Managing Long-Term Care Spending Risks in Retirement

by Wade D. Pfau, Ph.D., CFA, and Michael Finke, Ph.D., CFP®

All retirees must plan today for the possibility that they will experience significant long-term care health expenditures. Large unplanned expenses, such as those relating to long-term care, have the potential to wreak havoc on a retirement income plan.

Asset-based policies provide a viable alternative for those seeking long-term care insurance.

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Dr. Pfau was selected for the *InvestmentNews* Power 20 in 2013 and 40 Under 40 in 2014, the *Investment Advisor* IA 25 list for 2014 and *Financial Planning* magazine's Influencer Awards. He is a two-time winner of the *Journal of Financial Planning* Montgomery-Warschauer Award, a two-time winner of the Academic Thought Leadership Award from the Retirement Income Industry Association and a best paper award winner in the retirement category from the Academy of Financial Services.

He also contributes to the curriculum of the Retirement Income Certified Professional (RICP) designation. He is a co-editor of the *Journal of Personal Finance*. He has spoken at the national conferences of organizations such as the CFA Institute, FPA, NAPFA, AICPA-PFP and AFS. He holds a doctorate in economics from Princeton University and publishes frequently in academic and practitioner research journals. He hosts the Retirement Researcher website, and is a monthly columnist for *Advisor Perspectives*, a RetireMentor for MarketWatch, a contributor to *Forbes* and an expert panelist for *The Wall Street Journal*. His research has been discussed in the print editions of *The Economist*, *The New York Times*, *The Wall Street Journal* and *Money*.

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Dr. Finke is a nationally renowned researcher focusing on the value of financial advice, financial planning regulation, investments and individual investor behavior. He was named to the 2012 *Investment Advisor* IA 25 list and the 2013 and 2014 *InvestmentNews* Power 20. His research questioning the 4 percent rule was published in the *Journal of Financial Planning* and won the 2014 Montgomery-Warschauer award for the most influential article. He also won the award with Thomas Langdon in 2013. He was selected to present his research on financial literacy and aging at the 2015 MIT Center for Finance and Policy Conference, and on financial advice and the implications of a low-return environment at the 2013 and 2017 Wharton Pension Research Council conferences.

Dr. Finke has published more than 50 peer-reviewed articles and is widely quoted in many leading consumer publications, including *The Wall Street Journal*, *The New York Times*, *Time* and *Money*. Dr. Finke also writes monthly articles translating academics topics for practitioners in his role as contributing editor for Research on Wealth. Dr. Finke served as president of the American Council on Consumer Interests and is a former editor of the *Journal of Personal Finance*.

Executive summary

The unknown cost of health care is among the most significant risks to any retirement plan. All retirees face the possibility of a debilitating illness that will require advanced and costly care over a long period of time. This risk is a source of anxiety for retirees, yet most are unwilling to accept the variable costs and potential loss of premiums paid under conventional health-based long-term care insurance products. And few have taken steps to understand the complete range of long-term care insurance product features and options available to them.

A different generation of protection, such as life insurance and long-term care or annuities and long-term care, create a hybrid product consideration.

A hybrid product protects against long-term care expenditures while also providing a guaranteed death benefit, which guards against the possibility of lost premiums. This new class of hybrid products is central to our analysis, in which we simulate multiple long-term care scenarios to demonstrate the impact of a hybrid product, a traditional health-based long-term care policy and a self-funding approach. In scenarios where no long-term care event is experienced, premiums paid using a traditional health-based policy are simply lost, while a hybrid policy provides a death benefit. In scenarios where a long-term care event is experienced, insurance helps dramatically reduce the net costs to a household.

Long-term care insurance provides value when health expenses are high. At the 90th percentile of long-term care costs, an unprotected retiree — one who is self-funding protection against a long-term care event — will be exposed to risk of over $1 million in assets.

In contrast, a retiree holding a long-term care insurance policy will be exposed to roughly one-third the risk of out-of-pocket expenses and premiums. With long-term care insurance — like all insurance products — a retiree trades a premium expense for protection against a loss. In this case, the loss due to high health expenses can have a devastating impact on legacy values and income security.

Outcomes for a conventional long-term care policy and a hybrid policy are similar under the 90th percentile costs, assuming that premiums on a conventional policy do not increase. Despite these similar outcomes, survey evidence suggests that individuals are much more attracted to a product that provides protection against significant health expense as well as a death benefit, and provides both without the negative features of variable premium costs and the potential for lost premium dollars.

Introduction

Insecurity about health costs and medical spending present a significant challenge in retirement planning. According to the 2015 Retirement Confidence Survey, only 18 percent of workers feel very confident that they will have enough money to pay medical expenses in retirement (EBRI, 2015).

People generally want to enjoy retirement without making drastic lifestyle changes, without relying on help from others and without accepting a substandard level of care as they age.

Retirement income planning necessarily involves three important unknown factors:
1. How long people will live
2. How their investments will perform over time
3. How much they will spend each year in retirement

These risks can be effectively managed. Investment portfolios can be better diversified and withdrawals can be timed to maximize tax efficiency. Longevity risk can be reduced by pooling resources among retirees through annuitization. And spending risk can be reduced by pooling extreme health expenses among retirees through long-term care insurance.

Long-term care spending risk

Studies of retiree spending show that expenditure amounts within most categories stay relatively constant or even decline as a retiree ages (Blanchett, 2014). Health care spending, however, increases with age on average and is far more volatile. This volatility exposes a retiree to a risk that can devastate an investment portfolio.

It may be helpful to think of health care spending risk in the same way we think of investment risk.

A significant drop in the market will drag down the value of a retirement nest egg, but we accept some volatility in the hope that risky investments will provide higher returns. We try to reduce extreme risk using strategies such as portfolio diversification.

Health care spending risk is also volatile. Retirees will require expensive medical services when they become unable to care for themselves, and their retirement nest egg will decline as costs outpace income. Long-term health care expenses are an extreme risk, dominating health care spending in retirement.

Figure 1 illustrates 10-year out-of-pocket health expenditures using longitudinal data from the 2004 to 2012 Health and Retirement Study by the University of Michigan. The distribution shows that most retirees will actually spend a modest amount on health care in retirement out-of-pocket. But at the tails of the distribution, and particularly in the top fifth percentile of expenses, the magnitude of out-of-pocket health care expenditures for households can present a significant risk to the sustainability of an investment portfolio.

Figure 1

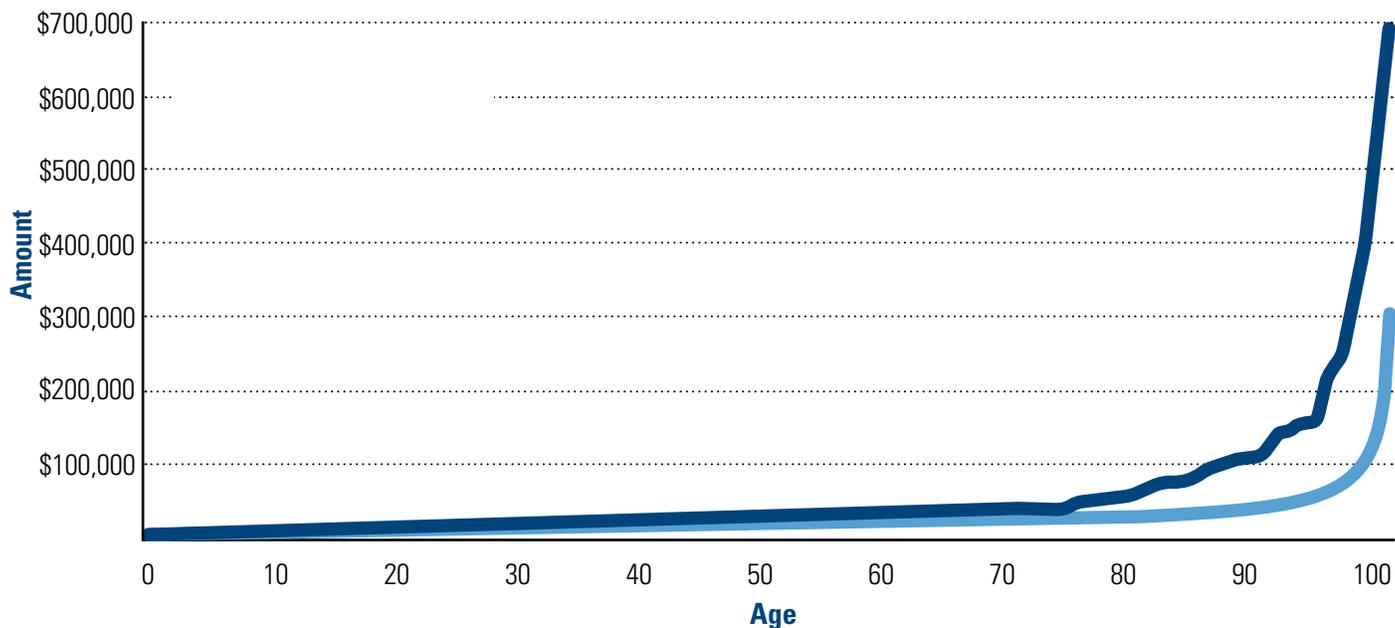**Distribution of 10-year health care expenses**

Figure 1 also illustrates the important health care risk presented by the need for assistance in performing basic activities of daily living, or ADLs. The high cost of health care services in the U.S., coupled with limited coverage by Medicare, places the burden of extended long-term care expenditures on retirees. Those who choose not to protect themselves from this risk must be willing to cover the possible out-of-pocket costs of a random health event that requires extended long-term care.

As with any random risk with a large negative financial impact on only a small percentage of a group, it makes sense to pool the possibility of extreme long-term care expenditures among retirees. The rationale is the same as protecting against any low-probability event that has a high magnitude of wealth loss. In this situation, a retiree has only three choices:
1. Save enough to cover a catastrophic health risk
2. Bear the risk of running out of wealth without sufficient assets
3. Purchase an insurance instrument to hedge against long-term care risk

The cost of providing private long-term care insurance (the difference between premiums and claims) is roughly the same as automobile insurance (Brown and Finkelstein, 2007). But the percentage of consumers who purchase collision and comprehensive insurance to protect against the possible loss of a $35,000 car is greater than the percentage who will pay to protect against a much larger wealth loss from a long-term care eligible health event. Estimates of the gain from purchasing long-term care insurance have been so consistently positive that most academics are puzzled by the widespread lack of coverage (Brown and Finkelstein, 2007).

Why consumers don't buy long-term care insurance

The benefit from buying long-term care insurance is well established, yet many are not attracted to the product for behavioral and rational reasons. These reasons provide insight into an attractive long-term care product with a fixed guaranteed premium amount, a tax-free guaranteed benefit amount and a guaranteed death benefit that pays out if a policyholder does not experience claims or that pays a partial death benefit if claims are paid.

Premium certainty
The first barrier to long-term care insurance demand is that policy premiums are subject to increases based on claims experience. This variability transfers some of the spending risk of unknown long-term care expenditures back to the consumer. This creates a participation in the risk of increasing long-term care costs, or in claims that exceed those anticipated in the underwriting process. The

Figure 2

Importance of variable long-term care premiums

How important is the concern that an insurance company may increase premiums in the future?

- Very important
- Somewhat important
- Not at all important

15%
29%
56%
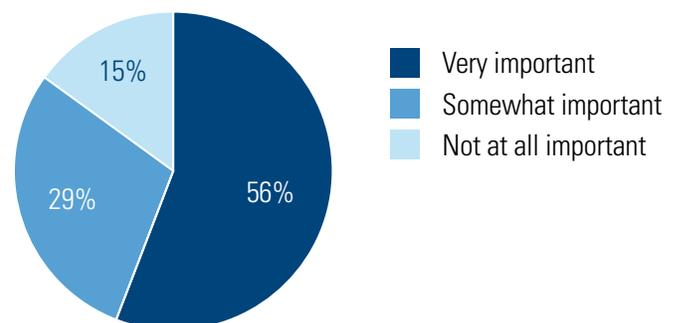
possibility of sharp premium increases levied can complicate a spending plan. In addition to these budgeting complications, many consumers are simply not attracted to products with variable costs. This so-called "ambiguity aversion" affects the demand for similar financial products, such as fixed rate versus adjustable rate mortgages, despite the potential benefit of small loss in risk sharing between the consumer and the insurance company.

In one survey, 929 respondents older than 55 from across the U.S. were asked to rank the importance of concern over a possible increase in future premiums when considering the purchase of long-term care insurance (University of Michigan, 2012). A majority of respondents (56 percent) considered the possible premium increases to be "very important." Figure 2 shows the response distribution.

Despite their greater ability to withstand premium increases later in retirement, a larger percentage of high wealth (i.e., the top 20 percent) respondents felt that possible premium increases were either very important or somewhat important (Figure 3).

This unwillingness to participate in the risk of higher-than-expected claims with an insurance company among those who are best able to withstand a future premium increase suggests that a product with a fixed long-term care benefit at a fixed premium may be more attractive than a product with more coverage but premium variability.

One explanation for the value placed on a fixed benefit and fixed premium by clients is the preference for certainty when planning for future spending. As we will show later, there is a significant amount of variability in the cost of long-term care among regions. The individual may prefer to accept the risk of matching the cost of care to the available budget (for which the individual has greater control) over the risk of rising future premiums, with no control over managing costs.

Figure 3

Wealth and concern about long-term care premium increases
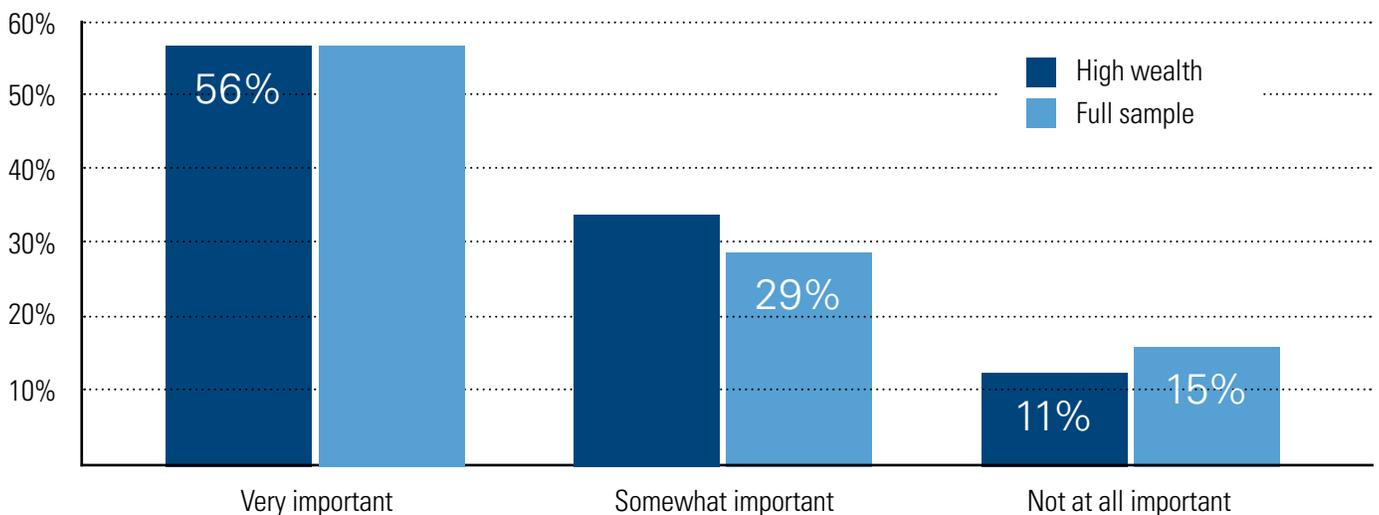
Importance of a death benefit

Nobel Prize-winning behavioral economist Daniel Kahneman and his co-author Amos Tversky developed a theory of how individuals behave when faced with uncertain decisions that may involve gains and losses (Kahneman and Tversky, 1979). They found that when subjects faced a decision that may involve a gain and a loss, they would overweight small losses and often ignore the possible impact of large losses. This so-called prospect theory has been confirmed in hundreds of experimental tests, and the effects of loss aversion can help explain behavior in markets for a number of consumer products.

The market for private insurance appears to be significantly affected by preferences that are consistent with prospect theory. Consumers will carry low deductibles on an auto insurance policy while avoiding the large loss protection provided by umbrella insurance. They will pay to protect against the loss of a smart phone, but ignore disability insurance. Getting individuals to protect against large risks can be a challenge, particularly if the premium payments are viewed as a loss.

In an article on behavioral predictors of long-term care insurance, Wharton professors Daniel Gottlieb and Olivia Mitchell (2015) combine an experimental study that identifies subjects' tendency to overweight small losses and evaluates whether this tendency predicts demand for long-term care insurance.

Premiums paid to fund long-term care insurance may be viewed as a loss if there is a possibility the consumer will never receive a payout from the investment.

In other words, purchasing long-term care coverage may be viewed as a succession of small losses (premium payments) that may never pay out. If the policy does pay out, then it protects against a very large loss that is often undervalued by consumers. Thus, they have little interest in accepting many

small losses if the only benefit is a very large payout of long-term care claims.

Gottlieb and Mitchell find that this tendency to frame insurance as a gain or a loss results in a decrease in demand for long-term care insurance of between 25 percent and 66 percent. Their results suggest that an insurance product that provides no expected gain and costly premiums may be unattractive to a large percentage of clients who exhibit loss-averse preferences.

A possible benefit of combining long-term care protection with a death benefit is that consumers who may be tempted to frame the coverage as either a gain or loss will no longer view the absence of a long-term care claim as a loss. Although the life insurance benefit may be of modest value in a simulation that assumes rational preferences, its existence may make the purchase of highly valuable long-term care coverage more palatable.

An important rational concern that presents a barrier to purchasing long-term care insurance is the possibility of a change in future Medicare laws that affects out-of-pocket contributions of retirees toward long-term care expenses. This possibility that the government will adopt a greater share of the long-term care expenditure burden, despite the complications, presents an additional risk that reduces the value placed on private insurance.

For example, the Community Living Assistance Services and Supports (CLASS) Act was originally included as a provision of the Affordable Care Act. The CLASS Act would have allowed the government to sell private policies with coverage for long-term care. Given the political opposition to this provision, it seems unlikely that the public sector will again intervene in the private market, but some change in future rules remains a possibility.

An asset-based approach to long-term care
Despite the possibility that public policy changes may either increase or decrease long-term care risk in the future, all retirees must plan today for the possibility that they will experience significant long-term care health expenditures. With traditional health-based long-term care insurance, an individual pays insurance premiums over time in order to hedge against the risk of a long-term care event. If the event does not occur, they will receive no benefit from the premiums paid other than the pure insurance value.

An asset-based long-term care product provides a similar hedge against the expense of a long-term care health event, while also paying a death benefit if the retiree does not use all of the long-term care benefit. This certainty of some payout on the policy avoids the pain of loss aversion. It also provides an important non-behavioral benefit of financial risk protection.

Asset-based products appear to be more behaviorally appealing to consumers. With both the guaranteed death benefit and long-term care benefits, the potential for a positive impact on legacy also appears quite appealing.

The following section simulates the investment and health expense experience of thousands of retirees in order to illustrate the differences between those who choose no insurance protection, those who employ a traditional long-term care insurance policy and those who select an asset-based approach that blends long-term care and life insurance features. The results provide insight into the consequence of failing to address long-term care risk and the difference between traditional and asset-based protection strategies.

Methodology

This section explains the methodology for how we will compare the distribution of potential costs for funding three different types of long-term care events for a couple using three different funding mechanisms. Long-term care events include:
1. No long-term care spending is required
2. A home health aide is required for the final five years of life
3. A home health aide, assisted living, and then nursing home care are required for the final 15 years of life

Funding mechanisms include:
1. Self-funding from financial assets
2. Purchasing a traditional health-based long-term care insurance plan
3. Purchasing an asset-based whole life insurance policy integrated with long-term care insurance

Stochastic present value
The objective is to compare three methods for funding long-term care spending needs for three varying long-term care shocks in order to understand the distribution of potential funding costs for different long-term care events. The outcome measure we use is called the stochastic present value, which provides a calculation for the amount of funds needing to be set aside today to cover the realized future long-term care spending. This measure incorporates the randomness and uncertainty with regard to individuals not being sure how long they will live, and also not knowing future market returns.

The cost of long-term care spending, also known as the stochastic (or random) present value of spending, is the actual net cost of funding a long-term care spending need after accounting for realized longevity and market returns. The stochastic present value for long-term care spending is the current amount of assets a couple would require today

to meet their long-term care spending needs. We estimate the potential impacts for differing long-term care funding mechanisms in order to see how they would have impacted the cost of funding long-term care for longer and shorter lifespans, during different financial market environments, during periods of high and low inflation and for different types of long-term care spending shocks. We use 50,000 simulations for longevity and market outcomes to understand the full range of possibilities. The stochastic present value allows individuals to know that if they have set aside more than the number shown for long-term care costs, then they will be "okay" at a level of risk they were willing to accept. If they have set aside less, they must deal with a potential shortfall later in life.

Based on 50,000 ages of death for the second member of the couple, as well as 50,000 sequences of asset returns through each age of death, we are able to investigate the present value for funding long-term care expenses. The stochastic present value is the amount of assets required today to successfully finance a long-term care event through death based on the actual age of death and the experienced markets returns. A strategy to lower the stochastic present value for a particular level of long-term care costs is desirable in the sense that it increases the probability that the retiree will have enough assets to support retirement. There is an entire distribution of costs for each long-term care funding event, since randomness applies both to when the event happens and the market returns earned by underlying assets which fund the event. We can focus on different parts of the distribution for a better idea of the upside potential and downside risks associated with different strategies.

From the distribution of costs, we focus on the 10th percentile, median and 90th percentile of costs from this distribution. We can interpret the 10th percentile outcome as a "good luck" case in which long-term care funding costs remain low. It is important to note, however, that lower costs for a severe long-term care event is driven mostly by a short retirement of less than 15 years, which truncates the time spent consuming long-term care. The median reflects more typical outcomes. It is the midpoint of the distribution, with a 50 percent chance for lower costs and a 50 percent chance for higher costs. These are reasonable planning outcomes. The 90th percentile is a "bad luck" outcome in which long-term care funding costs are high. Different costs are triggered by the sequence of market returns and the timing of the long-term care event.

Simulated ages of death
To simulate the costs for long-term care, we require simulations for survival and market returns. Survival is calculated using the Society of Actuaries' RP-2014 Mortality Tables Draft for Healthy Annuitants. Mortality rates are provided for males and females, and joint survivorship is simulated assuming independence for the ages of death with each member of the couple.

Case studies are provided for one couple where both members are 50 and another where both are 65. For the 50-year-old couple, there is a 5 percent chance both spouses will have passed away by 77, and the median age of death for the longest-living member is 91. Average life expectancy is 84 for males and 86.2 for females. Meanwhile, for the 65-year-old couple, in 5 percent of cases both spouses will be deceased by age 78, 50 percent of couples will have at least one member live to at least 91, and 5 percent of couples will have at least one member live to age 101. The life expectancy at 65 is 84.5 for males and 86.5 for females.

Simulated asset returns
For financial market returns, we simulate returns for bills (six-month maturity) and consumer price inflation. The data we use to guide the capital market simulations is available from Yale University professor and Nobel laureate Robert Shiller's website (www.econ.yale.edu/~shiller). Additional information about our return simulation assumptions are listed in Appendix 1.

It is important to consider the appropriate asset allocation for the underlying funds earmarked to support long-term care.

Depending on one's comfort with market volatility, one possibility is that a retiree could hold a total returns investment portfolio to cover all retirement goals and to take distributions from the portfolio as appropriate to cover long-term care expenses. Another possibility is that a retiree maintains a larger reserve of low-volatility financial assets that have been set aside to cover contingencies such as long-term care. Advocates of the asset-based long-term care insurance hybrid plans generally suggest that the one-time premium to fund this approach be drawn from this reserve of low-yielding assets, such as cash, CDs and money market funds. For this reason, our baseline will use the simulated market returns for bills as the discount rate to calculate the stochastic present value for long-term care costs. We assume that the underlying fees for this investment portfolio total 0.2 percent annually to cover fund management costs.

Finally, we assume that long-term care costs grow randomly over time at a rate that matches simulated overall consumer price inf lation. Because long-term care expenses and insurance premiums may frequently be tax deductible when certain spending thresholds are met, and because the complexities will relate to individual circumstances, we do not otherwise consider taxes as a part of this analysis.

Long-term care expenses
Longevity and market returns are both randomized, but long-term care events do not f luctuate randomly. To demonstrate risk for long-term care expenses, we consider three different types of deterministic long-term care expense scenarios within the broader context of longevity and market risk. This allows us to understand better about the uncertain overall cost for different types of long-term care events, which in turn depend on when they happen and what market returns would be realized before they happen.

Rather than also trying to incorporate random long-term shocks, we will instead simulate three different deterministic spending shocks:
- **No shock:** No long-term care spending is needed.
- **Mild shock:** During the last five years of life for the longest living member in the couple, one member requires the services of a home health aide. We assume the initial cost for a home health aide ref lects the median 2015 annual price found in a Genworth survey, which is $45,760. This cost grows with consumer price inf lation. For cases where both spouses pass away within five years, we assume the long-term care need begins shortly after the simulation period and lasts for the remainder of that lifetime.
- **Severe shock:** During the last 15 years of life of the longest living member in a couple, a home health aide is needed for four years, assisted living is required for eight years and then a nursing home stay is required for three years. We again assume the initial cost ref lects the median 2015 annual prices from the Genworth survey, which are $45,760 for a home health aide, $43,200 for assisted living and $80,300 for a semi-private room in a nursing home. We assume these prices grow with consumer price inf lation. For those cases where both spouses pass away within 15 years, we assume the long-term care need begins shortly after the simulation period and lasts for the remainder of that lifetime.

Long-term care funding strategies
The cost of long-term care is calculated as:

LTC spending + LTC insurance premiums – LTC insurance benefits = LTC cost

This equation highlights the overall cost of funding long-term care expenses which is the present value of the stream of actual expenses to cover long-term care, plus any premiums paid for long-term care insurance, less any benefits received (including applicable death benefits) from the insurance policies.

We consider three different long-term care funding strategies and how the costs for funding differ

between the three strategies for the three different long-term care events identified in the previous section. The funding strategies include:

1. Self-funding from investments

2. Purchasing a traditional health-based long-term care insurance policy and funding any difference between benefits received and care expenses using financial assets

3. Purchasing an asset-based long-term care insurance policy and funding any difference between benefits received and care expenses using financial assets

The self-funding strategy is a plan that any long-term care expenses will be funded through distributions from financial assets. With this strategy, the household maintains the full risk for long-term care spending, and the range of potential spending outcomes is the widest. If no long-term care event is realized, the costs of self-funding are $0, but without any risk-sharing the cost of an expensive long-term care event is potentially quite large. A risk-averse individual may be willing to pay a premium in order to better protect wealth from an expensive long-term care event, even if that means experiencing the loss of premiums if no long-term care event is experienced.

Next, the traditional health-based long-term care insurance strategy involves paying an annual premium for long-term care insurance until a long-term care event takes place, and then being eligible to receive a defined amount of long-term care benefits based on the costs of care.

The final asset-based strategy involves the purchase of a long-term care insurance policy bundled with a whole life insurance policy. This may be done with a single upfront premium, a set of premiums for a fixed term, or ongoing premiums. The cash value is invested and is liquid after surrender charges, and the policies generally will provide a fixed interest rate for cash value growth. Long-term care expenses are first subtracted from cash value before the insurance company must actually cover care expenses with

other resources, which allows these policies to be treated as high deductible policies. These policies generally provide a death benefit for a fixed amount less any long-term care claims.

Table 1 provides details for two different long-term care insurance strategies which have been designed to be as similar as possible in terms of their underlying benefits. Both policies reimburse long-term care expenses up to $5,000 per month per person. They both have 30- to 60-day elimination periods after a qualifying long-term care event begins and before benefits are paid. The health-based policy provides benefits for up to five years (60 months) per person, and the policy includes spousal coverage that allows one spouse to receive benefits from the other's pool of funds. Effectively, the couple shares 10 years of coverage. The monthly benefit amount grows at a 3 percent compounded rate within the policy.

The asset-based policy has two parts of the policy that provide benefits. The base policy covers up to two years and one month of benefits (25 months). As a further form of high-deductible coverage and to account for the fact that less costly care may be needed at the start of a qualifying event, the base policy benefits do not adjust for inflation. However, an optional continuation of benefit rider has been included, which allows for lifetime benefits for both spouses. Monthly benefits grow at a compounded 3 percent inflation rate after the benefits from the base policy are exhausted.

Both policies include a waiver of premiums after a qualifying long-term care event takes place. Premiums are allowed to increase in the future with the health-based policy, and many policy owners have experienced significant premium increases over time. To illustrate this possibility, we use an example from the July 2016 issue of Kiplinger's, where an individual experienced a 60 percent premium increase in the 10th year of the policy. Premiums are guaranteed not to increase with the asset-based policy.

Table 1

Features of long-term care insurance (LTCI) policies

	Health-based LTCI	Asset-based LTCI
Amount and length of benefits		
Base policy structure	Two individual policies with an ability for spouses to share benefits	Continuous-premium whole life insurance with accelerated death benefits for qualifying LTC expenses
Initial monthly long-term care benefit	$5,000 per person	$5,000 per person
Deductible/elimination period	30 days (all types of care)	30 days for home health care 60 days for all other care
Benefit period for base policy	5 years (60 months) per person (10 years combined)	25 months, jointly
Inflation adjustment for base policy	3% compounded	0%
Benefit period for continuation of benefit (COB) rider	N/A	Lifetime (unlimited)
Inflation adjustment for COB rider	N/A	3% compounded
Spousal coverage	Two individual policies with an ability for spouses to share benefits	One policy can cover both spouses; with COB rider, both can simultaneously receive benefits for life
General policy characteristics		
Waiver of premium	Yes	Yes
Premiums guaranteed not to increase	No	Yes
Type of care covered	LTC facilities, assisted living facilities, home health care, homemaker services, hospice care, adult day care, international coverage, respite care, bed reservation, care coordination, caregiver training, supportive equipment	LTC facilities, assisted living facilities, home health care, homemaker services, hospice care, adult day care, international coverage, respite care, bed reservation, care coordination, caregiver training, supportive equipment
Underwriting process	Select classification after typically more aggressive underwriting process with health exam	Basic questionnaire and interview about health
Requirements for coverage	Benefits reimburse qualifying expenses. Qualification is based on receiving care because of either: (1) being unable to perform two of six ADLs or (2) being cognitively impaired.	Benefits reimburse qualifying expenses. Qualification is based on receiving care because of either: (1) being unable to perform two of six ADLs or (2) being cognitively impaired.
Other considerations		
Death benefit	$0	$125,000 if LTC not used; LTC benefits first spend down death benefit value

Table 1 (continued)

Features of long-term care insurance (LTCI) policies

	Health-based LTCI	Asset-based LTCI
Policy details for 50-year-old couple		
Upfront policy premium lump-sum	$0	$0
Annual ongoing policy premiums	$5,935 for 10 years, then 60% increase to $9,496	$6,069 ($2,303.75 for base policy, $192.50 for premium waiver and $3,572.75 for COB rider)
Policy details for 65-year-old couple		
Upfront policy premium	$0	$177,293 ($75,191.25 for base policy and $102,101.75 for COB rider)
Annual ongoing policy premiums	$10,851 for 10 years, then 60% increase to $17,362	$0

Both policies are fairly comprehensive with their coverage, including for long-term care facilities like nursing homes, assisted living facilities, home health care, homemaker services, hospice care, adult day care, international coverage, respite care, bed reservation, care coordination, caregiver training and supportive equipment. Both policies also offer the standard qualifications for receiving benefits, which include either being unable to perform two of six standard activities of daily living (ADLs), or being cognitively impaired, as determined by a qualified physician. The health-based policy requires more rigorous underwriting, while the asset-based policy includes a basic health questionnaire and fewer underwriting and premium classifications. The asset-based policy also provides a death benefit for unused long-term care benefits (it is $125,000 if no benefits are received). This feature is not available with the health-based policy.

We consider scenarios for a 50-year-old couple and a 65-year-old couple. For the 50 year olds, the combined annual premiums for the health-based policy are $5,935 for the first 10 years, and then premiums rise to $9,496 annually. For the asset-based policy, coverage could be obtained either as one upfront payment, a fixed term for premiums or ongoing premiums. The couple chooses ongoing premiums, which are $6,069 annually. This consists of $2,303.75 for the base policy with the $125,000 death benefit and 25 months of long-term care coverage, $192.50 for the waiver of premium and $3,572.75 for the lifetime continuation of benefit rider with a 3 percent compounded growth rate for benefits. The continuation of benefit rider becomes the source of benefits once long-term care expenses exceed the amount of the death benefit.

For the 65-year-old couple, ongoing premiums total $10,851 for the health-based policy for 10 years, and then rise to $17,362. For the asset-based policy, since this couple is at retirement, they decide to pay a one-time premium for their policy with financial assets held in their low-volatility contingency fund. This premium is $177,293, which includes $75,191.25 for the 25-month base policy and $125,000 death benefit, and $102,101.75 for the lifetime continuation of benefits rider. It is important to note that waiting until 65 creates a greater risk that one member of the couple may develop a medical condition that makes him or her ineligible for health-based coverage. In this circumstance, the couple may be able to qualify for the asset-based policy with less stringent underwriting.

Results for the 65-year-old couple
The primary case study is a 65-year-old couple, with details of their two policies in Table 1. Table 2 shows

the distribution of costs for three long-term care events using three funding strategies, assuming that the financial assets in the contingency fund are invested in low-volatility assets: 100 percent bills. For the no long-term care event case, self-funding results in no explicit cost. The distribution of costs for insurance are driven by two factors: longevity and market returns. With the low-volatility assets, though, longevity is the primary driver for differences in outcomes. For health-based long-term care insurance with ongoing annual premiums, a short lifetime represents less premiums paid, and a long lifetime represents more premiums paid. Meanwhile, for asset-based insurance, the cost differences are driven by longevity as well. There is only a single premium paid for the insurance, but the stochastic present value of the death benefit will be greater for shorter lives and less for longer lives. It is important to recognize from Table 2 that the net costs for insuring long-term care expenses are less than half for the asset-based approach relative to the health-based approach. This holds true across the distribution of potential spending outcomes.

Next, for a "mild" long-term care event lasting five years, the distribution for self-funding costs ranges from $132,452 to $366,616. In 2015 dollars, this event would cost $228,000 to finance. The range of costs again depends on longevity and the market

experience. Costs can be less when the remaining lifetime is less than five years, and in cases when the return on bills exceeds the cost growth of the long-term care expenses. Costs can be greater when the event happens in the more distant future and when the costs of long-term care grow more rapidly than bill returns. Both types of insurance help reduce the net costs for long-term care. Because the asset-based approach has characteristics of a high-deductible policy, the health-based policy does have an edge for the low-cost (10th percentile) portion of the distribution, but asset-based care provides a lower cost at the median and 90th percentiles. The range for the health-based approach is $140,851 to $357,528, while the range for the asset-based approach is $180,177 to $307,827.

Finally, for a "severe" event, the total costs with today's pricing is $769,540. The range of costs experienced is wide in the self-funding case. Costs may be less when both members of the couple live less than 15 years, or when bills grow at a faster pace than long-term care expenses. Costs may be greater when cost-inflation exceeds the discount factor over long periods of time. With both types of insurance, the net costs are substantially lower than with self-funding. Asset-based LTCI supports a lower median cost compared to health-based LTCI, and the range of costs is less both on the down side and the up side.

Table 2

Costs of funding long-term care for a 65-year-old couple; financial assets earmarked for LTC are invested as 100 percent bills

		Self-funding	Health-based LTCI	Asset-based LTCI
No LTC event	10th percentile	$0	$185,696	$80,844
	Median	$0	$283,381	$112,173
	90th percentile	$0	$381,282	$142,711
"Mild" LTC event	10th percentile	$132,452	$140,851	$180,177
	Median	$227,317	$251,217	$214,401
	90th percentile	$366,616	$357,528	$307,827
"Severe" LTC event	10th percentile	$476,732	$88,439	$180,572
	Median	$765,979	$256,765	$237,566
	90th percentile	$1,165,538	$623,684	$440,901

At the extreme, the 90th percentile of costs with a severe long-term care event suggest that the asset-based approach requires $440,901 to meet costs that exceed benefits, while health-based funding requires $623,684 to cover the full costs. Self-funding requires $1,165,538 to fund the severe long-term care event at the 90th percentile. Comparing the asset-based strategy to self-funding, the couple can set aside $724,637 less than otherwise in a contingency fund while still being able to support these extreme long-term care expenses.

Results for the 50-year-old couple

The basic story for 50 year olds is similar to the 65-year-old case. Table 3 provides the results. The costs range for different long-term events, which are impacted differently with various funding mechanisms. With health-based insurance, premiums are lower than for 65 year olds because of the reduced risk for insurance companies at this stage, but premiums generally are paid longer. For the asset-based approach, annual premiums are also used. However, in the no event case, the main driver for the lower costs with the asset-based insurance is the death benefit rather than the slightly lower premiums. The sooner the death benefit arrives, the less it is discounted, and this is why the relevant difference in costs reduces as we move toward the higher cost region of the distribution. Higher costs are associated with longer lives and more lifetime premiums paid. For the mild and severe events, we observe that both types of insurance again tend to reduce costs relative to the self-funding case. Because of the high-deductible nature of the asset-based insurance, the two types of insurance are more comparable for the mild event, and the asset-based strategy has the edge for the severe events. At the 90th percentile for the severe event, the asset-based insurance reduces the cost by $786,695, relative to self-funding, suggesting that the couple may be more comfortable with a substantially smaller contingency fund set aside as reserves for long-term care expenses. Intuitively, the premiums in the no event case could be viewed as the cost of creating $786,695 of additional liquidity in the severe event case. This cost is also $220,145 less than for the health-based insurance.

Table 3

Costs of funding long-term care for a 50-year-old couple; financial assets earmarked for LTC are invested as 100 percent bills

		Self-funding	Health-based LTCI	Asset-based LTCI
No LTC event	10th percentile	$0	$149,978	$76,989
	Median	$0	$210,757	$115,426
	90th percentile	$0	$275,395	$151,324
"Mild" LTC event	10th percentile	$101,896	$145,003	$139,695
	Median	$208,861	$208,134	$209,369
	90th percentile	$399,495	$288,767	$344,523
"Severe" LTC event	10th percentile	$377,534	$136,615	$114,544
	Median	$724,139	$250,697	$205,143
	90th percentile	$1,300,800	$734,250	$514,105

# Raising awareness of the need for long-term care insurance

Another important barrier to the purchase of long-term care insurance is a general lack of knowledge about the product. Unlike the loss of a car, most consumers are unaware of the potential magnitude of the out-of-pocket costs of long-term care or may mistakenly believe that Medicare will cover all or most of their long-term care expenditures. A consumer who has a weak grasp on the potential risk and of the potential insurance solution will not buy the product.

According to the newest data on long-term health care expense, the median national daily rate for a private nursing home in the U.S. is $250, or $91,250 per year (Genworth, 2015). These costs, however, range from between $60,000 to $70,000 per year in lower-costs states away from the coasts. For example,

Figure 4

Self-assessment of long-term care insurance

How would you rate your knowledge of long-term care insurance?

- None
- A little
- Some
- A lot
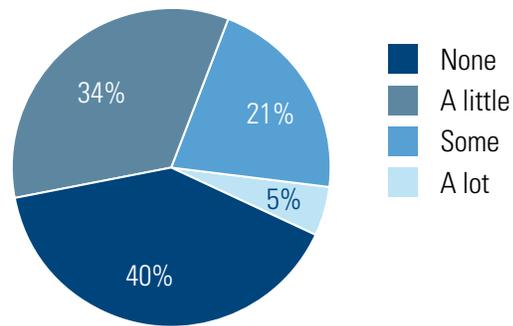
the median private nursing home costs $60,773 in Missouri, $68,620 in Texas and $68,255 in Iowa. Costs rise to $96,725 in Florida, $113,150 in Pennsylvania and $104,025 and even higher in states with the highest labor and land costs. The median cost of lower levels of care — for example, in assisted living facilities — is $43,200.

Figure 5

Wealth quintile and long-term care insurance knowledge
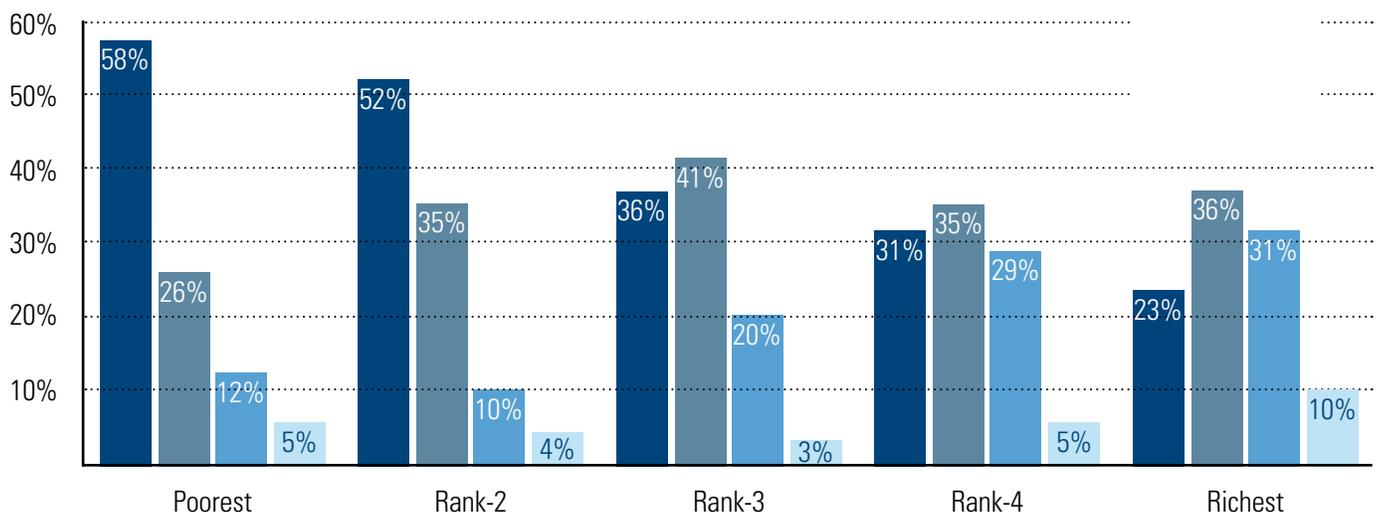
Wealthier are more knowledgeable

Figure 4 shows that knowledge of long-term care insurance is low among respondents 55 and older. Not only are many consumers unaware of the costs of long-term care, only 5 percent believe they know "a lot" about long-term care insurance and just 21 percent report having "some" knowledge.
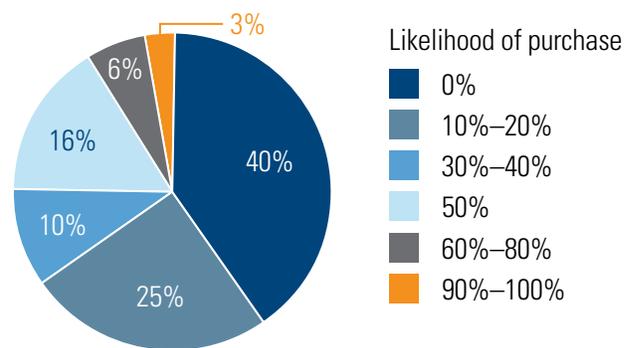
The lack of awareness of long-term care insurance is not as great among the Americans who are most at risk of significant wealth losses not covered by Medicaid. Among those in the top 20th percent of wealth (Figure 5), 10 percent know "a lot" and 31 percent have "some" knowledge of long-term care insurance. While 58 percent of those in the lowest wealth category have no knowledge of long-term care insurance, just 23 percent in the highest wealth category have no knowledge.

Clearly, there is some awareness of long-term care insurance among those who are at greatest risk of suffering significant wealth losses due to long-term care expenditures. It does appear, however, that many wealthy older clients need to be educated on the need for protecting against the large and prolonged potential expenses of long-term care in order to incorporate protection into a retirement income plan.

Higher knowledge among higher wealth respondents translates into a higher likelihood of purchasing long-term care insurance (Figure 6). More than a quarter of respondents (26 percent) in the top wealth category indicated a 30 percent to 50 percent likelihood of purchasing long-term care insurance in the future. Another 25 percent indicated a 10 percent to 20 percent chance, 6 percent indicated a 60 percent to 80 percent likelihood, and 3 percent said they were 90 percent to 100 percent likely to purchase long-term care insurance.

Figure 6

Highest 20% wealth likelihood of purchasing LTC insurance

Likelihood of purchase
- 0%
- 10%–20%
- 30%–40%
- 50%
- 60%–80%
- 90%–100%

The larger percentage of high wealth respondents (40 percent) who indicated no likelihood of purchasing long-term care may best be viewed as a reflection of the generally low awareness of the need for long-term care insurance. That only 16 percent of them see a 50 percent chance of purchasing insurance does indicate a demand for the product, but one that will likely need to be enhanced by increasing knowledge of risk exposure.

Conclusions

A retirement income plan must provide a framework for meeting planned expenses, having access to reserves for unexpected contingencies and supporting any legacy objectives. Large unplanned expenses, such as those relating to a costly long-term care event, have the potential to wreak havoc on a retirement income plan. This paper has explored three different possible funding mechanisms for long-term care events in order to provide a broader understanding about the net costs with different funding strategies.

Self-funding leads to the widest range of costs. Naturally, the cost is $0 if no long-term care event happens, but costs can be substantial if a long stay in a nursing home is needed. At some point, these growing costs may leave an individual unable to meet other spending and legacy objectives. Even when no long-term care event takes place, self-funding may still exact a real cost on retirement if fear leads to too much assets being set aside for potential contingencies. In this case, retirement spending suffers in favor of an unintentionally large legacy.

Insurance reduces the overall range of costs. If no long-term care event happens, then the cost of long-term care becomes the cost of the premiums. But when an expensive event takes place, the net cost is the cost of care plus the cost of premiums, less the benefits received by the insurance policy. Among comparable health-based and asset-based policies, we have observed that both reduce the net costs of long-term care when a qualifying event occurs. Through the death benefit and the fundamentally high-deductible nature of the asset-based policy, it is able to provide similar coverage at a noticeably lower cost when no qualifying long-term care event takes place. In either case, by reducing the net potential costs from long-term care at the extreme side, insurance may free up more assets to be truly liquid so they may be used and enjoyed in retirement,

rather than serving as unnecessary contingency funds that only lead to additional unintended legacy.

These findings suggest a quantitative explanation for which asset-based long-term care insurance can help to reinvigorate the long-term care insurance market, along with the ways these policies can satisfy many of the qualitative concerns that have developed regarding traditional health-based long-term care insurance policies.

The use of traditional health-based long-term care insurance was never widespread and has declined in recent years. Consumers fear the use-it-or-lose-it nature of traditional policies. Asset-based policies may be available for some individuals who are otherwise unable to qualify for health-based policies, especially for those who have waited until their 60s to seek insurance. An optional continuation of benefits rider is also available with asset-based policies, allowing for unlimited lifetime benefits for both members of a couple. Americans also worry about the possibility that insurance premiums could be increased in the future, as has been a frequent occurrence with health-based long-term care policies. Such rate increases could make policies unaffordable, leading to a greater lapse rate among participants. Also, asset-based policies available with a single upfront premium reduce the lapse risk in which someone who begins to experience cognitive decline unintentionally (or misguidedly, through confusion) allows his or her health-based insurance policy to lapse just before becoming qualified to use it (Hou, Sun and Webb, 2015). For these quantitative and qualitative reasons, asset-based policies provide a viable alternative for those seeking long-term care insurance.

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Appendix on capital market expectations

The capital market expectations connect the historical averages from Robert Shiller's dataset with the current market values for inflation and interest rates. This makes allowances for the fact that interest rates and inflation are far from their historical averages, but it also respects historical averages and does not force returns to remain low for the entire simulation.

Table A1 provides summary statistics for the historical data, which guides the Monte Carlo simulations for investment returns. A Cholesky decomposition is performed on a matrix of the normalized values for the risk premium, bond yields, home prices, bills and inflation. A Monte Carlo simulation is then used to create error terms for these variables, which preserve their contemporaneous correlations with one another. Then the variables are simulated with these errors using models that preserve key characteristics about serial correlation.

With the correlated error terms, inflation is modeled as a first order autoregressive process starting from -0.1 percent inflation in 2014 and trending toward its historical average over time with its historical volatility. Bond yields are similarly modeled with a first order autoregression with an initial value of 2 percent in 2014. Bills are simulated from an initial value of 0.2 percent. Next, home prices and the risk premium are both modeled as random walks around their historical averages and with their historical volatilities. Bond returns are calculated from bond yields and changes in interest rates, assuming a bond mutual fund with equal holdings of past 10-year Treasury issues. Stock returns are calculated as the sum of bond yields and the equity premium over yields. Long-term care cost inflation is simulated as 1 percent higher than the simulated inflation rates. For instance, if inflation is 1.6 percent in a particular year, long-term care costs grow at 2.6 percent.

Table A1

Summary statistics for U.S. returns and inflation data, 1890-2014

				Correlation coefficients						
	Arithmetic means	Geometric means	Standard deviations	Stocks returns	Risk premium	Bond yields	Bond returns	Home prices	Bills	Inflation
Stock returns	10.8%	9.2%	18.2%	1	0.99	0.04	0.05	0.15	-0.09	0.05
Risk premium	6.1%	4.4%	18.3%	0.99	1	-0.09	-0.02	0.13	-0.20	0.03
Bond yields	4.7%	—	2.4%	0.04	-0.09	1	0.53	0.14	0.85	0.22
Bond returns	4.8%	4.6%	6.6%	0.05	-0.02	0.53	1	-0.06	0.34	-0.09
Home prices	3.4%	3.1%	7.1%	0.15	0.13	0.14	-0.06	1	0.05	0.39
Bills	4.5%	—	3.0%	-0.09	-0.20	0.85	0.34	0.05	1	0.14

Source: Data from www.econ.yale.edu/~shiller, run by Yale University professor and Nobel laureate Robert Shiller. The U.S. S&P 500 index represents the stock market, 10-year Treasuries represent the bond index, the Shiller-Case home price index for homes, 6-month Treasuries for bills and the Consumer Price Index for inflation.

Notes

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