3,421,457	13.4%
50% PLI + investments	$61,875	1.0%	$3,631,661	20.4%
10% DIA with IIP + investments	$63,125	3.1%	$3,037,380	0.7%
20% DIA with IIP + investments	$64,688	5.6%	$3,074,274	1.9%
30% DIA with IIP + investments	$66,250	8.2%	$3,128,817	3.7%

Our analysis suggests that the investment-only strategy is inefficient from a retirement income and legacy perspective. **Table 4** illustrates the disparities: an investment-only strategy underperforms PLI + investments, DIA with IIP + investments, and PLI + DIA with IIP + investments strategies in **both** retirement income and legacy.

Now, we bring all the results together. **Figure 2** is a scatter plot of the results, reflecting the percent improvements compared against the investment-only strategy in retirement income (the x-axis) and in median legacy value at death (the y-axis). The points are color-coded by strategy, and those in darker shades represent higher allocations to DIA with IIP. The sizing of the points represents the relative allocation to life insurance, with larger points reflecting a higher allocation of savings to life insurance. The white dot at the center of the axes represents the results for the investment-only strategy.

Figure 2: Income vs. legacy for 25-year-old couple for all strategies at 90% probability of success



The graphic demonstrates that different product allocations are appropriate depending on the investor's retirement objectives. We now break down our remaining observations.

4. Integrated strategies provide investors with the flexibility to focus on the financial outcomes most important to them: retirement income, legacy or a balance in between.

As demonstrated in **Figure 2** (and **Table 4**), Mike and Courtney should choose a high allocation to a DIA with IIP to maximize income but a high allocation to PLI to maximize legacy. If they want a balance between the two objectives, then a PLI + DIA with IIP + investments strategy may work best for them.

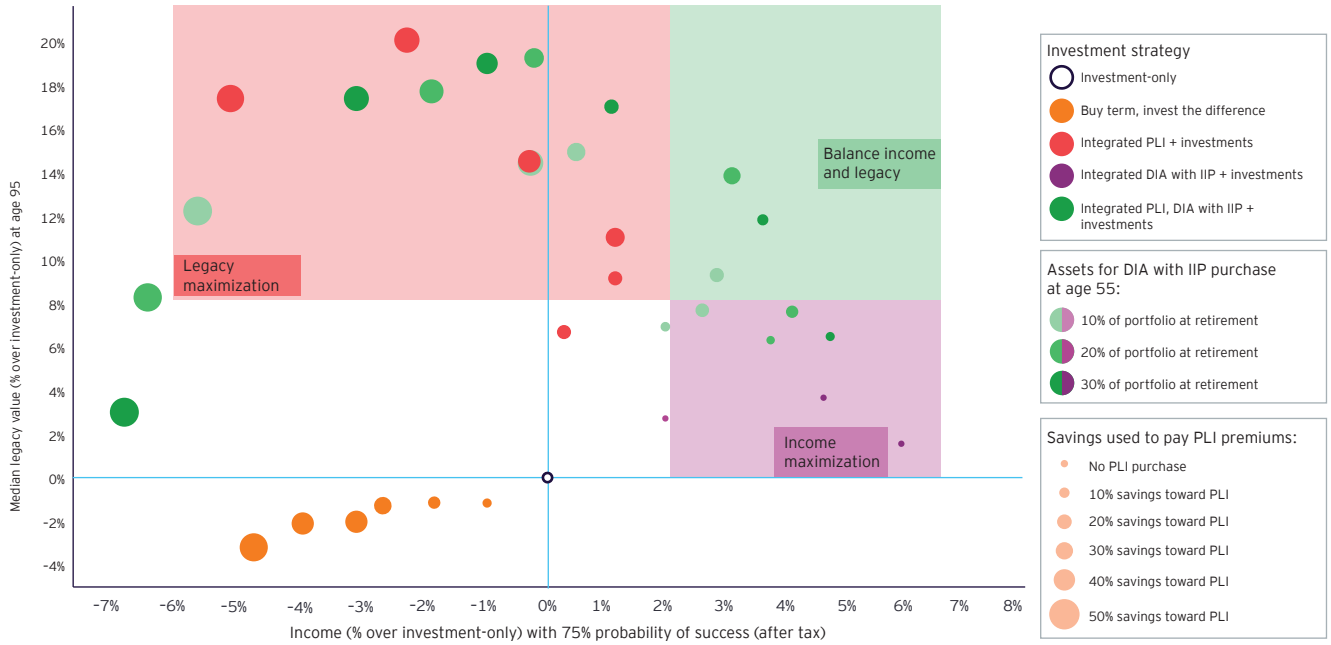
5. Allocating up to 30% of annual savings to PLI and up to 30% of wealth at age 55 to DIA with IIP may be appropriate when optimizing retirement income and legacy value outcomes.

While there is not a single optimal strategy, we find that allocations of 10% to 30% are generally supportable for PLI and DIA with IIP. A higher allocation to PLI may still be appropriate for an investor solely focused on maximizing legacy, but the corresponding reduction to income can be substantial because the PLI allocation redirects too many assets away from equities.

Sensitivity test for an investor with a higher risk appetite

We replicated our processes for the 25-year-old couple with a higher appetite for risk, calculating the retirement income based on a probability of success of 75% instead of 90%. We also assume the investor follows Morningstar's aggressive glide path asset allocation in this sensitivity. **Figure 3** displays the scatter plot of the results.

Figure 3: Income vs. legacy for 25-year-old couple for all strategies at 75% probability of success



Compared with **Figure 2**, integrated strategies tended to move down and to the left, indicating they produce less lift to retirement income and legacy (relative to the investment-only strategy) at the 75% probability of success. However, the overall pattern remained the same, which leads us to our next observation.

6. For investors with a higher risk appetite, integrated strategies remain better.

While the degree of improvement in income and legacy is less when anchoring the analysis on 75% probability of success, we note that our findings above still apply. Overall, integrated portfolios still provide better income and legacy benefits relative to investment-only and term life + investments strategies.

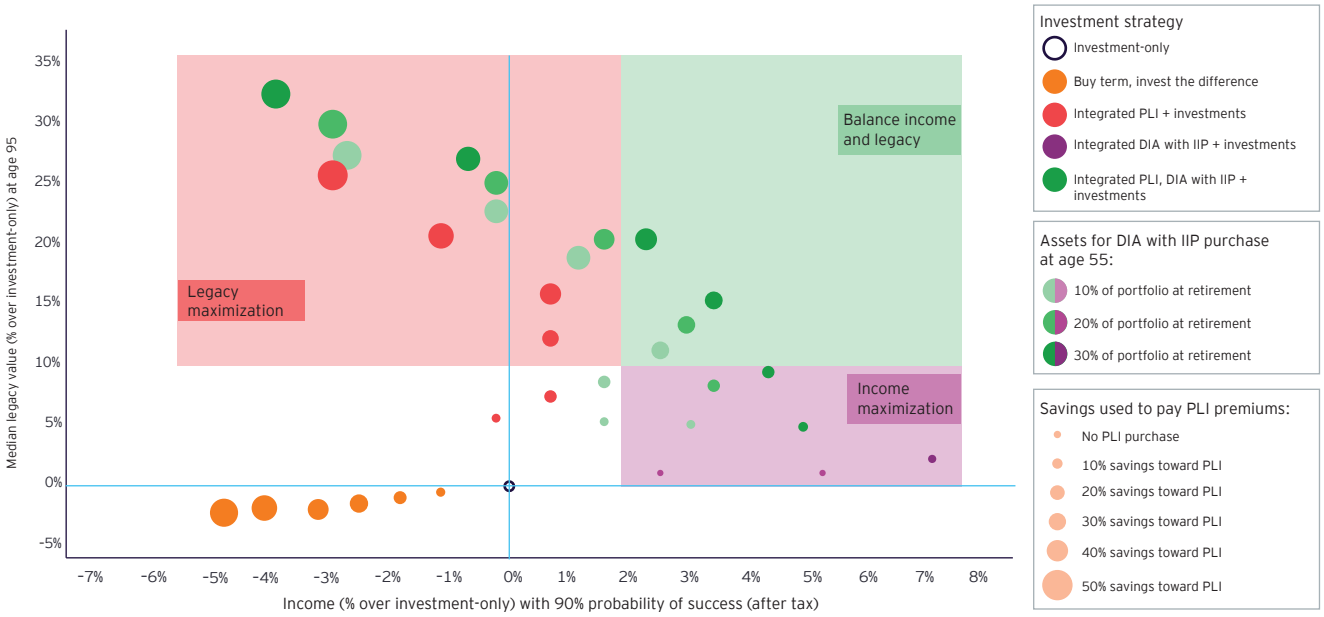
Case study: Arjun and Isabella, a 35-year-old couple

Table 5: Data and assumptions for 35-year-old couple

Household salary	Total annual savings	Qualified savings	Taxable savings
$192,000	20% of salary	20% of salary	$0
Total initial wealth	**Qualified wealth**	**Taxable wealth**	**Time horizon**
$230,000	$200,000	$30,000	60 years

We conducted the same analysis for our 35-year-old couple. Figure 4 displays the scatter plot.

Figure 4: Income vs. legacy for 35-year-old couple at 90% probability of success



The pattern of results is very similar to that of the 25-year-old couple. **Table 6**, which contains income and legacy values for specific strategies from **Figure 4**, shows similar results as well.

Table 6: Projected retirement income and legacy for highlighted strategies for 35-year-old couple

Retirement income values are on an after-tax basis and calculated at 90% probability of success. Legacy values also reflect the impact of any applicable taxes (i.e., taxes on qualified assets or estate taxes) and are from the median of the distribution.

Strategy	Retirement income	% change vs. investment-only	Legacy at end of time horizon	% change vs. investment-only
Investment-only	$83,633	n.a.	$3,616,034	n.a.
10% PLI + 10% DIA with IIP investments	$85,000	1.6%	$3,824,486	5.8%
20% PLI + 20% DIA with IIP investments	$86,563	3.5%	$3,936,449	8.9%
30% PLI + 30% DIA with IIP investments	$86,563	3.5%	$4,205,089	16.3%
10% PLI + investments	$83,438	-0.2%	$3,833,036	6.0%
30% PLI + investments	$84,219	0.7%	$4,082,155	12.9%
50% PLI + investments	$82,656	-1.2%	$4,404,705	21.8%
10% DIA with IIP + investments	$85,781	2.6%	$3,660,521	1.2%
20% DIA with IIP + investments	$88,125	5.4%	$3,661,461	1.3%
30% DIA with IIP + investments	$89,688	7.2%	$3,703,577	2.4%

Just like for Mike and Courtney, the output in **Table 6** for Arjun and Isabella demonstrates the efficacy of the integrated strategies relative to the investment-only strategy. The majority of the integrated strategies produce higher retirement income and legacy at the end of the time horizon, while the two exceptions provide slightly less income but much higher legacy.

Overall, we conclude that the same findings outlined above apply for the 35-year-old couple.

Case study: Ben and Jen, a 45-year-old couple

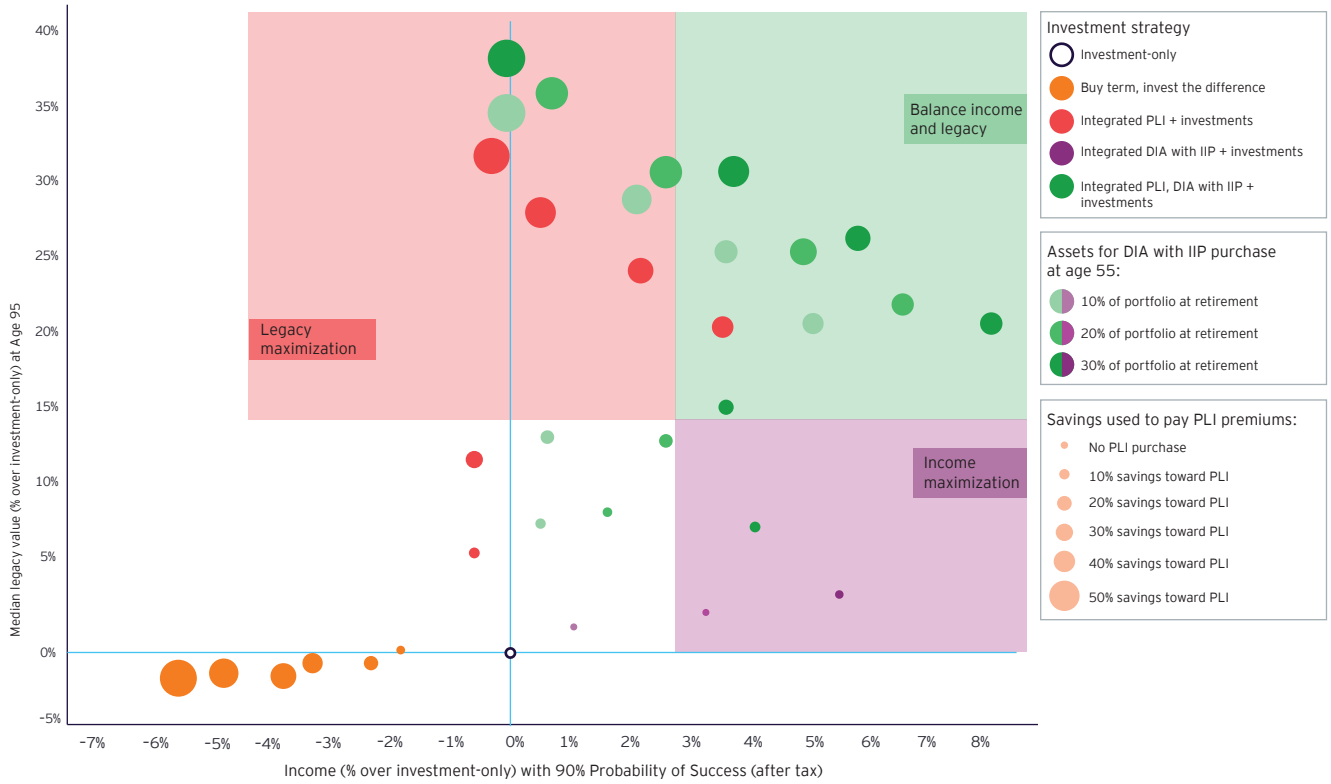
Table 7: Data and assumptions for 45-year-old couple

Household salary	Total annual savings	Qualified savings	Taxable savings
$250,000	20% of salary	15.6% of salary[10]	4.4% of salary
Total initial wealth	**Qualified wealth**	**Taxable wealth**	**Time horizon**
$475,000	$400,000	$75,000	50 years

We repeat the same exercise for our 45-year-old couple. **Figure 5** displays the scatter plot.

[10] For this household, 15.6% of salary is equal to the 401(k) contribution limit. The rest of the savings are directed to a taxable account.

Figure 5: Income vs. legacy for 45-year-old couple at 90% probability of success



All but one of the patterns and trends remain for the 45-year-old couple: the integrated portfolio producing the most retirement income is no longer a DIA with IIP + investments strategy. Rather, it is the 30% PLI + 30% DIA with IIP + investments strategy (green point on the far right) because an older couple has relatively less need for equity exposure.[11] In other words, more exposure to PLI and DIA with IIP (which both outperform fixed income) produces better retirement outcomes because it does not result in an under-allocation to equity assets earlier in the household's life cycle.

The difference in the pattern of results does not contradict any of the findings from the case studies for the 25- and 35-year-old couples. Therefore, we conclude that the findings above also apply here.

[11] Note that this observation is a function of the glide path assumed in the analysis. If an investor uses a more conservative glide path (i.e., one with less equity exposure at younger ages), then it is likely that higher allocations to insurance products at younger ages will provide better retirement outcomes.

Future considerations

By analyzing viable strategies with realistic assumptions in a sophisticated framework, we have created a good research foundation for this topic that could be expanded in the following ways:

- Many other retirement strategies could be investigated. For example, we expect that other annuities will provide value relative to an investment-only strategy, but it would still be worthwhile to incorporate them into our framework for confirmation.
- This analysis could be conducted for households that do not use investment advisors and invest mostly in low-cost exchange-traded funds. While the fact that do-it-yourself investors tend to lag the market,[12] which may somewhat offset the impact of lower advisory and investment management fees, it would still be interesting to investigate. What would the lift be to retirement income and legacy from an integrated strategy compared with an investment-only strategy? Would the same findings still apply?
- How would changing the default retirement account from a pretax account to a Roth account affect our 25-year-old couple? While we expect our findings to still apply, it would be interesting to determine the impact to income and legacy.

[12] "Evaluating the Gap Between U.S. Investor Returns and Official Total Returns," *Morningstar website*, morningstar.com/lp/mind-the-gap, accessed 10 February 2021.

Summary

Our analysis shows that integrating insurance products into a financial plan provides value to retirement investors. Insurers can use these products to strengthen their relationships with investors and seize upon the possibilities in a marketplace that has proved challenging.

Appendix

PLI and DIA with IIP forecasting methodology

For both products, we use a dividend interest rate (DIR) model to forecast the value of the dividend attributable to interest. We first forecast the insurance company's general account yield for each year and economic scenario based on a mix of predominantly bonds and a small allocation to equities (which represent the riskier assets within the general account). We then subtract a target spread to arrive at the net portfolio yield. We then calculate the five-year moving averages of the net general account portfolio yields. Finally, we set the DIR based on the change in the five-year moving average, updating it only if the change is above a certain threshold. We use an initial DIR of 5% in our analysis.

We use an industry-representative whole life illustration as the foundation for our projection of PLI. The whole life illustration is based on a best class, non-tobacco underwriting risk class. Premiums are level until age 65 when the policy goes paid up, lowering the base face amount to what is supported by the cash value. We deconstruct the illustration and calculate implied rates of additional cash value and PUAs with respect to the illustrated dividend amount. We then isolate the amount of the illustrated dividend that is attributable to interest and override it with a value from our scenario-specific DIR. We then update the projected PLI cash value and death benefit based on the scenario dividend. We apply a similar methodology to model the impact of surrenders, reducing the cash value and the death benefit on a pro rata basis.

For DIAs with IIP, we use an industry-representative product. At its core, DIAs with increasing income potential are like other DIAs offering lifetime guaranteed income, albeit with a lower guaranteed income rate. The difference is that these DIAs reward those who stay invested over a longer time horizon with increasing amounts of income through dividends or a bonus. In our analysis, we model the increasing income potential feature in the form of dividends. We assume that the investor uses all dividends received before retirement to purchase more DIA with IIP product. In retirement, we assume the investor takes 50% of the dividend for retirement income and allocates the remaining 50% to purchase more DIA with IIP. We use a 100% joint-and-survivor income plan in our analysis.

Capital market assumptions

Our capital market assumptions (CMAs) for the 10-year treasury bond yield, 10-year treasury bond grading period and credit spread for a 10-year A-rated bond are based on the EY Key Issues Survey. The CMAs for equities and bonds are based on historical US Large Cap and Barclays Capital US Aggregate Bond Index returns, respectively.

We use the American Academy of Actuaries' economic scenario generator. The generator is a stochastic log volatility model that produces scenarios that are correlated across years (autocorrelation) and within a given year (contemporaneous correlation).

Glide path

We use the Morningstar Moderate and Aggressive Lifetime Allocations Indexes[13] for our analysis. We linearly interpolate in between the glide points at target retirement years to populate the glide paths.

Other assumptions

We assess both an advisory fee and an investment management fee from the investor's traditional investments. We also make some other assumptions related to the management of the investments. As mentioned earlier, the model calculates retirement income on an after-tax basis. Income taxes are estimated based on the 2020 federal income tax brackets (grown by inflation each year). We assume a static middle-of-the-road state income tax. We also model capital gains taxes, estate taxes and beneficiary taxes on qualified assets. The details of these assumptions are presented in **Table A1**.

[13] "Morningstar® Lifetime Allocation Indexes Aggressive Summary Allocations," *Morningstar website*, indexes.morningstar.com/resources/PDF/Brochures%20and%20Fact%20Sheets/Morningstar_Lifetime_Allocation_Summary.pdf, accessed 10 February 2021.

Table A1: Other assumption values

Investment assumptions				
Advisory + inv. mgmt. fee	Annual equity turnover	Annual fixed income turnover	Equity dividend rate	Initial taxable equity basis
1.25%	25%	0%	2.5%	50% of assets

Tax assumptions				
Federal income tax	State tax rate	Capital gains tax rate	Beneficiary tax rate	Estate tax rate
2020 bracket with standard deduction applied	6% (static)	15%	25%	Up to 40% based on bracket

Ernst & Young LLP contacts

Jason Freedman
Partner
jason.freedman@ey.com

Chris Raham
Principal
christopher.raham@ey.com

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