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Office of Regulations and Interpretations
Employee Benefits Security Administration
Room N-5655
U.S. Department of Labor
200 Constitution Ave, NW
Washington, DC 20210

Attention: Lifetime Income RFI (RIN 1210-AB33)

Dear Sir or Madam:

In the marketplace today, there is growing interest in programs that can help retirement plan participants translate a pool of savings into a regular income stream. Lump sum benefit payments are the norm in defined contribution (DC) plans, and these payouts are expected to increase in value in the future. Many defined benefit (DB) plans, especially cash balance plans, offer a lump sum option. Plan sponsors, providers and regulators are concerned about the ability of some participants to manage these assets successfully. Participants are also seeking to ensure that their savings last throughout retirement, and are looking for convenient ways to generate a regular income from their savings.

The Administration is to be congratulated for highlighting this important issue and focusing regulatory attention on the matter. Based on Vanguard's extensive experience serving the needs of plan sponsors and participants, we believe investors' diverse needs in retirement will be best served by allowing them to choose from an array of guaranteed and non-guaranteed payout options. Policymakers should not skew individual household decisions unduly toward annuities through tax incentives or mandates.

Vanguard is one of the world's leading asset managers, managing \$1.4 trillion in assets for institutional and retail investors. We are a leading investment manager and administrator for DC and DB plans and Individual Retirement Accounts (IRAs). Specifically, we manage nearly \$400 billion in DC and DB plan assets; provide recordkeeping services for more than 3.5 million plan participants in 2,500 DC plans and for approximately 550,000 participants in 100 DB plans; and provide investment and account services for 2.5 million IRA holders.

At Vanguard we offer a number of retirement income solutions for participants and other investors, largely as “outside the plan” options for Individual Retirement Account (IRA) rollovers and after-tax savings. These income options include: (1) dividend distributions from mutual funds; (2) systematic withdrawal plans; (3) required minimum distributions from tax-deferred accounts; (4) payout funds, which provide a regular stream of income from a portfolio; and (5) deferred and immediate annuities.

Retirement income overview

As in the accumulation phase of saving, participants in the retirement income phase must strike a balance among risk, return, and cost. They need to weigh competing objectives for their assets, which include regular income, spending flexibility, liquidity, survivor needs and bequests. At the same time, they need to consider a range of risks, including the unique risk of the spend-down phase—longevity risk—along with the explicit or implicit costs of a particular drawdown strategy.

We define “lifetime income” broadly, meaning the concept should include both guaranteed and non-guaranteed sources of income. Moreover, we expect that nonguaranteed strategies such as withdrawals from a retirement account, rather than guaranteed income annuities, will be the dominant strategy used by plan participants in the drawdown phase. This is current practice among households with tax-deferred accounts, and we believe it will continue into the future.

Traditional income annuities are likely to play only a limited or secondary role for most retirees for a variety of reasons. Most households already expect to receive a meaningful level of guaranteed income from Social Security in retirement, muting investor demand for private annuities. Also, while annuities offer a valuable guarantee against longevity and investment risk, they also impose substantial restrictions in terms of the loss of liquidity (loss of access to savings) and the loss of flexibility in spending. In addition, some annuity contracts are expensive and lack fee transparency. Finally, all annuity guarantees are subject to the credit or solvency risk of the issuer. As an investment manager, Vanguard has extensive experience evaluating the credit risk of insurers. This analysis requires a high degree of sophistication and needs to go beyond a review of credit ratings to be effective. This degree of analysis would be challenging for many employers, and virtually impossible for individual investors who are being asked to evaluate the credit worthiness of an insurer who could be paying them benefits for 20 to 30 years.

We also anticipate that participants will make most retirement income decisions in the context of an IRA rollover account, outside the confines of their employer’s qualified retirement plan. Some plan sponsors have expressed interest in offering retirement income solutions inside qualified plans. However, many more plan sponsors have reservations about in-plan solutions. They are concerned about fiduciary responsibility for selecting and monitoring in-plan retirement income solutions, worried that few

participants will actually use the products, and feel that the products themselves are new and present administrative challenges. We do not think the reluctance of employers to adopt in-plan solutions is a problem. Most Vanguard participants at retirement age leave their employer-sponsored DC plan within three years. Thus, retirement income solutions designed for IRA rollovers are likely to assist the greatest number of retirees.

Finally, the retirement income marketplace today is characterized by a high level of innovation. Investment companies, insurers and other providers are developing a range of strategies offering participants either non-guaranteed or guaranteed income streams. We foresee this innovation continuing for the foreseeable future.

Given the nature of participant demand, as well as rapid innovation in the marketplace, we would question any policy rationale that encourages one type of retirement income product, such as the traditional income annuity, over any other strategy, such as a portfolio withdrawal program. Rather, the policy goal should be to ensure a level playing field among competing strategies, and to encourage the provision of adequate information to plan participants about the benefits, risks and costs of different approaches. The aim of policymakers should be to help participants make better choices, allowing them to benefit not only from traditional income products but also newer innovations emerging in the marketplace.

We again thank the Administration for its interest in this critical topic facing plan sponsors and plan participants. Our detailed responses to the individual questions in the RFI and copies of some research we've conducted on the topic are attached.

* * *

Vanguard appreciates the opportunity to submit these comments and we would welcome the opportunity to continue working with the Department if we can be of additional assistance. If there are any aspects of our comments that you would like to explore in greater detail, please do not hesitate to contact me or Ann Combs at 610-503-6305.

Sincerely yours,



R. Gregory Barton

Attachments

Responses to Request for Information Questions: (RIN 1210-AB33)

1. From the standpoint of plan participants, what are the advantages and disadvantages for participants of receiving some or all of their benefits in the form of lifetime payments?

Programs that generate regular income from lump-sum savings can be beneficial in several ways. They can help participants liquidate their assets in an orderly fashion, minimizing or eliminating the risk of premature depletion of savings in retirement, the so-called longevity risk. They can also be a convenient tool for participants seeking an income stream from a pool of savings.¹

Broad definition of retirement income. We are pleased to see the Departments use the term “lifetime payments” to describe their policy objective as opposed to the more limited term “annuity payments.” This is a critical distinction in that retirement income strategies appropriately include non-guaranteed or portfolio-based strategies, as well as annuity-based programs.

We believe that, as is current practice, most retirement income decisions will continue to be based on nonguaranteed or portfolio-based solutions, rather than annuity contracts. These portfolio strategies include spending portfolio income or taking periodic withdrawals from an account or a portfolio. A systematic withdrawal approach can be established by a participant on his or her own, or with the help of a financial planner. In a new category of mutual funds known as payout funds, the withdrawal program is structured by the investment adviser of the fund. (See Question 6.)

For most participants, guaranteed income also has a critical role to play. However, a meaningful level of guaranteed income is already provided by Social Security. We therefore expect that traditional income annuities, while important, will play only a limited role in generating retirement income for a subset of participants.

Traditional annuities do offer a valuable guarantee against longevity and investment risk. Yet there are costs and risks to annuitization that are often ignored in simple economic models of investor decision-making. Specifically, traditional annuities are costly in terms of the loss of liquidity (loss of access to savings) and the loss of flexibility in spending. Annuity contracts may be expensive and may lack fee transparency. All annuity guarantees are subject to the credit or solvency risk of the issuer. As noted, the demand for private annuities is reduced by the presence of Social Security. (See also Question 2.)

¹ For a review of retirement income research, including strategies, products and household behavior, see the following. (1) John Ameriks and Olivia S. Mitchell. *Recalibrating Retirement Spending and Saving*. Oxford University Press, 2008. (2) Gary R. Mottola and Stephen P. Utkus. “Spending the Nest Egg.” Vanguard Center for Retirement Research, October 2008. <https://institutional.vanguard.com/VGApp/iip/site/institutional/researchcommentary/article?File=RetResSpendingDownSavings>. (3) Gary R. Mottola and Stephen P. Utkus. “The Retirement Income Landscape.” Vanguard Center for Retirement Research, December 2008. <https://institutional.vanguard.com/VGApp/iip/site/institutional/researchcommentary/article?File=RetResRetireStrat>.

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Participants place a substantial value on both liquidity and flexibility in retirement. These concerns arise because of a general uncertainty over how long retirement may last, as well as worries over unpredictable spending such as health care costs. While worried about future uncertainties, most participants want to retain access to their savings—they want to know their funds are immediately available if needed, even though the likelihood of immediately needing them is modest. Some participants also have a strong desire to make bequests. Most Americans with retirement savings remain interested in taking measured investment risks with their assets, even when retired. Thus, we believe that most participants will seek out non-guaranteed income solutions that emphasize liquidity and flexibility.

For individual investors, the main challenge appears to be how to create a personalized retirement income plan from both traditional and newer income options. Such a plan would integrate nonguaranteed and guaranteed elements and be tailored to an individual's preferences for return, risk, and cost.

Beyond-the-plan solutions. Today, participant retirement income decisions occur within the confines of Individual Retirement Account (IRA) rollover accounts and after-tax savings, and generally not within qualified defined contribution plans. At Vanguard, more than 80% of participants age 60 and older exit their employer qualified plan within three years of termination of employment. More than 80% of assets exit the plan as well, with the vast majority of assets rolling over to an IRA. Although there is likely to be some residual in-plan demand for retirement income programs, we believe that this trend toward most income decisions being made “beyond the plan” will persist for the foreseeable future.

Rapid innovation in marketplace (see Questions 4, 5, 6 and 7). The current marketplace for retirement income is one characterized by rapid innovation on the part of both insurers and investment companies. We anticipate that such innovation will continue in the coming years. Policymakers should seek to ensure that any rule-making does not impede marketplace innovation by a premature endorsement or mandate to follow a specific type of retirement income strategy or product.

Role of mandates (see Question 13). We question any policy rationale that favors one specific category of retirement income program, such as the traditional annuity contract, over any other. Although longevity risk is a policy concern, most participant households receive a meaningful level of longevity risk protection through Social Security. There also is no widely accepted view of the minimum amount of annuity income participants should have in retirement. Moreover, lower-wage workers, who may be perceived as being at greatest risk, have higher replacement rates from Social Security and lower asset levels; rather than needing more annuitized income, they may wish to maintain control over any liquid assets they own. Finally, as noted above, the marketplace is characterized by rapid innovation, and the product landscape is dynamic. From a policy perspective, it is premature to determine that a particular insurance or investment product is broadly applicable to most plan participants.

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Role of defaults (see Question 11). A change in plan defaults, which has proven so successful in the accumulation phase, is unlikely to have much impact on the demand for annuity income. Our research suggests that older participants are more likely to be active decision-makers and more willing to override annuity defaults.² However, additional research in this area may be useful.

Choice, education and advice (see Question 18). In this rapidly evolving landscape, with wide variation in participant needs for flexibility, liquidity and guarantees, we do not foresee that a single retirement income product or strategy will meet the needs of most or all participants. Participants and plan sponsors need the flexibility to choose from an array of investment and insurance products in the marketplace.

Many offerings in the marketplace are complex, and it can be challenging for participants to evaluate competing retirement income strategies. Thus, it should be a top policy priority to encourage sponsors to provide education and advice to participants on retirement income decisions, whether portfolio- or annuity-based. Sponsors in particular are seeking clarification about rules regarding retirement income education. We believe that existing Department of Labor guidance on education should be expanded to explicitly incorporate the spend-down phase of retirement. In this regard, it is very important that the Department's forthcoming final advice rules be flexible enough to allow for responsible, cost-effective advice programs, since these rules will be applicable in both accumulation and spend-down phases.

In the end, plan sponsors view plan education and advice as critical to their ability to help participants spend down their savings wisely, and to benefit from traditional retirement income products as well as the latest innovations.

2. Currently the vast majority of individuals who have the option of receiving a lump sum distribution or ad hoc periodic payments from their retirement plan or IRA choose to do so and do not select a lifetime income option. What explains the low usage rate of lifetime income arrangements? Is it the result of a market failure or other factors (e.g., cost, complexity of products, adverse selection, poor decision-making by consumers, desire for flexibility to respond to unexpected financial needs, counterparty risk of seller insolvency, etc.)? Are there steps that the Agencies could or should take to overcome at least some of the concerns that keep plan participants from requesting or electing lifetime income?

The best-known form of lifetime income arrangement is the single-premium immediate annuity (SPIA), where in exchange for a lump-sum investment an individual receives a

² Gary R. Mottola and Stephen P. Utkus. "Lump Sum or Annuity? An Analysis of Choice in DB Pension Payouts." Vanguard Center for Retirement Research, November 2007. <https://institutional.vanguard.com/iip/pdf/CRRLSA.pdf>.

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fixed, guaranteed income stream, typically for life.³ Use of such contracts is generally quite low. For example, among older investors in Vanguard IRAs, only 1% or so have obtained quotations on Vanguard's low-cost immediate single-premium annuity.

We do not believe that a single reason explains low rates of annuitization; rather, the modest take-up rates are due to a combination of factors. First, many households may view Social Security benefits—a low-cost, government-guaranteed annuity—as all of the annuity income they need. In effect, Social Security benefits may suppress consumer demand for private annuities. Second, traditional annuity contracts impose costs with respect to liquidity (participants lose access to their savings in exchange for a monthly income) as well as inflexibility of the income stream (participants cannot vary their income stream in response to unpredictable or varying needs). Because annuities are so complex and the decision to purchase is essentially irrevocable (unless the investor is willing to pay a substantial penalty), the conventional wisdom is that annuities are “sold rather than bought”.

Third, many participants are uncomfortable risking a large portion of their savings with a single insurer. Although insurers are regulated as to solvency and soundness, the variability and complexity of the 50-state guaranty system (including what insurers are permitted to communicate, the level of the actual guarantee, the timeliness of payments pending resolution of the insurer, and the financial backing of the guaranty system) are confusing and frustrating to investors. Vanguard has extensive experience analyzing the credit-worthiness of insurance companies and we would never rely solely on industry ratings to do our due diligence. Individuals wishing to guarantee a significant amount of their retirement savings, should look behind the ratings and consider diversifying their investment among multiple carriers.

Fourth, there are a range of other considerations that further discourage annuity usage. These include the fact that many individuals have a desire to leave a bequest for future generations or charities; many individuals with meaningful assets are also more likely to be covered by existing DB plans and so have no need for additional annuity income; and many older households are married couples and so risk-sharing occurs across the household and across generations.

A related problem in the annuity market is consumer confusion between fixed and variable annuities. Variable annuities are an insurance contract whose performance is tied to the investment results of a portfolio. Variable annuities can provide lifetime income (although at Vanguard, only 1% of our variable annuity investors have chosen a retirement income option). Within the insurance industry, a new generation of variable annuities, with “living benefit” riders, are designed with the goal of providing retirement income and investment performance; they seek to provide guaranteed income, flexible access to savings and underlying growth of assets. However, such programs have high

³ John Ameriks and Liqian Ren. “Generating Guaranteed Income: Understanding Income Annuities.” Vanguard Investment Counseling & Research. <https://personal.vanguard.com/us/literature/learnaboutinvesting/investmentguides>.

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fees relating to their guarantees.⁴ Finally, some variable annuity programs have been associated with unethical or illegal sales techniques and have been subject to enhanced scrutiny by regulators. The complexity associated with the variable annuity category may spill over to fixed annuities, leading to investor confusion and uncertainty.

For these reasons, we envision that, as is current practice, most retirement income decisions will be based on nonguaranteed or portfolio-based solutions, rather than annuity contracts. Also, as noted in Questions 1 and 13, we do not support regulatory action that favors annuities over other retirement income approaches.

3. What types of lifetime income are currently available to participants directly from plans (in-plan options), such as payments from trust assets held under a defined benefit plan and annuity payments from insurance contracts held under a defined contribution or defined benefit plan?

Defined contribution plans. Vanguard serves as recordkeeper for over 2,500 DC plans with more than 3.5 million participants. Less than 10% of Vanguard DC plans are money purchase pension plans, which by law include a qualified joint and survivor annuity (QJSA) distribution option. We do not regularly track participant adoption of in-plan annuity contracts but we estimate it to be negligible. With the change in tax qualification rules under EGTRRA, many sponsors have shifted away from money purchase plans, and toward profit-sharing plans, in part in order to avoid the complexity of administering a statutory QJSA feature. (See also Question 25.)

Of the remaining 90% of DC plans at Vanguard, most are profit-sharing plans with a 401(k) or 403(b) elective deferral feature. Virtually none of these plans offers an in-plan annuity option.

Sponsors have expressed a number of reasons why they choose not to offer in-plan annuity options for DC plans:

- *Fiduciary oversight.* The fiduciary decision to select an insurer can be complex and adds to a sponsor's risk exposure. Many plan sponsors find it difficult to assess the credit-worthiness of insurers; it is generally unfamiliar territory for most ERISA committees. This is particularly challenging for smaller employers who may lack the expertise. At a minimum, committees may find it necessary to incur the added cost of retaining an outside expert to assist with the selection and monitoring of an insurance provider. Product fees are also often difficult to discern and evaluate.
- *Comparability.* Contracts from different competitors are difficult to compare; terms and conditions, as well as fee structures and guarantees, differ. Moreover, it is hard to find long-term data on annuity pricing necessary to make informed choices. (A new innovation known as an "annuity mart" has emerged to provide

⁴ Participants in qualified plans should not pay additional fees for the tax advantages associated with variable annuities although additional fees are appropriate to pay for the guaranteed income feature.

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comparability among annuity contracts. But annuity contracts currently are offered as an outside-the-plan solution, primarily because of ERISA fiduciary concerns.)

- *Long-term risk.* Under current DOL regulations, fiduciaries are responsible for ensuring that a given insurer is a prudent option at the time a contract is issued to participants. Yet given the irrevocability and long-lived nature of annuity contracts, some employers worry about a residual responsibility for the selection of an insurer over time.
- *Low participant usage.* Sponsors note that participant demand is low when annuities are offered in other settings. Thus, few feel compelled to offer a distribution option that will increase administrative costs for all participants and that is unlikely to be widely used.

Defined benefit plans. Vanguard serves as a recordkeeper for over 200 DB plans with approximately 500,000 participants. By law, these plans are required to provide a normal form of benefit that is a qualified joint and survivor annuity (or qualified optional survivor annuity) for married participants and a single life annuity for unmarried participants. Most offer a variety of other optional forms of annuities. When an annuity is selected by a participant, the benefit is typically provided either by periodic payments directly from the plan to the participant, or through the purchase of a single premium immediate annuity from an insurance company. A fraction of the traditional annuity plans, as well as most hybrid plans like cash balance plans, offer a lump-sum option.

4. To what extent are the lifetime income options referenced in question 3 provided at retirement or other termination of employment as opposed to being offered incrementally during the accumulation phase, as contributions are made? How are such incremental or accumulating annuity arrangements structured?

None of the DC plans for which Vanguard serves as recordkeeper currently offer a deferred annuity option, where lifetime annuity income is purchased gradually with each contribution. DC money purchase plans at Vanguard provide immediate annuity payout options only at retirement or other termination of employment.

Sponsors have expressed a number of reservations about deferred annuity contracts.⁵ One concern is the fiduciary oversight of such contracts. As noted in Question 3, sponsors find evaluation of creditworthiness challenging, and it is difficult for sponsors to compare pricing of deferred annuities on an apples-to-apples basis among providers.

In addition, deferred annuity contracts pose additional issues:

- *Liquidity of contract.* Once a deferred annuity contract is added to a plan, it typically remains in the plan for the foreseeable future. If a sponsor switches to a

⁵ For related comments on deferred annuity contracts, see: William J. Burns and Stephen P. Utkus. ““DB in DC”: Deferred Annuities in Defined Contribution Plans.” Vanguard Center for Retirement Research, May 2008. <https://institutional.vanguard.com/VGApp/iip/site/institutional/researchcommentary/article?File=ResNoteDeferredAnnuities>.

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new insurer, the monies invested in the old contract must typically remain in that contract in order to maintain the guarantee provided by the prior insurer.

Sponsors remain concerned about residual fiduciary liability as well as ongoing complexity of administering the plan.

- *Portability.* Deferred annuities have unique recordkeeping requirements and so may not be readily moved from one recordkeeper to another. Because the market penetration of these products is still negligible, a participant who changes jobs will likely not be able to transfer the guarantee to her new employer. However, there is an industry effort to standardize these types of recordkeeper-to-recordkeeper transfers.
- *Higher fees upon rollover.* If participants do take a rollover from a deferred annuity plan option to its retail equivalent in order to preserve the guarantee, they likely face higher fees.
- *Participant guarantee costs.* Participants incur additional costs for the guarantee while accumulating assets in these contracts. Yet because most participants are likely to take a lump sum, either at retirement or upon job change, there is a concern that participants could pay for a guarantee and then fail to take advantage of the benefit.

5. To what extent are 401(k) and other defined contribution plan sponsors using employer matching contributions or employer nonelective contributions to fund lifetime income? To what extent are participants offered a choice regarding such use of employer contributions, including by default or otherwise?

None of the DC plans for which Vanguard serves as recordkeeper currently invests employer contributions in a deferred annuity option. Sponsors have expressed a number of concerns about deferred annuity contracts generally, as discussed in Questions 3 and 4.

6. What types of lifetime income or other arrangements designed to provide a stream of income after retirement are available to individuals who have already received distributions from their plans (out-of-plan options), such as IRA products, and how are such arrangements being structured (fixed, inflation adjusted, or other variable, immediate or deferred, etc.)? Are there annuity products under which plan accumulations can be rolled over to an individual retirement annuity of the same issuer to retain the annuity purchase rights that were available under the plan?

At Vanguard we offer both portfolio-based or nonguaranteed income options, as well as guaranteed annuity options, for participants “outside the plan.” These include:

1. *Taxable account distributions.* An investor with taxable (non-qualified) assets may elect to have regular dividend (income) distributions paid in cash.
2. *Systematic withdrawal plans.* An investor may establish a program that automatically withdraws a dollar or percentage amount on a monthly, quarterly or

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annual basis from a taxable or tax-deferred account. Participants may establish this plan on their own, or work with a certified financial planner to discuss withdrawal strategies and amounts.

3. *Required minimum distributions.* Investors may elect to receive required minimum distribution (RMD) payouts required after age 70½ from IRAs. In both retail IRA accounts and qualified DC plans, Vanguard can calculate the amount, advise the participant, and transfer actual dollar amounts.
4. *Managed Payout Funds.* Vanguard Managed Payout Funds combine an investment portfolio along with a distribution or payout strategy. Our approach is similar to that used by the endowments of colleges and universities, who invest a portfolio in an effort to preserve or build capital while generating a regular income stream. Vanguard offer three funds with distinct objectives for investors with varying needs for income and growth. Like all mutual funds, the funds are not guaranteed and are subject to various risks. They also provide daily liquidity.
5. *Income annuities.* Our annuity program, known as Vanguard Lifetime Income Program (VLIP), offers fixed and inflation-adjusted immediate income annuities.

We also offer a deferred fixed and variable annuity contracts; these are largely designed for accumulation rather than retirement income purposes.

7. What product features have a significant impact on the cost of providing lifetime income or other arrangements designed to provide a stream of income after retirement, such as features that provide participants with the option of lifetime payments, while retaining the flexibility to accelerate distributions if needed?

In recent years, responding to concerns about loss of liquidity and flexibility in traditional annuity contracts, insurers have created new “living benefits” variable annuities offering flexible withdrawals and liquid access to savings. These new arrangements vary from provider to provider. Generally, they pay a guaranteed income for life, typically at a rate (such as 4-5% of the amount invested) that is lower than that available from a traditional annuity (6-7%). The investor’s account balance is invested in a diversified portfolio, and may rise and fall in value over time. Growth in the underlying account can often lead to a “step up” in guaranteed income. An important feature is that the investor has access to the underlying account value (subject to withdrawal restrictions and penalties) and so has access to liquid savings. When savings are withdrawn, however, the guaranteed income amount is reduced on a *pro rata* basis.

These types of instruments show promise in blending investment and insurance contract features that will be attractive to some participants. However, a number of concerns have arisen about the first generation of these products:

- *Complexity and lack of transparency.* Many of these arrangements are quite complex, and it is difficult for most participants or plan sponsors to evaluate the nature of the guarantees, especially without sophisticated financial advice.

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- *Hedging stock market risk.* Successful management of these products requires skill at hedging stock market risks. Yet it is an open question whether insurers can effectively hedge such risk without substantial risks to solvency. During the 2008-2009 financial crisis, many insurers reported losses arising from “living benefit” contracts and had to reduce the value of promised guarantees and increase fees. As the products grow in scope and size, a similar financial-system crisis in the future could threaten the solvency of some insurers if the risks of these contracts are mismanaged. Separate from this long-term risk, state regulatory rules limit how quickly insurers can revise pricing to accommodate dynamic changes in the markets for hedging these risks.
- *High fees.* Many of these products come with substantial guarantee fees, such as 1.5% to 2%. Such fees are probably a reasonable estimate of what it costs to provide guaranteed income over normal market cycles. Investment and administrative fees come on top to these amounts. Such fees substantially reduce future growth on the underlying account, and so may make the guarantee too costly for many participants. Also, high fees mean that the expected “step up” or growth in income or account balance may be less than anticipated.

From a plan sponsor perspective, evaluating such contracts, and determining whether they will generate value for participants, is an important fiduciary challenge.

Some providers have begun offering living benefits annuities as part of deferred annuity contracts within qualified plans. For example, a target-date fund designed for accumulating savings may include a guarantee feature; at retirement, the participant has the option of annuitizing the balance (and losing all access to savings) or receiving a “living benefit” annuity payout (and retaining liquidity and market risk). The guarantee feature, which raises the participant’s cost during the accumulation phase, ensures that at retirement some minimum guaranteed amount will be converted to income, regardless of market fluctuations.

Some “living benefits” contracts have low guarantee fees, typically under 1%. (There are investment fees in addition to the guarantee fee.) Such low guarantee costs are probably based on the notion that most participants who purchase the contracts in the accumulation phase will not take advantage of the guaranteed income upon retirement. Otherwise, the guarantee costs would be higher. These types of contracts raise the same concern noted above (see Question 4) about deferred annuity contracts in general: many participants may pay for a guarantee that they are unlikely to use, either because they eventually change employers, or at retirement they choose a rollover and not an annuity payout.

8. What are the advantages and disadvantages for participants of selecting lifetime income payments through a plan (in-plan option) as opposed to outside a plan (e.g., after a distribution or rollover)?

There are two major differences between in-plan and outside-the-plan options: flexibility and pricing.

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In terms of flexibility, participants will find a wider array of retirement income programs, from a large number of financial institutions, available outside the plan rather than inside the plan. For example, at Vanguard participants have access to several strategies in our IRA rollover program (systematic withdrawals, RMD withdrawals, payout funds, and annuities). Qualified plans at Vanguard offer a limited suite of options (typically systematic and RMD withdrawals) because of fiduciary and administrative issues outlined earlier. The flexibility issue is exacerbated by employer plan design decisions. Some plans do not permit annuities, partial withdrawals or installment payouts; thus, the participant has no option other than to take a lump-sum distribution or to roll over to an Individual Retirement Account or annuity outside of the plan.

A second consideration is pricing, particularly for participants in large plans. In a large plan, the sponsor is typically able to negotiate lower fees than would be available to a small plan or a retail investor. For example, today large plans can offer low-cost institutional mutual funds or commingled funds as investment options. Thus, at least in theory, they might be able to negotiate low-priced retirement income solutions for their plans. However, the market for in-plan retirement income solutions is relatively underdeveloped; today there is not yet a well-defined set of low-cost, institutionally priced within-plan income products.

Despite differences in fees, we anticipate that most retirement income decisions will continue to be made in the IRA rollover marketplace, not in qualified plans. As noted in Question 1, at Vanguard over 80% of participants age 60 and older exit their employer qualified plan within three years of termination of employment. Over 80% of assets exit the plan as well, with the vast majority of the assets rolling over into IRA accounts. Although more research is needed on the subject, we believe that most participants leave their employer plan because they have terminated their relationship with their employer, and would like to manage their savings independent of that prior employment relationship and in coordination with other assets and income.

9. What are the advantages and disadvantages from the standpoint of the plan sponsor of providing an in-plan option for lifetime income as opposed to leaving to participants the task of securing a lifetime income vehicle after receiving a plan distribution?

When considering adding in-plan options, sponsors typically weigh the added fiduciary oversight and risk against the expected benefit to be realized by participants. The fiduciary decision to select an insurer or provider can be complex and adds to a sponsor's risk exposure. Many plan sponsors find it difficult to assess the credit-worthiness of insurers; it is generally unfamiliar territory for most ERISA committees. Fees are often difficult to discern as well. Meanwhile, participant take-up is generally expected to be low. It is true that some sponsors may feel the desire to take action and have an in-plan retirement income option, regardless of its take-up. But in our experience most sponsors

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remained concerned about the fiduciary risks and the ultimate lack of demand. (Please see also Questions 3 and 4.)

More broadly, from a general employee relations perspective, many sponsors see their role as providing access to a well-designed retirement plan, contributing to their employees' retirement savings, and acting as a prudent steward of the plan on their employees' behalf. They see the qualified plan as a tool to attract and retain their current workforce, not to maintain long-term relationships with departed employees. From a benefits design perspective, they also may worry about the severe penalty (plan disqualification) associated with any errors in providing required minimum distribution payments after age 70½. These plan sponsors may want to educate their employees about appropriate retirement income solutions outside the plan, but they would prefer not to have retirees or terminated vested employees remain within the plan.

It is true that some sponsors, a minority in our experience, express an interest in a more paternalistic approach to retired employees. They may see in-plan retirement income programs as part of that broader philosophy. Some sponsors also have an interest in retaining retired participants in their plan because older participants tend to have larger account balances. With a larger asset base, the sponsor is able to negotiate lower administrative fees for the plan. However, because an in-plan annuity option actually removes assets from the plan and transfers them to an insurer, an in-plan annuity option, by reducing assets, would actually reduce the plan sponsor's price negotiating power.

Overall our experience suggests that many sponsors would prefer to transition participants to outside-the-plan retirement income programs. In doing so, they can avoid the oversight duties involved with an in-plan option, and not worry about issues such as fiduciary risk, portability or costs. By providing appropriate education and advice services, they can educate participants about the challenges of financing lifetime income and about the benefits, risks and costs of strategies in the marketplace today, particularly those offered outside the plan.

10. How commonly do plan sponsors offer participants the explicit choice of using a portion of their account balances to purchase a lifetime annuity, while leaving the rest in the plan or taking it as a lump sum distribution or a series of ad hoc distributions? Why do some plan sponsors make this partial annuity option available while others do not? Would expanded offering of such partial annuity options -- or particular ways of presenting or framing such choices to participants -- be desirable and would this likely make a difference in whether participants select a lifetime annuity option?

Among Vanguard DC recordkeeping clients, annuity payout options are rarely offered (see Question 3). Among the small group of money purchase plans offering annuity payout options, participants are not explicitly offered a choice between partial or full annuitization.

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We believe that reframing the decision in terms of partial annuitization is unlikely to alter participant behavior. Participants always have the option of annuitizing part of their savings at any time in the future; there is no immediate need, at the time of plan distribution, to consider making an irreversible one-time election to annuitize. At retirement, participants are also likely to be active decisionmakers and override annuity defaults (see Question 11). Moreover, because of preferences for liquidity and flexibility (see Question 1), participants are unlikely to annuitize.

11. Various “behavioral” strategies for encouraging greater use of lifetime income have been implemented or suggested based on evidence or assumptions concerning common participant behavior patterns and motivations. These strategies have included the use of default or automatic arrangements (similar to automatic enrollment in 401(k) plans) and a focus on other ways in which choices are structured or presented to participants, including efforts to mitigate “all or nothing” choices by offering lifetime income on a partial, gradual, or trial basis and exploring different ways to explain its advantages and disadvantages. To what extent are these or other behavioral strategies being used or viewed as promising means of encouraging more lifetime income? Can or should the 401(k) rules, other plan qualification rules, or ERISA rules be modified, or their application clarified, to facilitate the use of behavioral strategies in this context?

We do not believe that a change in default arrangements – a so-called “nudge” strategy (Thaler and Sunstein, 2008) – will have a meaningful effect on annuitization rates. Our research suggests that retirees are likely to be actively engaged decision-makers and work energetically to overcome annuitization defaults. This behavior is in marked contrast to that during the accumulation phase of retirement savings.

In a study of lump sum versus annuity choices in two large defined benefit plans, we found that most participants work actively to overcome the joint and survivor annuity default within the plan.⁶ In order to “opt out” of the annuity default, married participants must take their spouse to a face-to-face meeting with a notary public and pay a fee. Most do so and opt out of the statutory qualified joint and survivor annuity (QJSA) annuity default. Our belief is that the demand for flexibility and liquidity is so substantial that most participants will work actively to overcome default annuity strategies in retirement.

We would also emphasize that default strategies in the accumulation phase like automatic enrollment are most successful with low-wage and young workers. By comparison, retirees leaving an employer-sponsored plan are a much broader group demographically, and they are in their peak asset accumulation years. Thus the decision-making dynamics of retirees are likely to be quite different than those of first-time savers.

⁶ Gary R. Mottola and Stephen P. Utkus. “Lump Sum or Annuity? An Analysis of Choice in DB Pension Payouts.” Vanguard Center for Retirement Research, November 2007. <https://institutional.vanguard.com/iip/pdf/CRRLSA.pdf>.

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Finally, we note that there has been no empirical evidence to date that default strategies might be effective in changing annuitization behavior. So the potential role of defaults and “nudging” is an area that might benefit from additional experimentation and analysis, before the ideas are enshrined in public policy.

12. How should participants determine what portion (if any) of their account balance to annuitize? Should that portion be based on basic or necessary expenses in retirement?

Our view is that the portion of retirement assets to annuitize is based on the preference for a given level of guaranteed income in addition to Social Security (and any other defined benefit pension income to which the household may be entitled). This desire for additional guaranteed income is not directly based on a participant’s age, income, account balance, retirement income goals, or the level of basic or necessary retirement income expenses. Instead it is based on the willingness to forego liquidity and flexibility with a given amount of savings in exchange for additional levels of guaranteed income. Thus, two households, in otherwise identical situations, may choose to annuitize different fractions of their assets (including not annuitizing at all), depending on this preference.

Given the emphasis that many households place on flexibility and liquidity, as well as the desire to make bequests, we expect that demand for annuitization will continue to remain low, even in the face of recommendations to generate annuity income that covers “basic or necessary expenses.” It is possible that education programs about retirement income may enhance the demand for annuitization at the margin. Also, the declining prevalence of private pension annuity income may increase annuity demand somewhat. But we believe that preferences for flexibility and liquidity remain quite strong, and would counterbalance recommendations to annuitize assets equivalent to all basic expenses in retirement.

13. Should some form of lifetime income distribution option be required for defined contribution plans (in addition to money purchase pension plans)? If so, should that option be the default distribution option, and should it apply to the entire account balance? To what extent would such a requirement encourage or discourage plan sponsorship?

As noted in Question 1, we would question any policy rationale that favors a specific category of retirement income program, such as the traditional annuity contract, over any other.

One possible reason for an annuity mandate would be to address concerns about longevity risk. However, today virtually all participants receive a meaningful level of longevity risk protection through Social Security. Also, there is no widely-accepted consensus surrounding the minimum amount of annuity income households should have in retirement. Lower-wage workers, who might be perceived as being most at risk, have

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higher replacement rates from Social Security and lower asset levels. Rather than needing more annuitized income, they may wish to maintain control over any liquid assets they own. Finally, it is worth noting that in the United Kingdom, which has a mandatory annuity requirement, there is an active debate over its repeal.

A second reason for avoiding mandates is expected participant behavior. Most households choose not to annuitize due to important concerns about liquidity and flexibility and insurer credit risk. We would highlight again (as noted in Question 1) the fact that the overwhelming majority of older participants exit their employer plan within three years upon termination of employment. It also seems unwarranted to mandate the complexity and cost of lifetime income solutions for the plan sponsor when there is little likelihood of participants using the income option in the qualified plan.

A third reason for avoiding a mandatory approach is the innovation and dynamism of the current marketplace. This dynamism reflects the wide range of participant and sponsor preferences in the marketplace. In our view, it is not clear today whether systematic withdrawal plans, payout funds or various forms of annuities will win the day and become the preferred strategy for most participants. In fact, we expect that no single solution will dominate, and that individuals will construct a personalized retirement income plan from a range of options, including those beyond the purview of the qualified plan system (such as work earnings and reverse mortgages). From a policy perspective, it is premature to determine that a particular insurance or investment product is broadly applicable to most plan participants.

Given these factors, we would recommend against any mandatory retirement income program in qualified plans. We would instead leave judgments about suitability of a given program to plan sponsors, who can evaluate the appropriateness of various strategies and decide whether or not they should be introduced to their participants.

14. What are the impediments to plan sponsors' including lifetime income options in their plans, e.g., 401(k) or other qualification rules, other federal or state laws, cost, potential liability, concern about counterparty risk, complexity of products, lack of participant demand?

Sponsor concerns about in-plan lifetime income options are described in Question 3. In some ways, the impediments to offering retirement income programs in qualified plans are less regulatory than inherent in the nature of the products being offered. Portfolio-based strategies like payout funds are relatively new, and sponsors are awaiting greater understanding of their dynamics before considering them for qualified plans. Annuity contracts impose their unique fiduciary requirements due to the inherent complexity of offering guarantees, their inherent illiquidity from insurer to insurer, the difficulty of apples-to-apples price comparisons, and, as noted earlier, low participant demand and possible misuse. Many sponsors also struggle with the complex task of evaluating the financial strength of an insurer.

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15. What are the advantages and disadvantages of approaches that combine annuities with other products (reverse mortgages, long term care insurance), and how prevalent are these combined products in the marketplace?

Although we do not offer such products, we think that many types of innovative ideas will emerge in the retirement income marketplace.

The case of reverse mortgages is a reminder that innovation is occurring along several dimensions. Most older Americans own a home, and despite the recent credit crisis, home equity is one of the substantial resources that households can draw upon in retirement, either for regular expenses or for unpredictable costs like health care costs. However, adoption of reverse mortgages is low, and it remains to be seen how widespread, if at all, such programs will become.

As noted earlier in our analysis of various annuity-based programs, the challenge of many insurance-based products is complexity, lack of transparency in fees and costs, lack of liquidity and the risk of dealing with a single insurer or counterparty. These complexities seem even more daunting when combining retirement income with long-term care factors or when evaluating a reverse mortgage.

16. Are there differences across demographic groups (for example men vs. women) that should be considered and reflected in any retirement security program? Can adjustments for any differences be made within existing statutory authority?

One of the challenges posed by annuity contracts is their inherent differential impact by various demographic factors. In any annuity contract, populations with shorter life expectancies will subsidize populations with longer life expectancies. Thus, men will subsidize women (except, arguably, in the case of within-plan annuities with standardized unisex pricing). Blacks and Hispanics will subsidize whites. Low-wealth and low-education participants will subsidize high-wealth and high-education participants. Participants in poor health will subsidize those in good health.

These examples again underscore the wide variation in participant needs when it comes to retirement income solutions. As noted in Questions 1 and 13, we believe that policymakers should avoid mandating any particular form of retirement income solution, such as a traditional immediate income annuity, and instead encourage a range of retirement income choices.

17. What information (e.g., fees, risks, etc.) do plan participants need to make informed decisions regarding whether to select lifetime income or other arrangements designed to provide a stream of income after retirement? When and how (i.e., in what form) should it be provided? What information currently is

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provided to participants, who typically provides it, and when and how is it provided to them?

Education programs. Vanguard plan participants receive education about retirement income strategies in a variety of ways – in web and print communications, and in online and in-person seminars – under DOL Interpretive Bulletin 96-1. Educational material typically describes strategies for calculating a reasonable withdrawal rate from retirement savings, along with a general description of annuities and other retirement income products. This information is typically offered as part of a broader part of a pre-retirement planning seminar.

Advice programs. Participants also receive retirement income advice through Vanguard Financial Planning Service, which is organized under the Pension Protection Act (PPA) advice provisions. While this service is offered to a wide range of participants, most who take advantage of it are approaching retirement age, when they are more actively engaged in planning their retirement. Vanguard Certified Financial Planners offer one-on-one counseling and a personalized financial plan. That plan includes recommendations on savings rates until retirement; the timing of retirement; investment allocations; and possible draw-down rates.

Product information. At Vanguard, most retirement income products are offered in the IRA rollover market. When participants choose a Vanguard rollover, they receive specific information on benefits, risks and fees depending on the regulated product (e.g., FINRA and SEC disclosures for investment products, state and any federal disclosures as required for insurance products). This disclosure is complemented by related educational materials in print and on the web. The risks we discuss with participants are not limited to investment risks, but include others risks, such the lack of liquidity and insurer failure associated with insurance contracts.

We anticipate substantial growth in our education and advice services for retirement income in the years ahead. Our view is that the retirement income marketplace is dynamic and changing rapidly. In order to make effective choices, participants need clear and simple communications regarding the benefits, risks, and costs of competing retirement income strategies.

18. Is there a need for guidance, regulatory or otherwise, regarding the extent to which plan assets can be used to pay for providing information to help participants make informed decisions regarding whether to select lifetime income or other arrangements designed to provide a stream of income after retirement, either via an in-plan or out-of plan option?

Education. We believe that the DOL should explicitly extend the purview of Interpretive Bulletin 96-1 to include educational materials governing the retirement income or distribution phase. In particular, we believe the DOL should confirm that persons engaged by a plan sponsor to provide these materials are not being hired as fiduciaries

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with respect to the plan by virtue of providing this education to plan participants and beneficiaries, giving plan sponsors more comfort that they will not be second-guessed when these programs are offered. Such a step would be very helpful in encouraging plan sponsors to provide additional educational information for retirement income options. The plan sponsor is often perceived by the participant as a trusted and impartial source of information, and sponsors in our experience take their participants' long-term interests to heart. Sponsors broadly remain concerned about the possibility that existing rules may present undue legal risks as they try to provide helpful and actionable education programs for the retirement income phase.

We also believe that guidance should explicitly encourage sponsors to educate their participants on out-of-plan options that may be available. This is particularly important given our finding that the overwhelming majority of retiring plan participants roll out of their employer-sponsored plan to an IRA within three years. Sponsors would like to help participants make informed outside-the-plan choices and to provide general education along those lines. But they are wary of being perceived as having endorsed a specific outside-the-plan product or firm; they are also concerned that an outside-the-plan product might be misconstrued as a *de facto* in-plan distribution option. So helping sponsors draw a clear line between broad education on retirement income, and specific product or issuer endorsements, would be extremely valuable.

Advice. As noted in Question 1, we believe advice programs are also critical in helping participants make effective retirement income decisions. The Department of Labor is to be congratulated on its current effort to finalize regulations governing the provision of advice to DC plan participants. We encourage the Department to adopt final rules that are flexible enough to allow affiliated providers like Vanguard to be able to give advice to participants in both the accumulation and draw-down phases

19. What specific legal concerns do plan sponsors have about educating participants as to the advantages and disadvantages of lifetime income or other arrangements designed to provide a stream of income after retirement? What actions, regulatory or otherwise, could the Agencies take to address such concerns?

See Question 18.

20. To what extent should plans be encouraged to provide or promote education about the advantages and disadvantages of lifetime annuities or similar lifetime income products, and what guidance would be helpful to accomplish this?

See Question 18.

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21. Should an individual benefit statement present the participant's accrued benefits as a lifetime income stream of payments in addition to presenting the benefits as an account balance?

Estimates of the future income from an individual account balance can be useful for participants when planning for retirement. Currently, most Vanguard DC plan participants receive an estimate of their potential monthly retirement income on their quarterly benefits statement.

However, we do not believe that income amounts based on annuity factors are appropriate for a number of reasons. Annuity income estimates do not convey the inherent risks of annuitization—including the loss of access and liquidity, the lack of flexibility, and the single-company default risk. When evaluating these risks today, few participants choose to annuitize. As a result, an annuity income amount on a statement can be misleading, as it overstates the actual income a participant is likely to draw from a portfolio. In addition, developing an annuity estimate requires complex assumptions about mortality rates, sales load factors and other annuity pricing variables. It can be challenging to make appropriate and realistic assumptions.

Our own retirement income calculation on statements today is based on simple assumptions: the participant's current balance, current contribution, an assumed real return of 4% per year after expenses, and a 4% withdrawal rate at retirement at age 65.

Other recordkeepers are gradually adding these types of estimates to their systems for use by participants. We would advise against any policy that endorses an annuity income approach for the reasons outlined above. If policymakers are seeking to encourage such estimates, a better approach would be an income amount based on a simple withdrawal rate such as 4%.

22. If the answer to question 21 is yes, how should a lifetime stream of income payments be expressed on the benefit statement? For example, should payments be expressed as if they are to begin immediately or at specified retirement ages? Should benefit amounts be projected to a future retirement age based on the assumption of continued contributions? Should lifetime income payments be expressed in the form of monthly or annual payments? Should lifetime income payments of a married participant be expressed as a single-life annuity payable to the participant or a joint and survivor-type annuity, or both?

These are some of the complex factors that argue against choosing an annuity factor as the income amount on participant statements. As noted in Question 21, we would encourage a simple withdrawal factor. In our view it is most meaningful to illustrate the stream of lifetime income payments as a monthly withdrawal amount beginning at a specified retirement age based on the assumption of continued contributions and reasonable investment returns.

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23. If the answer to question 21 is yes, what actuarial or other assumptions (e.g., mortality, interest, etc.) would be needed in order to state accrued benefits as a lifetime stream of payments? If benefit payments are to commence at some date in the future, what interest rates (e.g., deferred insurance annuity rates) and other assumptions should be applied? Should an expense load be reflected? Are there any authoritative tools or sources (online or otherwise) that plans should or could use for conversion purposes, or would the plan need to hire an actuary? Should caveats be required so that participants understand that lifetime income payments are merely estimates for illustrative purposes? Should the assumptions underlying the presentation of accrued benefits as a lifetime income stream of payments be disclosed to participants? Should the assumptions used to convert accounts into a lifetime stream of income payments be dictated by regulation, or should the Department issue assumptions that plan sponsors could rely upon as safe harbors?

These are some of the complex factors that argue against choosing an annuity factor as the income amount on participant statements. As noted in Question 21, we would encourage a simple withdrawal factor.

24. Should an individual benefit statement include an income replacement ratio (e.g., the percentage of working income an individual would need to maintain his or her pre-retirement standard of living)? If so, what methodology should be used to establish such a ratio, such as pre-retirement and post-retirement inflation assumptions, and what are the impediments for plans to present the ratio in a meaningful way to participants on an individualized basis?

A participant's account with his or her current employer represents only a portion of the total retirement picture for that participant's household. Most American workers with qualified plan coverage have participated in different plans over their working career; their assets are likely to be invested in a variety of qualified plan and IRA accounts. Many participants are married and so the participant view is not the household view.

As a result, estimating "retirement readiness" or "retirement sufficiency" from a current account balance with a given employer is most useful for a small minority of households—those who have been with a single employer, and in a single benefit plan, for most of their working career, and those for whom the participant's own benefits represent the overwhelming majority of the household's benefits. For most households, estimating "retirement readiness" requires a detailed planning exercise, using software tools or consulting with a financial planner, and incorporating all benefits and accounts.

Nonetheless, we believe that estimating the future income from a specific plan account balance, as in Question 21, can be a valuable tool for plan participants. The future value encourages participants to think about retirement and the future in general; it also helps participants translate a given account balance into a possible income stream and factor

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that into their retirement planning. But that value alone cannot answer whether the participant is “ready”—or not—for retirement.

25. How do the 401(k) or other plan qualification rules affect defined contribution plan sponsors' and participants' interest in the offering and use of lifetime income? Are there changes to those rules that could or should be made to encourage lifetime income without prejudice to other important policy objectives?

In our experience, most employers view the notice and consent rules of Internal Revenue Code (IRC) section 417 for qualified joint and survivor annuities (QJSA) to be overly complex and burdensome. For this reason, many DC plans were amended in recent years to eliminate annuity options after the issuance of the regulatory guidance on the issue.⁷

The QJSA rules were introduced as a matter of equity to women (ensuring some residual benefits would be paid to surviving spouses) and in an effort to promote annuitization. However, in our experience, even in money purchase plans where the QJSA feature is retained, the participant waiver and spousal consent requirements necessary have proven to be ineffective in encouraging participants to select an annuity form of payment. In addition, demographic shifts, as evidenced by women’s increasing participation in the workforce, are reducing the need for spousal income protection. As a result, our recommendation to policymakers would be to eliminate the QJSA requirements for the one group of DC plans still subject to them, namely money purchase plans.

26. Could or should any changes be made to the rules relating to qualified joint and survivor annuities and spousal consents to encourage the use of lifetime income without compromising spousal protections?

See question 25.

27. Should further guidance clarify the application of the qualified joint and survivor annuity rules or other plan qualification rules to arrangements in which deferred in-plan insurance annuities accumulate over time with increasing plan contributions and earnings?

Our defined contribution plan clients currently do not use deferred annuity contracts within their retirement plans.

28. How do the required minimum distribution rules affect defined contribution plan sponsors' and participants' interest in the offering and use of lifetime income?

⁷ See Treas. Reg. §1.411(d)-4, Q&A-2(e) in September 2000, and the addition of IRC §411(d)(6)(E) to the Code by EGTRRA, both permitting the elimination of periodic payment options from most defined contribution plans.

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Are there changes to those rules that could or should be made to encourage lifetime income without prejudice to other important policy objectives? In particular, how are deferred annuities that begin at an advanced age (sometimes referred to as longevity insurance) affected by these rules? Are there changes to the rules that could or should be considered to encourage such arrangements?

As a matter of federal tax policy, required minimum distributions (RMDs) were designed to generate some level of taxable income from tax-deferred accounts for the U.S. Treasury while the participant is living in retirement. However, RMDs can also be used to generate a simple income stream from a qualified plan account or IRA after age 70½. That income stream is not guaranteed nor necessarily inflation-adjusted, nor does it carry a longevity guarantee. But RMD payments are a straightforward way to receive some income from a tax-qualified account at older ages.

RMD rules pose a challenge for other types of retirement income programs. In the case of portfolio-based strategies, such as systematic withdrawal plans or payout funds, the amount of withdrawal required under a given plan may be lower than the RMD in a given year. As a result, the RMD rules create confusion for the participant who must receive “extra” income due to the RMD regulations. One policy remedy would be to amend regulations under IRC §401(a)(9) that would expand acceptable methods for calculating RMDs to include distribution amounts determined in connection with a broader array of account payouts, such as common systematic withdrawal programs or payout funds.

In the case of annuities, annuity income streams are not credited against RMDs. Thus, an individual who annuitizes a portion of his or her savings must still begin RMDs from the remaining assets at age 70½, even if the annuity payouts are larger than what the RMDs would have been for the entire lump sum. Annuity payouts should be credited against required RMDs from the remaining non-annuitized assets.

Changes like these would substantially increase the complexity of RMD rules. A better alternative would be to repeal the existing RMD rules and replace them, instead, with rules governing the taxation of benefits upon receipt of the beneficiary. We acknowledge that such a policy change may be scored as costly in the government’s current budget window. However, changing the rules represents only a timing difference. All things being equal, the revenue lost by Treasury from repeal of RMDs today is likely to be recouped, in present value terms, from higher taxes in the future paid by beneficiaries on larger balances.

29. Are employers that sponsor both defined benefit and defined contribution plans allowing participants to use their defined contribution plan lump sum payouts to "purchase" lifetime income from the defined benefit plan? Could or should any actions be taken to facilitate such arrangements? Should plans be encouraged to permit retirees who previously took lump sums to be given the option of rolling it back to their former employer's plan in order to receive annuity or other lifetime benefits?

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The strategy of purchasing DB income with a DC balance is yet another option that some participants can use. A few large employers promote such an option to their participants today. In general, our preference is for greater choice and flexibility for households making retirement income decisions, so any steps to advance the use of these or other income strategies we view as useful. At the same time, we note that the number of participants affected by this specific strategy is likely to be small, and providers equipped to offer this service may be few in number.

30. To what extent do fiduciaries currently use the safe harbor under 29 CFR 2550.404a-when selecting annuity providers for the purpose of making benefit distributions?

We have no data on how many sponsors explicitly rely on the safe harbor rule when selecting an annuity provider for a DC plan. Our general observation is that sponsor concerns about in-plan annuity features, discussed in Question 3, have not been materially altered by the new regulations.

31. To what extent could or should the Department of Labor make changes to the safe harbor under 29 CFR 2550.404a-4 to increase its usage without compromising important participant protections? What are those changes and why should they be made?

The current safe harbor underscores the principle that sponsors have a duty to select and monitor annuity contract providers—no different than having a duty to select and monitor investment managers for the plan.

It seems to us that the major challenge in fulfilling this duty is not regulatory but substantive to the decision being made. Sponsors find it difficult to evaluate the credit quality of insurers, and find it difficult to obtain competitive pricing information on an apples-to-apples basis. It could be that the marketplace will evolve over time and these hurdles will be overcome. For example, some recent “annuity marts” offer comparability of annuity pricing across vendors, although these products are offered outside the plan and not as an in-plan arrangement. But the inherent difficulty of selecting annuity providers lies in evaluating the ability of any institution to fulfill its promises over long periods, plus issues of pricing transparency, comparability and liquidity.

32. To what extent could or should the safe harbor under 29 CFR 2550.404a-4 be extended beyond distribution annuities to cover other lifetime annuities or similar lifetime income products? To which products should or could the safe harbor be extended?

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It would seem appropriate to extend the safe harbor to any retirement income program with a guaranteed, life-contingent payout – one backed by the creditworthiness of a state-regulated insurer. Thus, the safe harbor might apply to deferred annuity contracts, to living benefit annuity riders, and to other insurance-based contracts. As noted above in Question 31, much of the complexity in evaluating these insurance contracts from a fiduciary perspective does not arise from the regulatory requirements but instead is inherent in the type of evaluation being made.

33. To what extent are fixed deferred lifetime annuities (i.e., incremental or accumulating annuity arrangements) or similar lifetime income products currently used as investment alternatives under ERISA 404(c) plans? Are they typically used as core investment alternatives (alternatives intended to satisfy the broad range of investments requirement in 29 CFR 2550.404c-1) or non-core investment alternatives? What are the advantages and disadvantages of such products to participants? What information typically is disclosed to the participant, in what form, and when? To what extent could or should the ERISA 404(c) regulation be amended to encourage use of these products?

Among Vanguard DC plans, neither fixed nor variable deferred annuity contracts are currently being used as investment options. Sponsors' general concerns with deferred annuity contracts are summarized in Question 4.

34. To what extent do ERISA 404(c) plans currently provide lifetime income through variable annuity contracts or similar lifetime income products? What are the advantages and disadvantages of such products to participants? What information about the annuity feature typically is disclosed to the participant, in what form, and when? To what extent could or should the ERISA 404(c) regulation be amended to encourage use of these products?

Among Vanguard DC plans, neither fixed nor variable deferred annuity contracts are currently being used as investment options. Sponsors' general concerns with deferred annuity contracts are summarized in Question 4.

35. To what extent are plans using default investment alternatives that include guarantees or similar lifetime income features ancillary to the investment fund, product or model portfolio, such as a target maturity fund product that contains a guarantee of minimum lifetime income? What are the most common features currently in use? Are there actions, regulatory or otherwise, the Agencies could or should take to encourage use of these lifetime income features in connection with qualified default investment alternatives?

Over 85% of Vanguard DC plans designating a qualified default investment alternative (QDIA) have chosen target-date funds as their qualified default; the remainder have

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chosen a traditional balanced option. Given the range of retirement income strategies that participants can choose from, either portfolio- or annuity-based, no Vanguard plan sponsors have chosen to add a QDIA with a specific retirement income feature. Rather, at retirement, participants in a Vanguard QDIA can choose to take a variety of steps, such as taking systematic withdrawals from their qualified plan or IRA rollover account, utilizing portfolio-based payout funds, rolling over to an IRA annuity contract, or some combination of these.

As noted in Question 4, we believe it is generally inappropriate to attach a lifetime guarantee feature within a QDIA. QDIAs are used principally in automatic enrollment arrangements, which disproportionately affect younger- and short-tenured employees. Such employees are unlikely to remain in their current employer plan until retirement, and they would be ill-advised to incur the costs for a guarantee that they are highly unlikely to benefit from. In the marketplace today, there are sponsors who have chosen to add investment options that incorporate a lifetime guarantee element. These may be more suitable for older individuals who are more interested in paying for a guarantee and who expect to annuitize or otherwise convert their balance to a guaranteed income stream at retirement. Given the costs of these features, they should be offered only on a voluntary choice basis.

In addition, as noted in Questions 3 and 4, sponsors remained concerned with adding annuity contract features in their plan. These include issues of fiduciary oversight, contract liquidity, portability, fees, complexity and participant demand.

36. What are the costs and benefits to a plan sponsor of offering lifetime annuities or similar lifetime income products as an in-plan option? Please quantify if possible.

Each new retirement income product added to a plan recordkeeping system requires a meaningful technology investment. Changes must be made to the core recordkeeping system. Enhancements are needed to the desktops of service associates. The product must also be communicated to participants, requiring changes to print communications and education programs, websites and statements, and tax reporting. Sponsor reporting must be enhanced. Over time, we find that adding a new product category leads to demand for additional service enhancements over time.

Retirement income products vary from company to company, and often come with unique features and benefits and technology requirements. As a result, there are few economies of scale among the products being offered; at least today, these costs are incurred per type of product offered.

Besides these recordkeeping costs, many sponsors would likely incur expenses for selecting and monitoring retirement income products and services. These costs would include fees to consultants or other experts to assist in the evaluation of these options.

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With over 60 million defined contribution plan participants in the U.S., the initial cost of offering a single product across the defined contribution plan system might be therefore \$60 to \$240 million per product. Of course, no single product will be offered by all recordkeepers. Assuming 10 widely used products, the maximum cost might be \$600 million to \$2.4 billion. At some point, industry standardization could lead to reduced costs and economies of scale.

37. Are there unique costs to small plans that impede their ability to offer lifetime annuities or similar lifetime income products as an in-plan option to their participants? What special consideration, if any, is needed for these small entities?

Small DC plans generally pay higher all-in fees because they lack the economies of scale of large plans. If small plans decide to offer certain guaranteed income products, such as deferred or immediate income annuities, the guarantee costs will be added to their already above-average recordkeeping and investment management fees. Moreover, small plans will lack the negotiating power of large plans to drive down such costs.

As a result, participants in small plans will face even higher fees in guaranteed options, even though few participants in those options are likely to annuitize and benefit from the guarantee fees. Certain retirement income solutions thus risk raising fees among smaller plan participants, with only little marginal benefit.

Paradoxically, some retirement income solutions are more likely to be offered to small plans because that segment of the recordkeeping market is more likely to be served by insurance companies.

38. Would making a lifetime annuity or other lifetime income product the default form of benefit payment have an impact on employee contribution rates? If so, in which direction and why?

We believe that making a traditional lifetime income option the default form of benefit payment will only marginally change the rate of annuitization. Most participants in our view are likely to work actively to avoid annuitization. If the default lifetime income option is liquid – such as a systematic withdrawal program, payout fund, or newer types of annuities offering liquidity – more participants will be likely to remain with the default option. As noted in Questions 1 and 2, liquidity and flexibility are critical factors for participants in making retirement income choices.

We would expect that a default payout option is unlikely to affect employee contributions. If the default is illiquid, as is the case with a standard annuity contract, we would anticipate that most employees would opt out of the default. See Question 11. If the default is liquid, participants will not view the default designation as restrictive. However, if annuities were to become the mandatory form of distribution, we would expect participants to reduce their contributions to qualified plans in order to avoid being forced to annuitize their benefits.

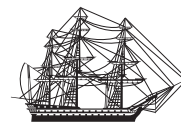
Responses to Request for Information Questions: (RIN 1210-AB33)

39. For plans that offer lifetime annuities or similar lifetime income products, what percentage of eligible workers elect to annuitize at least some of their retirement assets and what percentage elect to annuitize all of their assets?

Among Vanguard money purchase pension plans offering a QJSA annuity option, we observe no material rate of participant annuitization. In a study of two large DB plans, where annuitization is the default, we found that 27% of participants in a final average pay plan remained with the annuity default, while 17% of participants in a cash balance plan remained with the annuity. A total of 78% and 83% of participants, respectively, opted out of the QJSA default and chose a lump sum. See Question 3.

Generating Guaranteed Income: Understanding Income Annuities

Vanguard Investment Counseling & Research



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Executive summary. Income annuities are a form of insurance intended to address the uncertainty investors face when planning for income for the rest of their lives—a length of time they cannot accurately predict. In exchange for permanently surrendering access to a portion of their assets, annuitants can receive a stream of income as long as they live.

Income annuities are not appropriate for all investors. Annuities are insurance, and prospective buyers need to weigh the value of that insurance against the costs and risks that arise from provider fees, tax treatment, and the illiquid nature of an income annuity. This paper looks in depth at both sides of the question. To help clarify the costs and risks, we analyzed annuity pricing as well as the less-tangible costs, such as illiquidity, associated with an annuity purchase. To help assess the potential value of annuities, we tested their usefulness in a variety of hypothetical scenarios, using extensive historical market data to simulate conditions that real retirees might face.

Our analysis indicates that for those investors who strongly desire the simplicity of regular monthly payments, who are concerned about maintaining their spending levels very late in retirement (into their 90s and beyond), and who find the costs and risks acceptable, low-cost income annuities can be of value when used as a part of a broader investment and spending plan.

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Introduction

Uncertainty about potential longevity creates risk for those who must rely on financial assets to generate income in retirement. If retirees spend too much of their resources early on, they risk being forced to accept a lower standard of living in their later years. If they spend too little, they may experience an unnecessarily low standard of living throughout retirement and risk leaving a significant unplanned bequest.¹

Income annuities are a form of insurance that reduces financial uncertainty related to potential longevity. Almost everyone is familiar with life insurance, which pays benefits in the case of a short lifespan. An income annuity is, fundamentally, simply a reverse form of life insurance: It pays benefits in the event of a long lifespan.

Although the operation of the product is seemingly simple, the issues that must be considered in evaluating annuitization are highly complex. The psychological and practical benefits offered by the promise of regular, guaranteed income payments come with significant financial costs and some risks, which investors need to fully understand and carefully consider. The costs include potentially high provider fees, loss of access to assets, and tax disadvantages relative to other funding mechanisms; the risks include the possibility of leaving a diminished estate.²

In this paper we look at how those costs and risks could affect the annuity decision for retirees in various circumstances. To provide context, we first give a broad overview of annuities, focusing on the way they operate and their potential use in managing longevity risk. The paper goes on to examine annuity risks and costs, including both explicit charges and those that are less obvious, such as illiquidity and potential tax impact. It then describes the results of our scenario analysis, which focused primarily on the question of how income annuities could help retirees sustain

desired spending levels over many years. We also examined the potential impact of an annuity purchase on a retiree's estate.

Our analysis suggests that investors must be willing to pay potentially significant insurance and tax costs, in addition to sacrificing some investment liquidity, in order to obtain the benefit that income annuities provide. However, if these costs and risks are acceptable, if the potential for long life is significant, and if the prospective value of systematic lifelong payments is high, income annuities can be useful as a part of a complete financial plan.

Who should and should not consider annuitization

The analysis that follows is very detailed, and provides a great deal of background on how annuities operate and where annuity costs come from. We can summarize much of the content in four statements:

- 1. The longer one expects to live, the higher the implicit rate of return on an income annuity.** Like all forms of insurance, annuities “pay off” only if the risk they insure against is realized. For an annuity to make sense, an investor must believe there is a significant possibility that he or she could live well past the life expectancy of the average annuitant—keeping in mind that the average annuitant lives longer than the average person in the U.S. population.³
- 2. Those in poor health generally should not consider annuitization.** People whose life expectancy is short because of poor health do not ordinarily receive higher annuity payments to reflect this situation. Annuities are therefore significantly more costly for them relative to the anticipated benefit. Recently, a few providers have begun to offer health assessments that could lead to higher payouts for those with demonstrably poor health, but this practice is still rare.

1 The potential for life-annuity arrangements to provide significant economic value to risk-averse investors without bequest motives in a basic life-cycle model was demonstrated in a seminal article by Menahem Yaari (1965). Economists have subsequently shown that at least partial annuitization may add value even when many of the restrictive assumptions of this simplified modeling framework are relaxed (Davidoff, Brown, and Diamond [2005]).

2 Assuming that no offsetting estate planning is undertaken.

3 See Brown et al. (2001) for a discussion of annuitant versus population mortality.

3. **Income annuities are appropriate only for those who can afford to permanently lose access to some of their wealth.** Income annuities are generally illiquid and irreversible, so the purchaser must retain sufficient liquid assets to meet unforeseen needs. Because of this need for liquidity, and because virtually all investors already have significant annuity income in the form of Social Security, only a fraction of liquid financial wealth should be considered eligible for annuitization.
4. **Compared with a program of systematic withdrawals from an investment portfolio, annuities can result in a significantly higher tax cost for investors in higher brackets.** This is because annuity payments are treated as regular income for taxation purposes, regardless of whether the source is realized capital gains, interest income, or dividend payments (and leaving aside any untaxed “return of capital” to the annuitant).

The nature of longevity risk

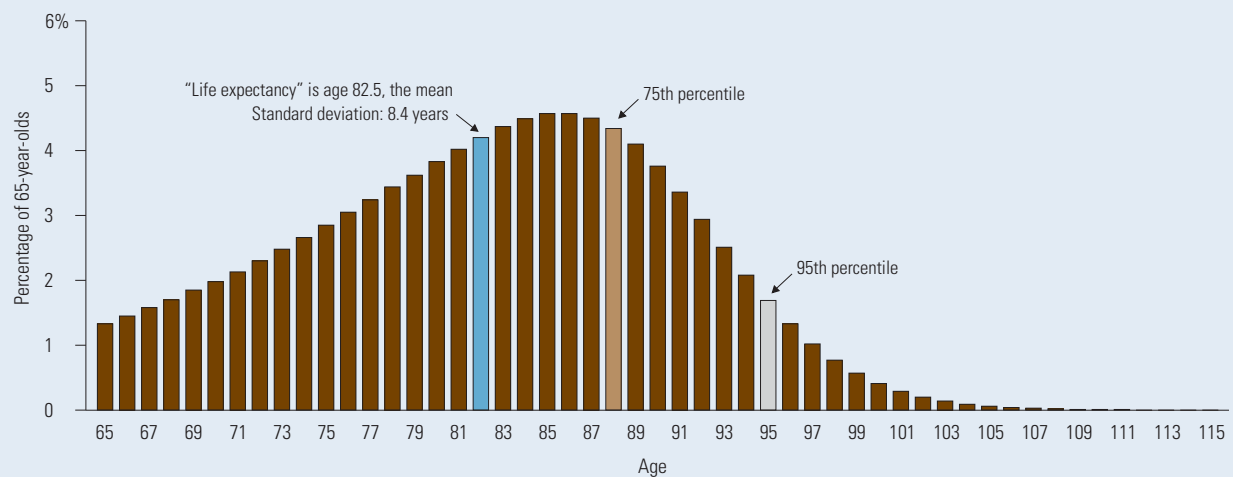
The first step in understanding annuities is understanding longevity risk, which arises from the simple fact that the human lifespan is uncertain. As retirement approaches, many investors perceive that the relative importance of this uncertainty increases.

Idiosyncratic longevity risk:

Lifespans for individuals and couples

Figure 1 illustrates longevity risk as confronted by a typical 65-year-old male retirement plan participant in 2007. It shows the estimated distribution of lifespans among such participants, based on data from large pension plans assembled by the Society of Actuaries (SOA).⁴ Age at death is shown along the horizontal axis, and a probability measure of the frequency of deaths is shown along the vertical axis. These data show that a healthy male participant at age 65 could expect, with roughly 50 percent probability, to live to age 82 or beyond. From a statistical viewpoint, the participant’s *life expectancy* would be 82—the mean among the possible lifespans in the chart.⁵

Figure 1. Distribution of lifespans for male retirement plan participants aged 65 in 2007

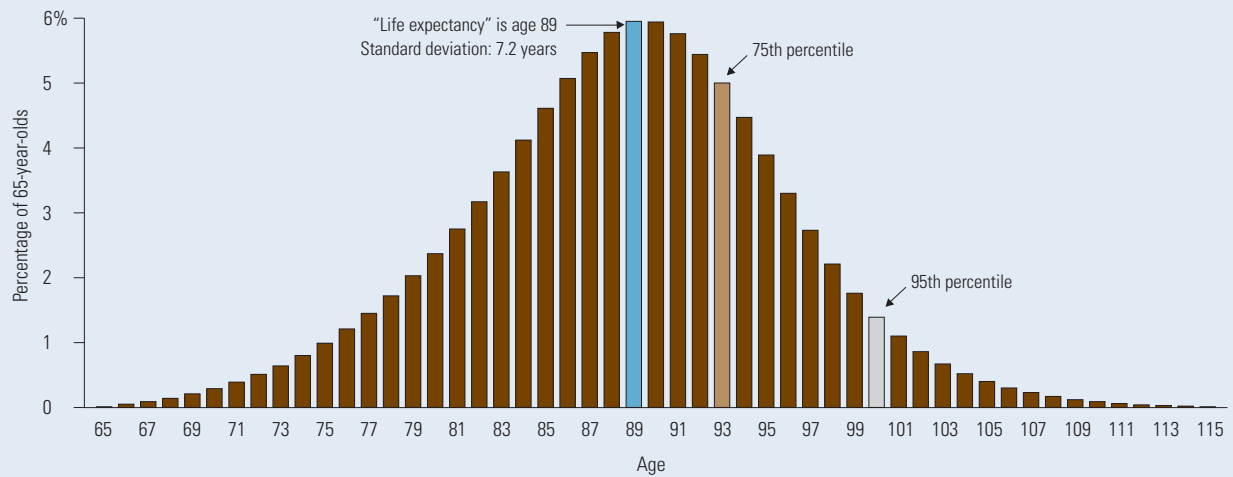


Source: Authors’ calculations based on data from the Society of Actuaries RP-2000 mortality table.

4 Data are from the SOA’s RP-2000 table adjusted to reflect a 65-year-old in 2007. We used the SOA data rather than overall U.S. population statistics because, in our view, the SOA data more closely reflects the population of investors who possess significant retirement assets and might realistically consider income annuities. On the other hand, we drew on general-population data to obtain the rate of mortality improvement used in adjusting the RP-2000 data for 2007.

5 Life expectancy is commonly defined as the mean age that individuals in a given population are expected to attain before death.

Figure 2. Distribution of lifespans for couples: Male and female retirement plan participants aged 65 in 2007



Note: This chart is based on data derived from the SOA's data on individual life expectancies. It assumes that each couple consists of a man and a woman; it also assumes that their lifespans are independent. (There is evidence that mortality rates rise at least temporarily following the death of a spouse, but the magnitude of this bereavement effect is unclear. See, for example, Korenman et al [1997].)

Source: Authors' calculations based on data from the Society of Actuaries RP-2000 mortality table.

The data also show, of course, that this “life expectancy” is simply one of many ages that he might reach. In fact, the chance that the 65-year-old will actually die at age 82 is only about 4.2%. The variation that exists around this age—the longevity risk that he faces—is significant in both its size and its implications for planning. In terms of magnitude, the standard deviation of lifespan for 65-year-old men is estimated to be between 8 and 9 years for single individuals.⁶ More than 25% of male retirees will live past age 87, and 5% will live past 95. For females, the likelihood of living to each of these ages is even higher.

For a couple, the picture changes somewhat. **Figure 2** shows the estimated distribution of ages at death for the longest-lived member of a couple, again based on SOA data. The shape of this distribution looks quite different from those of either males or females separately. It much more closely resembles a classic bell curve. The mean is closer to the center, and the standard deviation (7.2 years) is 0.8 year below the equivalent figure for males and 1.1 year below that for females. So even though the mean is higher—on average, at least one member of a couple will make it to age 89—uncertainty is relatively lower than for either gender separately.

⁶ Note that standard deviation does not measure the skewness in the distribution. To adequately assess the uncertainty in the distribution, one must look at the full set of potential outcomes and their probability as a whole.

This important distinction between mean (life expectancy) and the range of possible variation around that mean (the potential to live far longer or die much sooner than expected) is often missed when longevity issues are discussed in the popular press. For example, it is true that women face greater longevity risk than men. But this is not because women can expect to live longer on average; rather, it is because they display more potential variation in lifespan than men do. Likewise, the members of a couple can be said to face less longevity risk than a single person, despite the fact that the couple expects greater longevity (at least for one member). This results from the diversification of longevity risk within the couple, and a lower level of uncertainty regarding the length of the period they must plan for.⁷

Aggregate longevity risk:

Broad shifts in mortality patterns

In addition to the uncertainty in lifespan that is implied by these data, another type of longevity risk is important. This is the risk that *everyone* might live longer than expected—i.e., the risk that mortality projections could understate the true distribution of lifespans going forward. For example, a medical or genetic advance could occur, enabling people to live for ten more years in retirement on average, improving their physical health but increasing the risk to their financial health. Such aggregate risk cannot be diversified away in a risk-sharing arrangement; however, it can be transferred to someone else through a financial contract. The entity accepting this risk must, of course, either hedge the risk or possess the financial resources necessary to fulfill its commitments should the unexpected event occur.

Through the income annuities that they provide, insurance companies, pension funds, and state and federal governments therefore play two roles: They provide the means for efficient diversification of idiosyncratic longevity risk through pooling, and they offer to accept and bear aggregate longevity risk.⁸

Dealing with longevity risk

The most straightforward way to deal with either kind of longevity risk is for each individual to bear it alone. Such approaches are often called self-insurance (or “self-annuitization”).

Financial planners and professionals are increasingly recognizing the importance of longevity risk, and they now frequently use analytical tools to help clients find a “safe” spending rate that minimizes the chance of depleting resources late in life. In practice, this means first choosing a long planning horizon (say 30–40 years for a 65-year-old), and then finding the amount of spending that can be supported over that span with satisfactorily high probability. Several recent quantitative studies have used simulation techniques to do this type of analysis; most point to the need to withdraw less than 5% of a portfolio balance in the first year, then adjust that amount for inflation each year thereafter, in order to safely fund withdrawals over periods of 30 years or more.⁹

For those who see no disadvantage in adhering to such a spending level, who desire to maintain considerable liquid wealth, who are comfortable with the idea of leaving any unspent assets in their estate, and who are not worried about horizons longer than 30 years, this solution is simple and extremely flexible. If spending is kept low enough, the risk that it will need to be cut even further late in life can be virtually eliminated. The cost of reducing longevity risk is simply spread throughout retirement via a reduction in spending.

7 The impact of the diversification and sharing of risk across family members is discussed in detail by Kotlikoff and Spivak (1981).

8 Technically none of these organizations truly “bear risk”; instead, their owners or shareholders do. In the case of government entities, the “owners” are the taxpayers. In the case of insurers, the owners are either the company’s shareholders and creditors or its policyholders (in a mutual arrangement). Such sharing of diversified risk across large groups lowers the risk to which any one owner is exposed, which creates significant economic value. See Samuelson (1963).

9 See for example Bengen (1994), Pye (2000), and Ameriks, Veres, and Warshawsky (2001). For a more advanced treatment, see Huang, Milevsky, and Wang (2004).

Annuity definitions

The word *annuity* has come to mean a variety of things, and many consumers are confused about exactly what an annuity is. **Figure 3** provides a basic outline of the different types of annuities.

A basic distinction must be made between *immediate* (or *income*) annuities and *deferred* annuities. A deferred annuity is essentially a tax-favored investment account bundled with the right to purchase an income annuity at a future date. Deferred annuities provide tax-deferred accumulation similar to that offered by a traditional IRA, but can have high costs that significantly erode this benefit. An analysis of deferred annuities is beyond the scope of this article, and we will not discuss them further.¹⁰

An immediate annuity, or income annuity, is a so-called “payout” contract whereby the policyholder, or *annuitant*, is promised a sequence of payments made according to specified rules and conditions in exchange for a lump-sum purchase price. An income annuity is a spending vehicle rather than a saving vehicle. It comes in two flavors: A *term-certain* annuity may involve payments that continue for

only a set period; a *life* annuity offers payments that continue as long as an annuity owner is alive to receive them.

This paper is concerned exclusively with income-generating life annuities, in which payments are made to one or more annuitants as long as they are alive. We focus solely on life annuities because they are the only annuity products that serve to transfer longevity risk from the purchaser to the annuity provider, directly addressing this key concern of retirees. Throughout this paper, therefore, “annuity” means “income-producing life annuity” unless we specify otherwise.

Within the class of life annuities, a further distinction exists between fixed annuities, which promise a certain dollar amount at each point in the future, and variable annuities, which promise to yield an unknown (but formula-based) amount via payments that will fluctuate depending on asset returns over time. Thus, fixed annuities provide “rate of return” insurance, while variable annuities do not. However, both types of life annuity provide “longevity insurance” by promising payments regardless of how long an annuitant lives.

Figure 3. Annuity taxonomy

Categorization		Description		Function
Income annuities	Life annuities	Fixed	The standard, plain-vanilla income annuity. A fixed amount is paid periodically as long as the annuitant lives.	Rate-of-return and longevity insurance.
		Variable	The annuitant chooses the investments and receives formula-based income payments until death.	Longevity insurance only.
	Term-certain annuities	Fixed	A fixed amount is paid to the annuitant, or to the annuitant’s estate or beneficiaries, for a fixed period.	Rate-of-return insurance only.
		Variable	The annuitant chooses the investments and receives formula-based income payments for a fixed period.	No real insurance function.
Deferred annuities	Fixed	An option to buy an income annuity at a later date, using tax-deferred savings that grow at a fixed rate to do so.	Limited rate-of-return and longevity insurance.	
	Variable	An option to buy an income annuity at a later date, using a variety of tax-deferred investments to do so.	Limited longevity insurance.	

There are also gift and charitable-remainder annuities, as well as a variety of options and riders that can be added to these contracts at a cost. This paper focuses only on the most basic, standard arrangements for life annuities as described above.

Source: Vanguard Investment Counseling & Research.

¹⁰ For an analysis of deferred annuities as savings vehicles, see Milevsky (2001).

But for those who find the strategy of reduced spending unattractive, and who are comfortable sacrificing at least some investment liquidity, a different solution may be desirable. A mechanism that allows them to manage longevity risk by reducing their level of liquid wealth, rather than their periodic spending, could make them better off. Income annuities aim to provide this solution.

How do annuities work?

How can an annuity provider promise to make payments potentially far in excess of the original purchase price? This is possible because of the way annuities are structured. Simply put, these contracts are designed to let a provider use the assets of those whose lives are shorter than expected to finance payments to those whose lives are longer than expected.

This implicit transfer of resources to living annuitants during each period they survive constitutes a “longevity credit” that has the potential to make the rate of return on an income annuity higher than the rate that one could receive from a nonannuitized investment—*if* the annuitant lives long enough.

The price of an annuity

Theoretically, the price of a life annuity is based on a simple present-value calculation using a set of discount rates and a set of assumptions about longevity. (See Appendix A for the basic formula.) Insurers set the prices of annuities based on their assessment of the longevity risk of a prospective purchaser and a rate of return that they believe they can achieve. Purchasers, on the other hand, value annuities based on their personal assessments of the longevity risk they face and of the rate of return that they might achieve on their own. These numbers may be substantially different from those used by the annuity provider. This difference represents an expected cost (or premium) that any prospective purchaser must assess when making a decision about investing in an annuity.

Fixed versus variable payments:

What’s a guarantee worth?

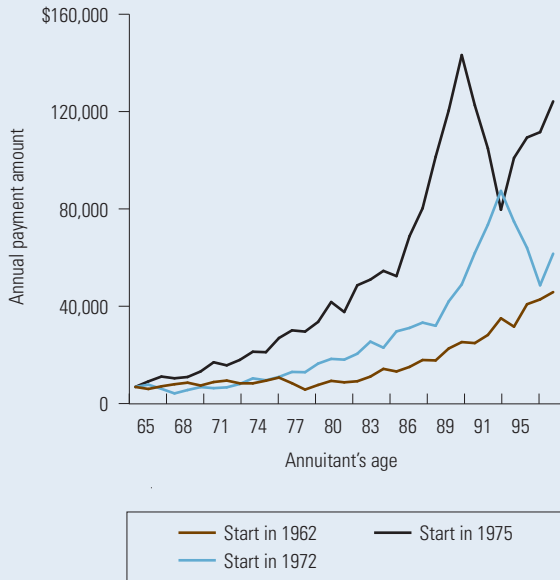
Many retirees recognize that a guaranteed level of income does not equate to a guaranteed lifestyle. Inflation and other adverse developments can hamper the ability of those on a fixed income to maintain their living standards over time. In fact, because a person or family’s standard of living is linked to the purchase of a specific, unique set of goods and services, there is no income source in existence that can truly guarantee to preserve it indefinitely.¹¹

Indeed, it is unclear what value (besides the psychological one) is truly offered to retirees by guarantees of fixed dollar payments over a lifetime. Given ongoing variability in both prices and spending needs, many people might do better by continuing to share in the risks and returns of a well-chosen and diversified set of investments as a resource for their cash flow. Compared with fixed payments, certain assets may be more volatile but also may provide a far better means to hedge spending risks such as inflation over long periods. In addition, retirees naturally vary in their ability to tolerate the ups and downs of financial markets over time. While some may strongly desire very low volatility in their investments and spending, others may prefer some exposure to such volatility if it gives them a reasonable expectation of higher average investment returns.

That kind of exposure can be provided by variable income annuities, in which payment levels are not guaranteed. With these products, the assets used to purchase the annuity are held in investments chosen by the annuitants and may have an uncertain rate of return. The risks and returns associated with the investments are passed through to annuitants through the use of the variable annuity payment formula (described in Appendix A).

¹¹ Social Security payments increase with inflation and come close to providing a consumption floor. However, if retiree expenditure patterns differ from those used to compute consumer price inflation, Social Security benefits will not necessarily preserve living standards. A truly “guaranteed” level of income would have to be indexed to the pattern of spending that a particular individual has every year.

Figure 4. Annual income from three hypothetical variable annuities starting at different dates, with payments based on stock market returns



Past performance is no guarantee of future returns. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.

Notes: Each hypothetical annuity costs \$100,000 and carries an assumed interest rate of 3.5%. Annuity payments are calculated according to the formula in Appendix A, assuming an annual insurance cost of 50 basis points. Market returns are represented by the Standard & Poor's 500 Index through 1970 and the Dow Jones Wilshire 5000 Total Market Index thereafter.

Source: Vanguard Investment Counseling & Research.

The purchaser of a variable annuity specifies the way the assets will be invested and agrees to an “assumed interest rate,” or AIR. If the investments do better than the assumed rate, the annuity payments will rise proportionately; if the investments do worse than the AIR, the payments will decrease. In this way annuitants can take on as much or as little market risk as they want, choosing stock investments for greater risk or fixed income investments for less risk. The annuity provider guarantees only that annuitants will receive a payment as long as they live; it does not guarantee the amounts of the payments.

Figure 4 uses three hypothetical scenarios to show how variable payments can evolve over 30 years. The scenarios are based on actual returns for the U.S. stock market since 1962. In each case, an individual uses \$100,000 to purchase a variable annuity based on the performance of the broad stock market and an AIR of 3.5%. One scenario starts in 1962, one in 1972, and the third in 1975. In all cases, the first payment is exactly the same: \$6,836. For the investor starting in 1962, the smallest subsequent annual annuity payment would have been \$5,742, occurring when he or she was 78 years old. Over the 30 years, this investor’s annuity income would have averaged \$14,373 a year, with a standard deviation of \$9,414. For the investor starting in 1972, the smallest annual payment would be \$4,171, occurring at age 68; this investor’s yearly payments average \$26,299, with a standard deviation of \$23,681. As the data show, the volatility of the payment stream is similar to that of the overall stock market.

Regarding Figure 4, it’s worth noting that if the 1962 annuitant had instead invested the \$100,000 in the broad stock market and elected to take exactly the same sequence of payments, he or she would have spent all of the money after 21 years (at age 86). The same would be true for the 1972 annuitant; for the 1975 annuitant, the money would have run out after 20 years (at age 85).

The unique promise of life annuities

The promise of guaranteed payments over a period of time is not unique to annuities. One can receive guaranteed periodic payments from government bonds, municipal bonds, or certificates of deposit, for example.

The feature that truly sets life annuities apart from alternative instruments is the promise that the payments will continue as long as one is alive. Life annuities are unique not because they promise guaranteed returns (rate-of-return insurance), but because they promise to last for a lifetime (longevity insurance).

For the prospective annuitant, the question is whether this lifetime guarantee is worth its price. In the following section, we look at annuity costs and highlight aspects that any purchaser should consider.

Measuring annuity costs

In this section, we look at the cost of annuities from several perspectives. We describe the different ways insurers and purchasers estimate annuity value. We look at ways to compare the cost of annuitization with the cost of investing the same assets directly in an alternative portfolio. In addition, we discuss the impact of taxes and point out some less-tangible considerations that purchasers should consider.

Although insurers provide some financial data, the fact that investment returns, administrative fees, and longevity forecasts interact to establish an annuity price can make it very hard to analyze the built-in costs. Because insurers generally do not release detailed information on how actual longevity experience compares with their original forecasts for annuitants, there is no way to know whether systematic over- or underforecasting of mortality rates occurs. Systematic underforecasting would lead to higher expected revenues for the provider, and could thus be considered a cost or load; systematic overforecasting would do the opposite.

Because of these unknowns, it may be most useful to consider annuity costs from a different angle—namely risk, an area in which the buyer may possess information that the insurer does not have. At least in theory, prospective buyers can measure cost by estimating what an annuity's price should be for them based on their best unbiased assessment of the risk they actually face, and then comparing this estimate with the insurer's all-in price calculation. (This risk-based comparison will not, however, capture any potential cost related to the loss of future liquidity; such costs are more difficult to define and measure.)

A gap between the buyer's estimate of the cost and the price the provider sets can arise from several sources. First among these could be any explicit charges levied by the insurer. Such charges include the mortality and expense (M&E) charges intended to compensate the insurance company's owners for bearing the risks in the contract—in particular, the nondiversifiable longevity risk. Typical M&E charges can be high, often above 1% annually for a variable payout annuity.¹²

The second, but perhaps more significant, potential cost to the buyer is the implicit one arising from differences between how the buyer and the provider assess risk. Such costs exist in all insurance markets, because any risk may be assessed very differently by an individual and an insurer. As a result of differences in the perception of risk, a purchaser may see insurance as overpriced (the insurer sees a greater risk than the individual) or underpriced (the insurer sees less risk than the individual).

This consideration leads to another potentially very important factor in annuity pricing. It is reasonable to think that insurance for a particular risk is much more valuable to those individuals who are aware they have high exposure to that risk. If so, these higher-risk individuals should be more likely to purchase insurance (so long as prices can't be fully adjusted to reflect all real differences in risk exposure). This phenomenon is called adverse selection. Several studies attempting to determine whether adverse selection is important in annuity pricing have concluded that this effect is present in annuity markets (see Brown, Mitchell, Poterba, and Warshawsky [2001]). This evidence suggests annuities have higher cost for those people who have only an "average" or lower risk of living a long time.

¹² As of January 31, 2008, the average M&E expense for variable-payout annuities was 1.19%, according to Morningstar, Inc.

Table 1. 'Money's worth' calculations for fixed income annuities purchased in 1995 and 1998, based on purchasers' age

	1995	1998
Men		
55	0.934	0.970
65	0.927	0.970
75	0.913	0.966
Women		
55	0.937	0.950
65	0.927	0.952
75	0.919	0.940

Source: Vanguard Investment Counseling & Research.

'Money's worth' for annuities

The total cost, explicit plus implicit, can be estimated by computing what is called a "money's worth" measure.¹³ A money's-worth analysis measures total annuity costs by comparing the prospective return with what might be earned from a hypothetical cost-free alternative. It shows the annuity's value as a fraction of the full present value of the costless alternative. Thus, a money's-worth ratio of 0.95, or 95%, indicates that the annuity has an implicit cost equivalent to 5% of the initial purchase price.

Several researchers have calculated estimates of money's-worth ratios for fixed income annuities offered in the United States. Their estimates are summarized in **Table 1**.¹⁴ These data estimate present values of annuity payments relative to average actual annuity prices, based on Treasury yield curves at the times of the studies (1995 and 1998) and an assumption about longevity patterns.

The data indicate, for example, that a 65-year-old male buying an immediate annuity in 1995 received 92.7 cents in present value for every dollar paid. By 1998, the ratio was substantially higher: A 65-year-old male received 97.0 cents in present value for every dollar paid.¹⁵

The fact that these numbers are less than 1 does not mean that annuities are a "bad deal." The calculation is based on a hypothetical cost-free alternative; comparing this mythical product to a real-world annuity should be expected to produce a ratio below 1. The issue is whether these money's-worth rates are too high or too low relative to available substitutes. One way of making that judgment is to examine a similar money's-worth measure for a hypothetical, but plausible, alternative spending strategy that does not involve an annuity. **Table 2** provides such estimates.¹⁶

Table 2. 'Money's worth' calculations for payments obtained by liquidating an alternative investment, with varying expense ratios

Years	Annual expense charge		
	0.25%	0.75%	1.25%
5	99.5%	98.6%	97.7%
10	99.0	97.1	95.2
15	98.6	95.7	92.8
20	98.1	94.4	90.8
25	97.7	93.3	88.9
30	97.4	92.3	87.3

Notes: The hypothetical investment is assumed to return 5% each year. Payments are assumed to be level.

Source: Vanguard Investment Counseling & Research.

13 See Brown et al. (2001) for details.

14 These data pertain to companies listed in *Best's Review*, which reports the results of an annual survey of insurers offering single-premium immediate annuities. See Brown et al. (2001), Chapter 4, and Brown, Mitchell, and Poterba (2002) for details.

15 The assumptions used to price the "costless" annuity are critical. If an individual could obtain a guaranteed rate of return higher than that implied by the Treasury yield curve, the money's-worth ratio would be lower. Likewise, if the individual believed his or her longevity prospects were worse than those of the population of individuals who have actually purchased annuities, the money's-worth ratio would be lower. See Brown et al. (2001), Chapter 4, for details.

16 We ignore taxes in this treatment. There may be different tax implications depending on the alternative investment strategy. We also ignore the fact that, by spending at a rate that liquidates an investment over any set period, an investor always runs a risk of exhausting his or her assets before death. As discussed in detail previously, this risk can be decreased by extending the drawdown period significantly beyond life expectancy, but it cannot be eliminated. Although annuities provide a guarantee against this risk, they also generally involve a loss of liquidity, which an alternative investment may not.

The data show that, if the alternative investment involved annual expense charges of 0.25% and provided a 5% yearly return (before expenses), an investor who liquidated the holding in equal installments over ten years would receive 99% of what he or she would get if there were no cost at all. Relative to such a low-cost investment strategy, even in 1998, annuities were significantly more expensive. However, the picture is different for higher-cost alternative strategies: The same calculation applied to a strategy with a 1.25% annual expense charge (close to the actual 2007 industry average for retail mutual funds¹⁷) yields a money's-worth ratio of 95.2% relative to a costless alternative.

The higher the expenses, and longer the period used to liquidate a portfolio, the lower the money's-worth value of the investment. For example, Table 2 shows that liquidating a portfolio with expenses of 1.25% evenly over a 20-year period has a money's-worth value of 90.8%. This is comparable to the level of cost embedded in the typical annuity. The money's-worth ratio for withdrawing assets over 15 years (92.8%) is almost identical to the money's-worth ratio of a fixed annuity in 1995 (92.7%). As shown in Figure 1, life expectancy for a male 65-year-old retirement plan participant is 17.5 years, which is between the 15- and 20-year spans. So the expected cost of pursuing a systematic withdrawal strategy designed to exhaust the investment at life expectancy, with expenses roughly equivalent to what is charged by the average mutual fund, is similar to the cost of pursuing the annuity strategy. And in 1998, the cost of the withdrawal strategy was actually slightly higher.

For retirees, these examples illustrate the importance of comparing costs when considering *any* type of investment. Annuity purchases always include some insurance cost, while alternative investment strategies may not. Over time, however, it's easy to see that a high-cost investment may prove more expensive to own than a low-cost annuity, and of course, the investment does not provide the insurance benefit of the annuity.

Illiquidity

One significant annuity cost that is *not* incorporated in the money's-worth measure is loss of liquidity. In all current life annuity arrangements, annuitants must irreversibly commit to leaving at least some assets in the annuity pool. (Typically, the purchaser is first given a brief "free look" period during which he or she can decide to withdraw.) Some annuities do offer what are called refund features, which have the potential to return some value to heirs upon an annuitant's death. Some providers also allow living annuitants to get a portion of assets back if they have bought a refund option. However, the principle that allows annuities to operate—the implicit transfer of assets from those who die sooner than expected to those who die later—requires that some assets be left in the pool permanently by those whose lives are relatively short. This means that commitments must be firm.

The loss of flexibility that annuities require can represent a significant cost to investors who wish to maintain liquidity. Unfortunately, the cost of illiquidity cannot be easily assessed, and will vary by investor and wealth level.

Provider risk

The existence of provider risk is not a direct cost of annuities, of course. However, the risk is something that all prospective purchasers should be aware of, and it thus has a bearing on the way they will assess an annuity's value. (While annuities are subject to provider risk, an alternative investment may be subject to investment risk.) The guarantees embedded in an annuity contract are conditional on the financial strength of the annuity provider. The financial status of insurance providers is regularly reviewed and analyzed by regulators, and is further monitored by ratings agencies such as Moody's Investors Service, Standard & Poor's, and A.M. Best. Nonetheless, there is always some risk that an insurance company will fail and its policyholders will face a reduction in annuity payments. Large insurance company failures have been extremely

17 1.22% in 2007, according to Lipper Inc.

Alternatives to commercial annuities

Several alternatives promising annuity-like income exist, including charitable gift annuities, charitable remainder annuity trusts, charitable remainder unitrusts, and private annuities. Historically, such arrangements have been used primarily by wealthy individuals whose objective is a tax-efficient transfer of assets out of their estates to heirs or worthy causes.

These types of arrangements can be very useful, especially for those holding assets with significant unrealized capital gains, as they generally make it possible to avoid both capital gains taxes and estate taxes on the assets that are employed. However, if a retiree is mainly concerned not with estate issues

but with maintaining a long-term source of income, the creditworthiness of the annuity provider is of heightened importance. As mentioned earlier, insurance companies can credibly make annuity promises in part because they serve large numbers of annuitants and can confidently project mortality patterns within the pool. Other entities may lack such a large pool of annuitants, and therefore possess no reliable way to forecast revenues or liabilities. As a result, the payment promises from these entities can be significantly more risky. While there are a variety of ways for providers to handle such risks, detailed disclosure of their financing methods often is not available, and regulatory supervision of such entities may not be as thorough as it is for commercial insurers.

rare, but have occurred. For example, after California regulators took control of Executive Life in 1991, 44,000 retirees received only 70 percent of their promised annuity payments for a period of 13 months.¹⁸

Insurance companies are regulated at the state level, and all 50 states have guaranty laws and a guaranty association fund designed to protect policyholders if an insurer becomes insolvent.¹⁹ In most states, these guaranty funds protect the present value of policyholder contracts up to \$100,000 (and in some cases \$300,000). However, the rules regarding eligibility for payment from guaranty funds vary from state to state, and the payments can be subject to significant administrative delays.

Taxes

Income tax treatment can have a significant impact on the attractiveness of annuity payments as a source of income in retirement. The tax code can put annuities at a disadvantage relative to other means of drawing from assets for several reasons.

Generally speaking, annuity payments are subject to income tax. If an annuity is purchased with taxable assets, rules in the tax code dictate the amount of each payment that will be subject to taxation. In general, the intent of these rules is to allow the annuity's purchase price to be returned, tax-free, to the annuitant in roughly equal installments over his or her life expectancy. The amounts in excess of this "return of capital" are taxed as income in the year they are received. Should the retiree live long enough to recover the entire cost of the annuity, subsequent payments are 100% taxable as income.

This treatment can place after-tax income annuities at a disadvantage relative to other forms of distributions in taxable accounts. The primary reason is that income tax rates are typically higher than capital gains tax rates. For example, an individual who invests assets in a stock mutual fund will pay capital gains tax rates on the long-term gains realized by the fund, on qualifying dividends, and on any price gains for fund shares held longer than one year before being sold. If that individual instead

¹⁸ Residents of a few states received reduced payments for a longer period. See U.S. General Accounting Office (1993).

¹⁹ These guaranty association funds are not backed by the state nor are they part of the state government. The funds are supported collectively by contributions from insurers operating in each state.

invests the assets in an annuity, income taxes will be due on all forms of return (above the annuity's purchase price). As of 2008, long-term capital gains are taxed at 15%, while income tax rates range up to 35%, so this can represent a significant cost.

For annuities purchased using pre-tax amounts in either a qualified retirement plan or a traditional IRA, 100% of all payments are taxed as income.²⁰ This treatment is not unique to annuities; the same would be true for any other distribution of such tax-deferred assets. The question here is whether, absent an annuity, an individual might have been able to pay less in taxes while still meeting spending goals by relying on required minimum distributions (RMDs) from the tax-deferred accounts. Even if tax-deferred assets are used to purchase an annuity, RMDs still must be taken from any remaining money in the accounts. The combination of taxable annuity income and taxable RMDs may result in more tax owed than would have been the case if the individual relied solely on RMDs.

Finally, a few states levy a "premium tax" on amounts used to purchase income annuities.

Key considerations regarding annuity costs and risks

Investors contemplating an annuity purchase should of course review the cost and fee information provided by the insurance company. They should make sure they understand how these stated expenses will apply to the purchase amount and also to the promised future payments. In addition, investors should be aware of less-obvious costs and risks, and should evaluate their impact as far as possible.

Chief among these less-obvious factors are illiquidity, provider risk, and taxes. The first two can be assessed only in individual terms, with each investor making a personal decision about their importance. The impact of the third factor—taxes—can be measured to an extent, perhaps with the assistance of a financial advisor or tax professional.

In the next section, we report on our use of financial simulations to look at the tradeoffs involved in the selection of various retirement income strategies.

Analysis of the financial consequences of annuitization: Benchmark simulation

To help prospective purchasers understand the costs and benefits of annuitization, we conducted a simulation analysis to see how owning an annuity might help—or hinder—an investor under various circumstances in an extended retirement. In this section we describe some of the key results.

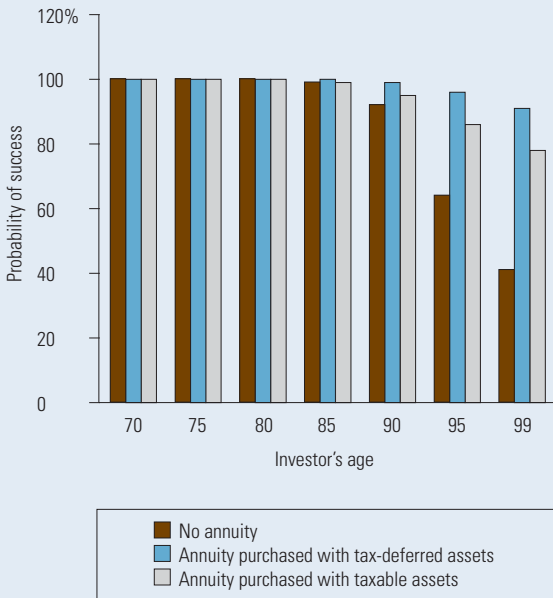
The analysis compared two income strategies incorporating annuities with a strategy based on simply withdrawing money from a mutual fund portfolio. These strategies were tested in 5,000 scenarios employing simulated market data and inflation rates. The two annuity strategies differ solely in the source of the assets used to purchase the annuities. One strategy uses taxable assets for the purchase; the other uses tax-deferred assets.

Our broad assumptions were as follows:

- In all scenarios, we assume the investor is an individual entering retirement with \$1,000,000 in assets, divided equally between taxable and tax-deferred accounts. (For ease of discussion we will assume this investor is male; quantitative results would differ for females as annuity payments and life expectancies differ.)
- The retiree wants to spend \$45,000 a year, adjusted for inflation, for the rest of his life.
- In the annuity scenarios, the retiree uses 50% of his assets to buy two annuities (one fixed, the other variable) and holds the remainder in a diversified investment portfolio. We do not endorse or recommend 50% as an optimal fraction; we merely use 50% to illustrate the impact of a substantial level of annuitization. Our simulation assumes that 35% of the annuity allocation goes to the fixed income annuity and 65% to the variable annuity.

²⁰ Withdrawals taken from a tax-deferred annuity before the investor reaches age 59½ may be subject to both ordinary income tax and a 10% federal penalty tax.

Figure 5. Rates of success at meeting required expenses over 30 years, starting at age 70 (benchmark simulation)



Note: The annuity investment is assumed to be 35% in a fixed-payment annuity and 65% in a variable annuity. See Appendix B for details of the benchmark simulation assumptions.

Source: Vanguard Investment Counseling & Research.

- For both his mutual fund holdings and his overall portfolio including the income annuity, the retiree’s investment allocation is 70% fixed income and 30% stocks—a typical “income-oriented” portfolio. We assume that 20% of the total unannuitized portfolio return in each year is in the form of realized short-term capital gains.

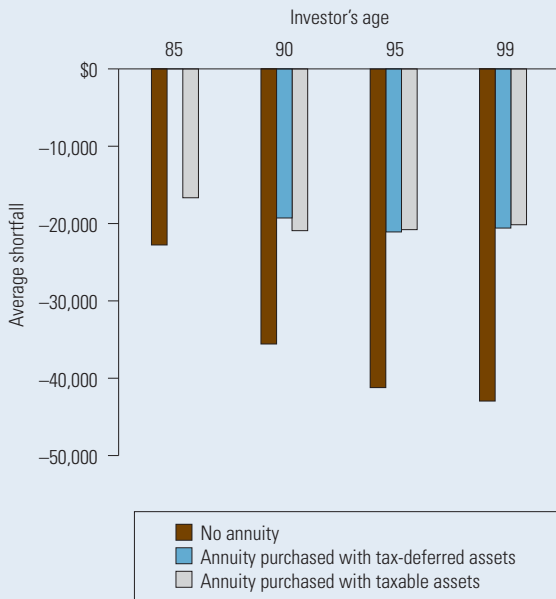
- The analysis assumes that there are no investment management costs (though the relative comparison of the strategies would still be valid if investment-related costs are equal for both unannuitized and annuitized wealth). For the variable-annuity scenarios, we assume that insurance-company charges reduce the returns credited to the retiree by 50 basis points (0.5 percentage point) a year. In the case of the fixed annuity, we assume insurance charges are embedded in the annuity payout.

Full details of our assumptions and results are provided in Appendix B, along with more extensive discussion of specific findings.

Drawing from the results of the analysis, **Figure 5** illustrates success rates for a hypothetical 70-year-old who desires to meet annual expenses of \$45,000, adjusted for inflation, over 30 years starting in 2007. We show the success rates under three circumstances: (1) The investor has no annuity; (2) the investor buys an annuity using tax-deferred assets; (3) the investor buys an annuity using taxable assets.

In each case, the success rates are above 99% until after the investor reaches age 85. Once that age is reached, however, the success rates fall much faster if the investor has not bought an annuity. At age 95, the investor has only a 64% chance of meeting the spending target without an annuity; with an annuity, the chance is 89% or even higher. This same pattern holds for an investor who starts at age 65 and one who starts at 75 (see Appendix B).

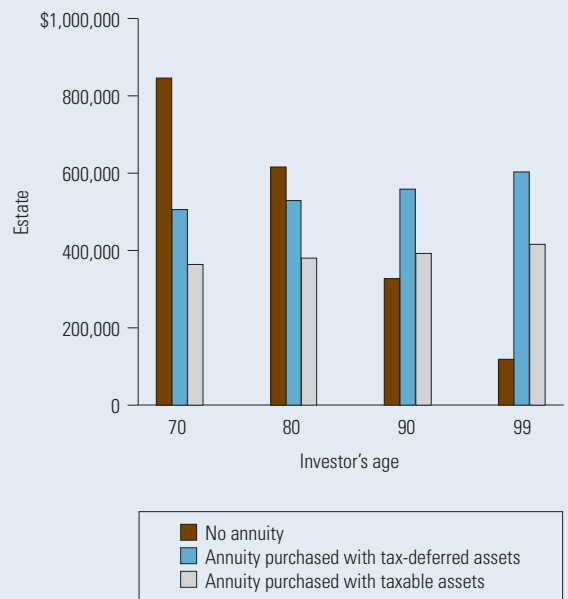
Figure 6. Degrees of shortfall in cases when spending goals are not met (benchmark simulation)



Note: See Appendix B for details of the benchmark simulation assumptions. At age 85, there is no shortfall for an annuity purchased with tax-deferred assets.
Source: Vanguard Investment Counseling & Research.

When the retiree’s income falls short of the \$45,000 spending goal, how far short is it? **Figure 6** shows the answer to that question for a retiree starting at age 70, displaying the average shortfall at four ages under each of the same three circumstances. The existence of an annuity clearly cushions the annuitant in those circumstances when money is exhausted in an unannuitized portfolio.

Figure 7. Year-end estate levels at various ages (benchmark simulation)



Note: See Appendix B for details of the benchmark simulation assumptions.
Source: Vanguard Investment Counseling & Research.

Figure 7 illustrates another aspect of the annuity decision: the potential effect on the investor’s estate. If the investor buys an annuity at age 70 and dies within ten years, the estate will be much smaller than if there were no annuity. However, if the same investor survives to age 90 or beyond, the estate will be greater *with* the annuity, according to our analysis. The reason is that, in the intervening years, an investor who lacked annuity income would have had to draw down the portfolio more rapidly to meet spending needs.

In summary, several points should be made about the data in these tables:

- In all cases, the presence of income annuities significantly increases the average level of taxable income that a retiree receives in retirement, while significantly reducing the average level of liquid (and bequeathable) wealth in early retirement.
- In all cases, in circumstances where the unannuitized portfolio ends up exhausted at some point, spending shortfalls are significantly lower when the annuity is present. At most ages when portfolio assets are exhausted but an annuity is present, the shortfalls are at least 35% lower than when no annuity is present.
- “Bequest breakeven” points (the age at which the annuity cost is fully recovered, in the sense that the average estate of an annuity buyer is at least as large as that of a nonbuyer) are highly dependent on the age at which an annuity is started and other assumptions. In these analyses, it is approximately between ages 80 and 85. A clear cost of annuitization is the lower level of liquid, bequeathable wealth that the retiree would hold at least until reaching the age of his theoretical life expectancy.
- Whether it is better to use taxable or tax-deferred assets for the annuity purchase depends on the individual tax parameters and on what “better” means to the investor. In most of the simulated situations we examined, buying annuities with tax-deferred assets appeared to produce better outcomes than buying annuities with taxable assets. However, certain assumptions we used may have influenced this result. For a fuller discussion of the factors involved, see Appendix B.

Overall, the analysis indicates that, for retirees who are willing to give up liquidity and reduce bequeathable assets (initially) in order to anticipate higher sustainable income upon reaching their 90s, income annuities can efficiently achieve the objective.

Other simulations

Under the previous assumptions, which we refer to as benchmark simulation, the annuitant purchased two annuities—one fixed, the other variable. In practice, the vast majority of life annuities people buy are fixed annuities. Therefore, we here look at a case in which the investor uses 50% of his assets to buy a simple fixed annuity, providing a constant lifetime payment. We label this as Scenario 2.

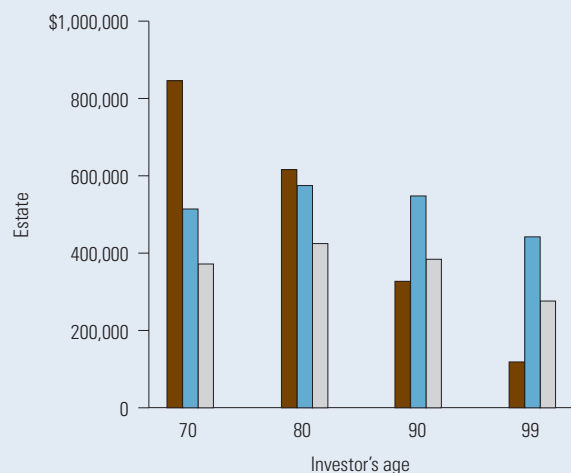
We also looked at a revised spending assumption. In the benchmark simulation, we assumed constant spending of \$45,000 a year, adjusted for inflation. In practice, many retirees may be content to allow their baseline spending to fall slightly in inflation-adjusted terms as retirement goes on. However, investors also may face large, unexpected medical expenses in retirement (primarily as a result of long-term care needs). To illustrate the potential impact of such patterns of behavior and experience, we created a scenario in which inflation-adjusted spending starts at \$45,000 and decreases by 1% annually in the first nine years of retirement; then, in the tenth year, the retiree experiences a health shock that leads to a permanent doubling of real spending. We call this Scenario 3.

Figure 8a and **Figure 8b**, on page 17, show the average estate balance at various ages for someone who starts at age 70 under Scenarios 2 and 3. In each case—as was also true in the benchmark simulation—estates are higher in the early years for a nonannuitized portfolio, but that picture changes at later ages. Again the reason is that a retiree who lacks an annuity will have to draw down his portfolio at a faster rate to meet spending needs in later years.

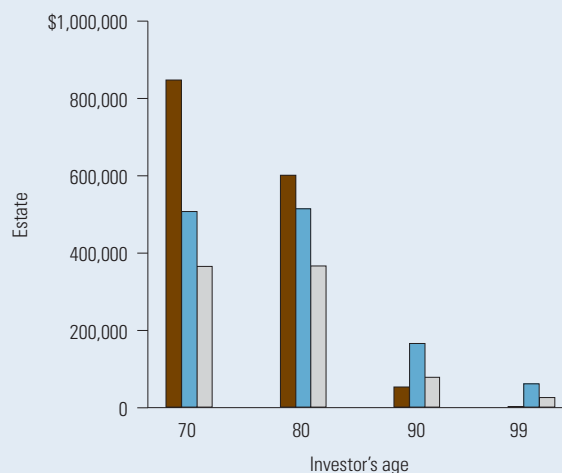
Scenario 2 features one distinctive difference from the benchmark simulation: For the investor with an annuity, the estate increases noticeably between ages 70 and 80. This occurs because the fixed annuity produces a higher payment in the early years than was true in the benchmark simulation. In Scenario 3, with spending levels decreasing during the early years, the estate is predictably larger early on; however, that advantage is erased when the health shock occurs in the tenth year.

Figures 8a and 8b. Year-end estate levels at various ages

Scenario 2: 100% of annuity investment is a fixed-payment option



Scenario 3: Same portfolio as in baseline case; goal declines each year; a medical shock occurs in the tenth year



Legend: ■ No annuity ■ Annuity purchased with tax-deferred assets □ Annuity purchased with taxable assets

Note: Assumptions are the same as for the benchmark simulation, except as noted. See Appendix B for details of the benchmark simulation assumptions.

Source: Vanguard Investment Counseling & Research.

The higher payments early on in Scenario 2 illustrate a primary factor that attracts purchasers to fixed annuities. Under the benchmark simulation, with the annuity investment divided between fixed and variable annuities, the 70-year-old retiree's first-year annuity payment is \$46,124. Under Scenario 2, the first-year payment is \$49,193, giving him about \$3,000 above his spending goal, money that can be saved each year to augment his estate. This higher level of income in early years can be a persuasive psychological and practical factor for people who are reluctant to buy an annuity in the first place.

However, if the true goal is to insure against longevity risk and provide for real income at advanced ages, annuitants should take a broader view. Specifically, they should keep in mind both the erosive power of inflation and the potential

for higher market returns. As time progresses, the value of constant payments will be eroded by inflation; meanwhile, the investor will lack any exposure to the potentially higher returns from stocks that a variable annuity could provide. In addition, the higher annuity income in the early years would have increased taxable income, creating an additional drag. To make these concerns concrete, consider our results for the 70-year-old investor who purchases a fixed annuity with tax-deferred assets: By the time he reaches age 99, his success rate for meeting the spending target is about 86% under Scenario 2, compared with 91% under the benchmark simulation.

See Appendix B for a more detailed discussion of Scenario 3, including a close look at cases in which the spending target is not met.

Conclusions

Income annuities offer retirees a direct method for reducing the significant longevity risk they face. The costs of annuitization arise from several sources: explicit and implicit insurance costs, the loss of investment liquidity, a reduction in bequeathable wealth, and potentially unfavorable tax treatment. Insurance and investment costs can be quickly assessed using a single money's-worth measure, which reveals that average annuity costs are significant but comparable to those of mutual funds with industry-average expenses. Just as low-cost mutual funds can significantly reduce investment expenses, low-fee annuities present an opportunity to obtain the insurance provided by an annuity at a better price.

For those who place a significant weight on maintaining spending levels late in retirement (into their 90s and beyond) and are willing to accept the costs and risks of annuitization in the near term, financial simulations suggest that low-cost income annuities can be of value as a part of a broader investment and spending plan.

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Appendix A. Annuity pricing and payment formulas

Annuity pricing

Annuity pricing can be summarized via a mathematical formula:

$$a_t = c_t + p_{t+1} \frac{c_{t+1}}{(1+r_{t+1})} + p_{t+2} \frac{c_{t+2}}{(1+r_{t+1})(1+r_{t+2})} \\ + \dots + p_T \frac{c_T}{(1+r_{t+1})(1+r_{t+2}) \dots (1+r_T)}$$

where a_t is the annuity price at time t , c_t is the payment due in time t , p_t is the probability that the annuitant(s) will survive to period t , r_t is the net rate of return, or discount rate, from period $t-1$ to t , and T denotes the longest possible lifespan. Often insurers will set annuity prices assuming a constant discount rate, although some will use a complete term structure of interest rates in these calculations, effectively discounting payments over time at a date-specific rate, as in the formula above. Note that this differs from a present-value calculation only by the presence of the p_t terms. Note also that the first payment is assumed to be c_t , meaning that the first annuity payment comes in the same period as the purchase of the annuity.

Although the most typical form of life annuity involves a sequence of fixed payments for life, there is nothing in the definition of an annuity that requires constant fixed payments; all that is needed is a stated rule that will determine the payments to be made in each year. In other words, a stream of payments that increases or decreases by 3% per year is still an annuity, as is a payment that is scheduled to rise by 1%, then fall by 2%, then rise by 3%, etc. Any such pattern is theoretically possible.

The variable annuity payment formula

Calculating payments in a variable income annuity is quite simple. For the initial payment, the insurer does a standard annuity price calculation, assuming level payments, using an assumed rate of return (often selected by the annuitant) for discounting the payments, and the insurer's longevity expectations. The calculation uses the same formula listed above for fixed annuities.

The initial payment is made to each annuitant based on this calculation. But then, each year going forward, payments to all living annuitants change according to the following rule:

New payment = Previous payment \times (1 + realized rate of return – fees and charges) / (1 + assumed rate of return)

The formula works as follows (assuming fees of 1%): If the investments chosen by the annuitant return 8%, and the assumed rate was 3%, the new payment would equal $(1.08 - 0.01) \div 1.03 = 1.0388$ times the old payment, meaning it would rise by about 4%. If, instead, realized returns were –5%, then the new payment would equal $(0.95 - 0.01) \div 1.03 = 0.913$ times the old payment, meaning it would fall by around 9%. Payments are then made at the new level until the end of the next year, when the level may change again based on realized performance. The formula automatically reduces payments in years when investments don't generate the assumed return, and increases them in years when returns are higher than the assumed rate.¹ While it is typical that payment adjustments will occur annually, insurers often allow adjustments in the payment size to be made more frequently.

The formula implies that no matter how long an annuitant lives, income payments will rise or fall each year according to how selected investments perform relative to the assumed net rate of return. It is important to note that the computed value (a_t) of the payment stream is the same regardless of what assumed rate of return is used; the assumed rate simply affects the pattern of payments over time.

¹ It is important to note that the initial payment is set assuming that future returns will equal the assumed rate. In a sense, the annuitant gets an "advance credit" for that rate of return in the initial payment and each subsequent one.

Appendix B. Benchmark simulations and further discussion

Tables 3a–c. Income and spending levels with and without annuities (benchmark simulation)

3a. For an investor starting at age 65

Age	Income/ expense	Taxable portfolio	Tax-deferred portfolio	Estate at year-end	Success rate	Average shortfall	Conditional shortfall
No annuity							
65	0.35	\$470,259	\$521,154	\$845,489	1.00	—	—
70	0.59	306,061	601,558	739,182	1.00	—	—
75	0.56	193,354	592,010	619,601	1.00	—	—
80	0.54	104,210	533,256	488,154	0.99	\$ 20	\$25,443
85	0.49	64,092	388,602	343,886	0.93	2,538	35,748
90	0.38	49,731	225,618	212,176	0.67	13,656	41,182
94	0.29	44,737	127,418	136,478	0.45	23,766	42,946
Annuity purchased with tax-deferred assets							
65	1.05	\$502,163	—	\$502,163	1.00	—	—
70	1.06	494,117	—	494,117	1.00	—	—
75	1.04	482,003	—	482,003	1.00	—	—
80	1.04	471,046	—	471,046	0.99	\$ 8	\$18,961
85	1.05	464,418	—	464,418	0.98	406	20,309
90	0.97	446,324	—	446,324	0.92	1,907	23,149
94	0.99	442,169	—	442,169	0.84	3,608	22,521
Annuity purchased with taxable assets							
65	0.67	—	\$500,539	\$360,388	1.00	—	—
70	0.94	\$ 1,749	484,160	350,345	1.00	—	—
75	0.98	15,995	442,091	334,301	1.00	—	—
80	1.01	39,819	384,379	316,572	0.98	\$ 332	\$18,855
85	1.06	76,421	315,979	303,926	0.90	2,098	21,230
90	1.03	115,786	236,827	286,301	0.77	5,166	22,716
94	1.06	156,350	175,229	282,515	0.68	6,986	22,066

See table note, assumptions, and explanations of column labels on page 23.

3b. For an investor starting at age 70

Age	Income/ expense	Taxable portfolio	Tax-deferred portfolio	Estate at year-end	Success rate	Average shortfall	Conditional shortfall
No annuity							
70	0.64	\$483,434	\$503,412	\$845,891	1.00	—	—
75	0.64	383,141	495,216	739,697	1.00	—	—
80	0.61	279,540	467,179	615,909	1.00	—	—
85	0.59	183,058	409,926	478,205	0.99	\$ 23	\$22,768
90	0.52	120,688	286,727	327,132	0.92	2,903	35,574
95	0.37	86,762	147,508	192,968	0.64	14,928	41,214
99	0.25	68,654	69,404	118,624	0.41	25,514	42,953
Annuity purchased with tax-deferred assets							
70	1.12	\$505,765	—	\$505,765	1.00	—	—
75	1.16	517,668	—	517,668	1.00	—	—
80	1.16	529,065	—	529,065	1.00	—	—
85	1.19	546,360	—	546,360	1.00	—	—
90	1.14	558,653	—	558,653	0.995	\$ 93	\$19,279
95	1.17	576,864	—	576,864	0.96	742	21,084
99	1.22	603,129	—	603,129	0.93	1,498	20,583
Annuity purchased with taxable assets							
70	1.03	\$ 1,385	\$503,406	\$363,837	1.00	—	—
75	1.09	20,607	489,636	373,145	1.00	—	—
80	1.16	56,022	450,269	380,215	1.00	—	—
85	1.24	108,372	391,135	389,990	0.99	\$ 73	\$16,664
90	1.25	169,404	309,743	392,419	0.96	899	20,918
95	1.30	245,285	215,202	400,230	0.89	2,299	20,787
99	1.33	313,971	141,558	415,892	0.82	3,551	20,153

See table note, assumptions, and explanations of column labels on page 23.

3c. For an investor starting at age 75

Age	Income/ expense	Taxable portfolio	Tax-deferred portfolio	Estate at year-end	Success rate	Average shortfall	Conditional shortfall
No annuity							
75	0.69	\$ 486,016	\$499,926	\$ 845,962	1.00	—	—
80	0.71	400,617	471,106	739,813	1.00	—	—
85	0.69	314,250	418,235	615,380	1.00	—	—
90	0.67	231,164	339,709	475,755	0.99	\$ 24	\$24,071
95	0.56	166,431	215,278	321,431	0.91	3,068	35,432
100	0.37	118,357	92,819	185,187	0.62	15,544	41,274
104	0.21	86,567	33,989	111,039	0.38	26,491	42,811
Annuity purchased with tax-deferred assets							
75	1.38	\$ 517,351	—	\$ 517,351	1.00	—	—
80	1.45	590,131	—	590,131	1.00	—	—
85	1.49	668,655	—	668,655	1.00	—	—
90	1.40	738,833	—	738,833	1.00	—	—
95	1.49	814,757	—	814,757	1.00	—	—
100	1.59	910,484	—	910,484	0.99	\$ 36	\$22,298
104	1.71	1,006,981	—	1,006,981	1.00	90	17,943
Annuity purchased with taxable assets							
75	1.33	\$ 15,048	\$499,926	\$ 374,995	1.00	—	—
80	1.44	103,293	471,100	442,485	1.00	—	—
85	1.56	212,129	418,199	513,232	1.00	—	—
90	1.53	324,298	344,344	572,226	1.00	—	—
95	1.65	449,497	251,891	630,858	0.99	\$ 23	\$16,714
100	1.72	593,214	151,481	702,280	0.99	157	20,122
104	1.75	713,587	82,495	772,984	0.98	417	18,432

See table note, assumptions, and explanations of column labels on page 23.

Assumptions and explanations with Tables 3a, 3b, and 3c

Notes: With one exception, all data in Tables 3a, 3b, and 3c are averages over 5,000 simulations at each age. The exception is the conditional shortfall results, which are averages over only those simulations in which portfolio assets are exhausted. All monetary figures are in inflation-adjusted dollars.

Assumptions

- The starting portfolio is \$1,000,000, of which \$500,000 is held in a taxable account and \$500,000 in a tax-deferred account. The cost basis for the taxable account is \$400,000.
- In the annuity scenarios, 50% of the investor's portfolio goes to the annuity purchase. Of the amount spent, 35% is used to buy a guaranteed, fixed annuity with payments that increase by 3% per year. The remaining 65% buys a variable annuity with a 3.5% assumed interest rate (AIR). The annuity rates are based on quotes obtained from Vanguard.com on January 2, 2008; see Appendix D.
- The spending goal is \$45,000 each year, adjusted for inflation. Asset returns are from a portfolio of 70% bonds and 30% stocks, which is rebalanced without cost each year. In the annuity scenarios, the underlying combined portfolio for the fixed and variable annuities is allocated and rebalanced in the same way, assuming that the fixed annuity is invested 100% in bonds and the variable annuity is invested 54% in bonds and 46% in stocks.
- Of each year's total portfolio return, 20% is in the form of realized short-term capital gains. When gains are realized from taxable holdings, we assume that the appropriate tax is paid.
- Annuity income is from a single life annuity for a male annuitant in Pennsylvania with a birthday of January 2. The first annuity payment will come a year later, on January 1, 2009; see Appendix D.
- The variable annuity is assumed to carry insurance fees of 50 basis points annually. Otherwise, no investment costs are assumed.
- Tax rates used are 28% for income tax and 15% for capital gains and dividends. Annuity payments from after-tax sources are taxed according to the general rule. For tax-deferred assets, the IRS required minimum distribution (RMD) table is followed. Distributions begin in the year when the investor turns 70½.
- When drawing from the nonannuitized assets, the investor uses the taxable account first. Once taxable assets are depleted, the investor uses the tax-deferred account.
- See Appendix C for details of our assumptions about median market rates of return and inflation rates.

Explanations of column labels

Income/expense: The average of the ratio of the year's overall income from all sources (including RMDs) to the total spending level. A number greater than one indicates that the average amount of income (interest and dividend income plus RMDs, if any, and annuity payments, if any) exceeds the \$45,000 spending level used in the analysis, while a number less than one indicates that assets must be sold at that age to meet the spending target.

Taxable portfolio: The average balance of the taxable portfolio at each year-end.

Tax-deferred portfolio: The average balance of the tax-deferred portfolio at each year-end.

Estate at year-end: The average after-tax value of an investor's estate, should death occur that year. We assume that the heirs immediately liquidate the tax-deferred account, which incurs an income tax levy. In reality, the heirs can decide to retain the tax-deferred account so long as they take RMDs according to the existing schedule.

Success rate: The fraction of the 5,000 simulations in which the portfolio is not exhausted at that point in time. (If the success rate is between 0.99 and 1, it is rounded down to 0.99.)

Average shortfall: The average amount, if any, by which income falls short of the desired spending level (\$45,000 annually, adjusted for inflation) across all simulations. (In scenarios where there is no shortfall, a zero is recorded and included in this average.)

Conditional shortfall: Looking only at those simulations in which the portfolio has been exhausted, this column shows the average amount by which income falls short of the desired spending level in that year.

Important: The projections or other information generated regarding the likelihood of various investment outcomes are hypothetical in nature, do not reflect actual investment results, and are not guarantees of future results. Results may vary with each use and over time.

Source: Vanguard Investment Counseling & Research.

Our analysis compared a distribution strategy based solely on the liquidation of a mutual fund holding with strategies that involve the use of a low-cost income annuity as well. The analysis uses 5,000 simulated scenarios of returns on stock, bond, and cash investments as well as projected inflation rates for the next 30 years. It takes into account tax treatment and the existence of RMD rules for tax-deferred assets, as well as the insurance cost of annuitization.

The data in tables are averages over the 5,000 scenarios. Most of our assumptions for the scenarios are listed on page 23. The median simulated total returns and standard deviations are reported in Appendix C. The actual annuity quotes we used and their source are shown in Appendix D.

Below is some further discussion concerning aspects of our findings that are mentioned in the main text of the paper.

Considerations regarding the purchase of an annuity with taxable versus tax-deferred assets

In these scenarios, in which the investor's taxable account has an initial cost basis of 80% (20% of the taxable portfolio is unrealized capital gains), the use of tax-deferred rather than taxable assets for annuitization generally produces higher estate values and higher probabilities of success at later ages.

For an investor whose after-tax portfolio has a higher cost basis than we assume, or whose taxable portfolio is particularly tax-inefficient, it may be more attractive to use taxable assets for annuitization. In addition, the relative attractiveness of using taxable or tax-deferred assets for annuitization depends heavily on our assumption that money left in tax-deferred accounts is subject to immediate income

taxation upon death, while taxable accounts receive a step-up of cost basis (i.e., no tax is due) at death. With proper estate planning, bequeathed tax-deferred accounts may not produce a large immediate tax bill, but instead may be distributed slowly over the lifetime of beneficiaries at a lower tax cost. Examination of the particulars of estate planning scenarios goes significantly beyond the scope of this analysis; but we acknowledge that estate planning may materially alter the attractiveness of using tax-deferred assets for annuitization.

Further observations regarding the effect of a 'health shock' ten years into retirement

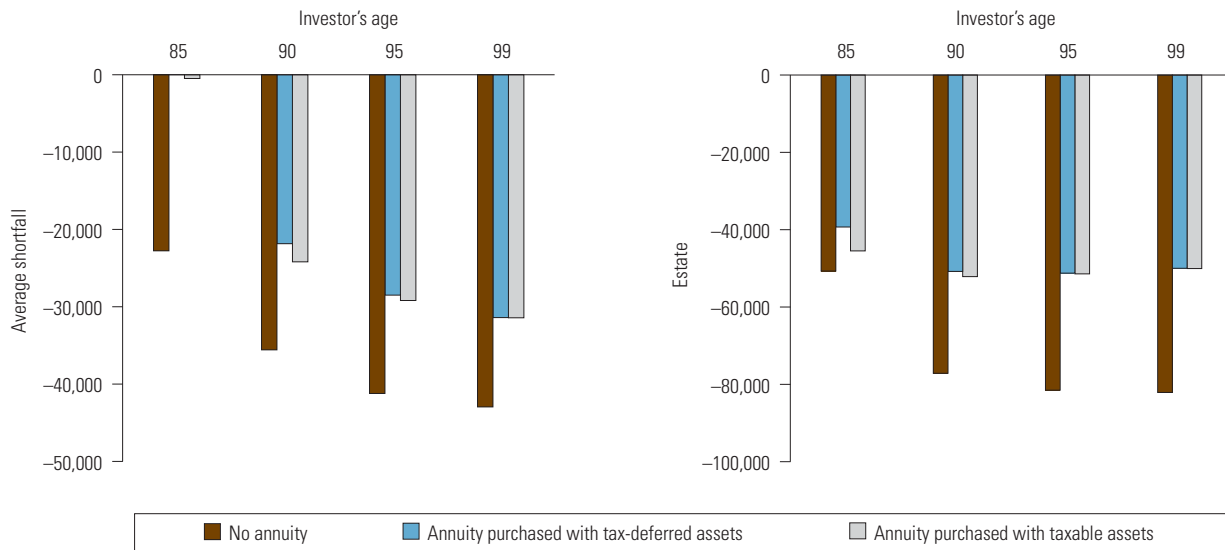
Figure 8b on page 17 shows the results of simulations assuming that an investor suffers an adverse health event after ten years (Scenario 3). We assumed that this health shock required a doubling of real spending starting at that point.

It is notable that in these simulations, the estates are all near exhaustion by the time the investor reaches age 90, regardless of whether he owns an annuity or not. Once he reaches age 99, he has a 12% chance of meeting the spending goal if he owns an annuity bought with tax-deferred assets, but just 1% if he owns no annuity at all. If the individual dies at 99, the average estate is \$33,347 with an annuity and \$1,519 without one. The situation is slightly better when annuity payments start at age 75, in part because the payments would be higher if they started at a later age. Should the investor reach age 100, he would have a 53% chance of meeting the spending goal if he owned an annuity bought with tax-deferred assets, as compared to 3% without any annuity. If he died at age 100, the expected estate is \$202,901 with the annuity, compared with \$6,523 absent any annuity.

Figures 9a and 9b. Degrees of shortfall in cases when spending goals are not met

Scenario 2: 100% of annuity investment is a fixed-payment option

Scenario 3: Same portfolio as in baseline case; spending goal declines each year; a medical shock occurs in the tenth year



Note: Assumptions are the same as for the benchmark simulation, except as noted. See Appendix B for details of the benchmark simulation assumptions.

Source: Vanguard Investment Counseling & Research.

The exhaustion of estates at advanced ages in Scenario 3 indicates that in the presence of a health shock, the benefit of an annuity is solely to provide some income. In this scenario, both the expected and conditional spending shortfalls are much smaller if there is an annuity present, as shown in **Figures 9a** and **9b**. Thus in a sense, the annuity provides a form of insurance that can help to pay for continuing

medical bills. However, it will not effectively protect the estate when there is a health shock at such a late age. And if the health shock had instead occurred when the individual was young, an annuity purchase would have radically reduced the estate while offering little prospect for recouping the price through income payments, given the buyer's reduced life expectancy.

Appendix C. Median market returns and inflation rates in the simulations presented

Summary statistics for asset returns used in simulations

	5-year projection		10-year projection		30-year projection	
	Return	Standard deviation	Return	Standard deviation	Return	Standard deviation
Average annual returns and standard deviations (median of simulations)						
Cash	3.8%	1.0%	3.8%	1.3%	4.0%	1.8%
Stocks	9.6	16.0	8.9	16.7	9.0	17.1
Bonds	4.7	5.9	4.8	6.4	5.2	6.9
Average yearly inflation rates and standard deviations (median of simulations)						
Inflation	2.7%	1.6%	2.7%	1.8%	2.7%	2.2%

Note: Based on simulations generated using the Vanguard Capital Markets Model™. The model uses expected asset class returns, volatility, correlations, and economic and financial market variables to simulate hypothetical investment results through time. The model's simulations reflect the qualitative professional judgments of the analytical team in Vanguard's Investment Counseling & Research group as well as computations based on historical data for these benchmarks: for stocks, the Dow Jones Wilshire 5000 Index; for bonds, the Lehman Brothers U.S. Aggregate Bond Index; for cash, U.S. Treasury yield data; for inflation, the Consumer Price Index. Taxes are not factored into the analysis.

Source: Vanguard Investment Counseling & Research.

Appendix D. Annuity prices used in simulations

Annuity quotes for a \$250,000 purchase on January 2, 2008

Birth date	Age	Date of first payment	Fixed annuity with flat payment	Fixed annuity with 3% graded increase	Variable annuity with 3.5% assumed interest rate (AIR)
1/2/1943	65	1/1/2009	\$22,165.80	\$16,815.12	\$18,299.64
1/2/1938	70	1/1/2009	24,596.88	19,298.28	21,527.28
1/2/1933	75	1/1/2009	29,176.80	23,813.88	26,097.36

Note: These quotes were taken from Vanguard's website at www.vanguard.com/quote. They were for a single life annuity for a male Pennsylvania resident.
Source: Vanguard Investment Counseling & Research.



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Research Note

“DB in DC”: Deferred Annuities in Defined Contribution Plans

Authors: William J. Burns, Stephen P. Utkus

Conventional deferred annuities are being repackaged as “DB in DC” investment options. Various fiduciary and investment considerations are likely to impede their rapid growth.

A recent development in the retirement marketplace is the repackaging of accumulation (or deferred) annuity contracts as investment options for defined contribution (DC) plans. American workers are increasingly receiving retirement benefits in the form of a DC plan lump sum, rather than a lifetime annuity from a defined benefit (DB) plan. Deferred annuities are often referred to as “DB in DC” products because they translate the participant’s account balance in the deferred annuity contract into a DB-like annuity payout at retirement age.

Deferred annuity contracts may be offered as fixed annuities (i.e., offering a stable principal value and a fixed rate of return) or variable annuities (i.e., investing in equities, balanced funds, life-cycle funds, or similar assets with varying risk and return characteristics). Besides offering exposure to a given asset class, deferred annuities convert a participant’s current balance in the contract into an income stream at retirement, typically at age 65. Participants can also defer payments until a later age, such as age 70, to receive a higher monthly income. In the typical

DB-in-DC product, participants will see both their contract account balance and a guaranteed level of future income on statements and websites.

These annuity products can describe themselves as guaranteed because the capital of the issuing insurer is backing the level of promised income at retirement.

Product offerings

Several insurers are offering DB-in-DC contracts under their own brand name or in conjunction with others. In terms of fixed annuity contracts, the amount of promised income depends on interest rates and the participant’s age at the time of investment. Regular contributions into the contract help mitigate the risk of a one-time annuity purchase at retirement by allowing participants to dollar-cost average into a contract throughout their accumulation years.

Like traditional balanced or equity options, variable annuity contracts typically invest a large percentage of assets in equities, subjecting the participant to market, manager and similar risks. The guaranteed income level is based on the market performance of the contract’s underlying investments. The promised income is “stepped up” typically on a participant’s birthday, assuming the underlying investments have enjoyed a positive return. If the portfolio’s value decreases, the guaranteed amount remains the same. In effect, these annuities seek to provide a guaranteed income “floor.”

As with any investment, there is risk. Annuity guarantees are based on the claims-paying ability of the underlying insurance companies that issue the annuity. Variable annuities are long-term vehicles designed for retirement purposes and contain underlying investment portfolios that are subject to investment risk, including possible loss of principal.

Costs

Like other investment options, annuities incur costs for recordkeeping and asset management. In addition, annuity contracts assess an additional fee (often described as the mortality charge) to pay for the promised guarantee. The mortality fees typically cost a minimum of 65 basis points. These fees vary widely by product and issuer.

Many investors mistakenly view these mortality charges as superfluous or hidden investment charges, but they are not. These expenses are the cost of the guarantee offered by the annuity, and so they differ from administrative and investment costs.

DB-in-DC annuities may be available at higher-cost retail or lower-cost institutional levels. They are typically free of any compensation to a financial advisor or planner—unlike income annuities that participants might purchase on their own outside the plan at retirement.

Valuing the guarantee

There are several important considerations in assessing the guarantee offered by a deferred annuity contract—whether participants will actually benefit from it, whether the guarantee is fairly priced, and whether the insurer is adequately capitalized to back the guarantee.

Who benefits from the guarantee? One drawback with deferred annuities is that many participants may pay for a guarantee, but never actually benefit from it. For example, young or middle-aged participants may invest in a deferred annuity, but then change jobs and move their savings to an individual retirement account (IRA) or another employer plan without the annuity option. Older participants may purchase the annuity, thinking they may need a guaranteed retirement income—but then take a lump sum and never annuitize their balance. In effect, these participants pay the

cost of a guarantee for years, but never benefit from it. Deferred annuities can be thought of as offering participants an option to annuitize at retirement—an option that may not be exercised.

Sponsors will be wary of participants who misunderstood the costs of the guarantee, and who may claim that they have been overcharged for investing in a deferred annuity contract in the plan. Clear disclosure to participants is critical for both fees and the guarantee element.

The value of the guarantee. With all long-term insurance promises, it is difficult to assess whether or not the guarantee is a fair deal. Is the participant receiving too little future guaranteed income for their current account balance? Or is the insurer overpromising guaranteed income for competitive reasons—and thus will find it more difficult to keep its promise 10, 20 or 30 years into the future? It takes a fairly detailed analysis of a given product to assess its attractiveness. Also:

- The guarantees offered by a contract can change over time—so guaranteed income from the dollars participants are contributing today may be at a higher or lower level than the guaranteed income from dollars participants are contributing a decade from today.
- It can be difficult to compare guaranteed levels across different products from different companies. For example, guaranteed income levels will vary based on seemingly subtle variations in contract features and terms.
- Some annuities have high retail expense levels, and others have low institutional expenses, depending on the size of the assets involved.

Credit risk of the insurer. A given guarantee is only as good as the credit quality of the insurer. Credit quality is typically judged by the insurer's claims-paying ability. Moody's and Standard & Poor's claims-paying ratings tend to make finer distinctions among insurers; A.M. Best ratings tend to give most insurers high ratings. Claims-paying ratings can change over time.

Insurance companies are regulated to protect against bankruptcy, but the regulatory system is a patchwork managed by the states. A complete loss of an annuity contract's value would be very unlikely, and regulators would likely organize a partial or full bailout based on state guarantee funds. There is no federal guarantee or insurance program backing annuity contracts.

Fiduciary duties

Plan fiduciaries are responsible for the selection and monitoring of annuity contract providers in retirement plans. In 2006, the Pension Protection Act repealed the "safest possible" annuity standard for DC plans. The Department of Labor (DOL) has proposed regulations reintroducing a version of the previous legal standard—what might be described as the "credit analysis" or "due diligence" standard. As a fiduciary, a sponsor must undertake a systematic due diligence process to assess the value of a specific annuity contract. A sponsor who is unable to make such an assessment is expected to hire an independent expert to help with the evaluation.

Other sponsor considerations

Tax rules. Any annuity contract within a DC plan must comply with joint and survivor annuity requirements, as well as rules on reporting income payouts from the contract.

Recordkeeping. Many recordkeepers have not yet established the administrative infrastructure to track annuity contracts and report contract income levels on statements and websites. Recordkeepers may support one company's contracts, but not another's. This may change over time if the options become more popular with sponsors.

Portability. Given differences in recordkeeping systems, a sponsor may choose one contract with a given recordkeeper, only to find that a new recordkeeper is unable to support it. In addition, under some contracts, the plan and its participants may face a surrender charge if the plan decides to switch from one contract to another.

Rollovers. Portability is also an issue for plan participants. A participant changing jobs or retiring will either need to keep contract assets in the plan, or roll those assets over to the insurer's equivalent individual retirement annuity to retain the guaranteed income level. At the time of the rollover, the participant will likely be transferred into a higher-cost retail contract. The retail product will require additional research by the participant in order to assess whether the product is still suitable relative to its higher fees.

Advice and education. An increasing number of plans are offering online advice or managed account programs. These programs typically do not incorporate guaranteed income features into their planning methodologies.

Observations

Several factors appear likely to impede the widespread adoption of "DB in DC" accumulation annuities. These include such questions as whether participants will actually exercise a guarantee they have paid for; the difficulty of assessing the fairness of a given guarantee; and the DOL's fiduciary standards for annuity providers.

If DB-in-DC annuities do emerge as a popular plan option, it will likely be due more to older participants looking to protect themselves against downside risks as they approach retirement, and less to young participants seeking to translate their current balance into an age-65 income

stream. The odds are probably higher that older participants who choose a deferred annuity will actually annuitize at retirement and enjoy the benefit they have paid for. Sponsors who introduce DB-in-DC options will want to ensure that participants understand the potential benefits, the higher costs, and the risk that participants might pay for a benefit they never end up using.

Finally, the retirement income marketplace is changing rapidly, with many developments occurring outside the retirement plan system. A new generation of nonguaranteed payout funds has been introduced by asset managers. Insurers have developed new guaranteed products, such as longevity insurance (which pays an income

only at a later age, such as 85), and hybrid or “living benefit” annuities, which provide a guaranteed income and access to assets but with higher fees. Reverse mortgages of home equity are an emerging though underdeveloped option.

Sponsors will want to continue to monitor these and other developments in the retirement income marketplace. Over time, as these strategies mature, some may become suitable candidates for inclusion within DC savings plans.

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Lump Sum or Annuity? An Analysis of Choice in DB Pension Payouts

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Executive summary. We assess the lump-sum versus annuity payout choices made by retirement-age participants in two Fortune 500 defined benefit plans (one a traditional final-average-pay plan, the other a cash balance plan). Annuitization rates are generally low but rise with age. Also, in contrast to the inertia that typically characterizes participant behavior in retirement plans, many married participants work actively to “deannuitize”—to choose a DB lump sum over the federally mandated default of a joint-and-survivor annuity.

Annuitization rates and cash-outs. Twenty-seven percent of lump-sum-eligible participants in the traditional plan chose an annuity, versus 17% in the cash balance plan. These figures exclude sponsor-initiated cash-outs of lump-sum distributions less than \$5,000. Cash-outs represent a large percentage of the distributions in both plans, and can artificially inflate overall measures of participant behavior.

Demographics and choice. Older participants were much more likely to annuitize than their younger counterparts. Approximately half of the participants age 70 and older chose an annuity compared with less than 20% for participants between ages 55 and 60. In addition, high-net-worth and male participants were also less likely to annuitize.

Actively overcoming defaults. Less than one-quarter of married participants in our study chose an annuity, even though it is the federally mandated default option for married

couples. Married participants worked actively to overcome the default annuity option by submitting a written, notarized waiver.

Implications. The desire among married participants in their 50s and 60s to “deannuitize” a DB plan distribution appears to be quite strong, and stands in sharp contrast to the inertia typically displayed by defined contribution participants in the accumulation phase. As a result, plan design and policy efforts that rely on inertia and default choices to encourage annuitization within retirement plans are likely to have only modest effects. Meanwhile, the fact that annuitization rates rise with age suggests that the demand for traditional annuities may arise later in life, at an age when many participants have already retired and left their employers’ retirement plans. Also, annuity demand may increase in tandem with the broader trend toward taking a later retirement.

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Background

Researchers often refer to the “annuity puzzle” when considering participants who choose a lump sum over an annuity payout in a defined benefit (DB) or defined contribution (DC) plan. In theory, many older individuals could benefit from annuity payouts. By pooling savings during the payout phase, annuitization can lead to higher retirement incomes and offer protection against longevity risk, the risk that the individual will run out of money. Yet when participants are given the choice, annuity take-up rates tend to be low.

Changes in the retirement landscape for private-sector workers have certainly contributed to the trend toward lump-sum distributions. Nearly half of all private-sector DB plans now offer a lump-sum option in addition to standard annuity options. A lump sum is the standard form of benefit in defined contribution (DC) plans, and few DC plans offer an annuity payout option.¹

Yet when they have the option, why do participants choose lump sums over annuities in spite of the theoretical argument for annuitization? There are a number of plausible explanations for participants’ preferences:

- *Social Security*. Participants are entitled to receive an inflation-indexed government-guaranteed annuity through Social Security. It may be all of the annuity income that many participants need or want.
- *Flexibility*. Individuals may prefer a pool of assets for the flexibility it offers in terms of retirement spending—particularly for large expenditures such as long-term health care costs.

- *Bequest motives*. Participants may want to leave a portion of their retirement wealth to heirs and charities.
- *Literacy or behavioral constraints*. Individuals may not understand annuities or longevity risk very well, and may psychologically overvalue large lump sums over smaller monthly payouts.

Other explanations linked to the generally low demand for annuities include: the problem of adverse selection, where healthier individuals tend to choose annuities, thereby making pricing less attractive for those in poorer health; credit quality concerns (either the solvency of the DB plan or of a private insurer); inflation risk associated with fixed-dollar payouts; and sponsors’ reluctance to offer annuity payouts in DC plans under current fiduciary rules.²

Our current paper seeks to add to the understanding of the annuity/lump-sum puzzle by examining distributions from two DB plans, a traditional final-average-pay plan and a cash balance plan. We first present the annuitization rates for the two plans and analyze the demographic characteristics related to the annuity/lump-sum decision. We then examine the impact of a federally mandated default, a joint-and-survivor annuity for married couples, on the decision to annuitize. We conclude by discussing the implications of these data.

1 Yaari, 1965; Blotsin, 2003; Poterba, Rauh, Venti, and Wise, 2003; Ameriks, 2004; Dushi and Webb, 2004; U.S. Department of Labor, 2005; and Munnell and Perun, 2006.

2 See also Milevsky and Young, 2001; Dushi and Webb, 2004; Brown, Casey, and Mitchell, 2007; and Ameriks, Caplin, Laurfer, and Van Nieuwerburgh, 2007. In terms of fiduciary rules, the Department of Labor’s (DOL) Interpretive Bulletin IB 95-1 required sponsors to select the “safest available annuity,” raising employer concerns about fiduciary risks. This interpretation was repealed by the Pension Protection Act of 2006, and on September 12, 2007, the DOL issued proposed fiduciary guidelines.

Analysis data

Our data set is drawn from two Fortune 500 DB plans for which Vanguard provides DB recordkeeping services (Figure 1). The first plan is a traditional, final-average-pay plan with nearly 39,000 participants as of midyear 2007. Between 2000 and 2006, the plan made more than 7,000 distributions to participants separating from service. To be eligible for a lump-sum option, participants had to be age 55 or older with at least ten years of service, or 65 or older with no service requirement. All other participants had to take an annuity payout (or were cashed out), and so were excluded from most analyses.

The second plan is a cash balance plan with nearly 35,000 participants as of midyear 2007. Between 2000 and 2006, the plan made more than 21,000 distributions.³ Nearly all participants were eligible for a lump-sum payout; however, for most analyses we restricted the sample to participants age 55 or older at termination, because we wanted to improve comparability with the traditional plan, and because we wanted to examine the behavior of older participants near typical retirement ages.

In both plans, most older participants may choose to take a distribution at the time they separate from service, or defer the distribution until a later date. Our analysis, however, focuses on participants at the time they take the distribution, not when they leave their employer. Thus, a participant in our data set taking a distribution at age 70 may be retiring at 70, or may have retired many years before and deferred the distribution decision to age 70. This distinction is important in interpreting our results, particularly with respect to age.

Figure 1. Overview of Plan Distributions

	Traditional plan	Cash balance plan
Number of participants	38,638	34,855
Number of distributions analyzed	7,131	21,222
Distributions by year		
2000	6%	5%
2001	7%	9%
2002	10%	17%
2003	20%	30%
2004	24%	15%
2005	15%	10%
2006	18%	14%
Mean age at distribution	47.7	47.6
Mean household income	\$78,024	\$88,551
Percent male	74%	66%
Mean service tenure	11.1	13.5
Median 401(k) balance	\$99,694	\$82,538
Percent affluent*	16%	15%

* Top quintile of nonretirement wealth, based on IXL data.
Source: Vanguard, 2007.

Other institutional features were similar for both plans. Partial annuitization was not an option: participants in both plans could not split their benefits between the annuity and lump-sum choices. Participants were notified of their distribution options via a fairly complicated letter sent out upon termination that described the range of distribution options. Finally, participants were eligible to participate in their employer's 401(k) DC savings plan.

³ As of December 31, 2005, new hires at this firm were no longer eligible for the cash balance plan and instead received all retirement benefits in an enhanced 401(k) plan.

Distribution activity

Under federal law, plan sponsors have the option of “cashing out” small retirement plan distributions. In cash-outs, the sponsor automatically issues a check to the participant for the present value of the participant’s accrued and vested benefit. During the 2000–2006 period of our analysis, sponsors could initiate cash-outs for present value amounts less than \$5,000.

Both plans in our study utilized automatic cash-outs and did not retain small balances within their plans. In both plans, cash-outs represented a large percentage of the total plan distributions: 51% in the traditional plan and 27% in the cash balance plan (Figure 2).⁴

Because of the high level of cash-outs and lump-sum-eligibility requirements, it is clear that not all participants had the opportunity to choose between a lump sum and an annuity. To examine the decision-making behavior of participants who had a choice, we excluded cash-outs and lump-sum-ineligible participants and found that the dominant distribution was clearly the lump sum. Seventy-three percent of participants in the traditional plan chose a lump-sum distribution over an annuity, as did 83% of participants in the cash balance plan. Annuitization was popular among a small though meaningful group: 27% of older participants in the traditional plan and 17% in the cash balance plan elected an annuity.

The demographics of choice

Whether in the traditional or cash balance plan, participants choosing a lump-sum option tended to be more affluent, married, and male (Figure 3). Meanwhile, participants choosing an annuity were more likely to be less affluent, single, and female. In general, lump-sum participants have demographic characteristics typically associated with higher levels of financial experience and financial literacy; annuity participants have characteristics typically associated with lower levels of financial experience and financial literacy.

Figure 2. Distributions by Plan

	Traditional plan	Cash balance plan
<i>All participants</i>		
Cash-outs	51%	27%
Lump-sum distributions	22%	63%
Annuity payouts	27%	10%
<i>Excluding cash-outs, lump-sum-ineligible participants, and participants younger than 55 at termination</i>		
Lump-sum distributions	73%	83%
Annuity payouts	27%	17%

Source: Vanguard, 2007.

Specifically, participants choosing a lump sum had household incomes that were about 20% higher and 401(k) balances that were 30% to 40% higher (depending on whether they were in the traditional or cash balance plan). Lump-sum participants in both plans were more likely to have high nonretirement financial wealth. In the traditional plan, 18% of the lump-sum participants were female, versus 28% for annuity participants.

In the cash balance plan, the gender effect was even stronger, with females constituting 24% of the participants choosing the lump sum but 46% of the participants choosing the annuity. We see a somewhat smaller effect for the participants’ marital status: In the traditional plan, lump-sum participants were more likely to be married, whereas in the cash balance plan the differences engendered by marital status were small.

⁴ Not all cash-outs are necessarily leaving the retirement saving system. Participants may roll over cash-outs to an IRA on their own. Effective in March 2005, new rules require that distributions between \$1,000 and \$5,000 be automatically rolled over into IRAs.

Figure 3. Profile of Lump-sum vs. Annuity Distributions

Demographic characteristics	Traditional plan		Cash balance plan	
	Lump sum <i>n</i> =1,146	Annuity <i>n</i> =422	Lump Sum <i>n</i> =3,328	Annuity <i>n</i> =681
Mean age at distribution	60.9	62.7	61.1	66.0
Mean household income	\$99,227	\$84,000	\$87,250	\$72,648
Percent male	82%	72%	76%	54%
Mean service tenure	25.6	24.2	23.6	24.0
Percent married	79%	71%	76%	72%
Mean 401(k) balance	\$241,689	\$168,299	\$166,177	\$127,297
Percent affluent*	36%	24%	25%	16%

* Top quintile of nonretirement wealth, based on IXI data, in which data from the IXI company were used to impute nonretirement plan household financial wealth at the standard United States Postal Service delivery address designation ZIP+4 level.

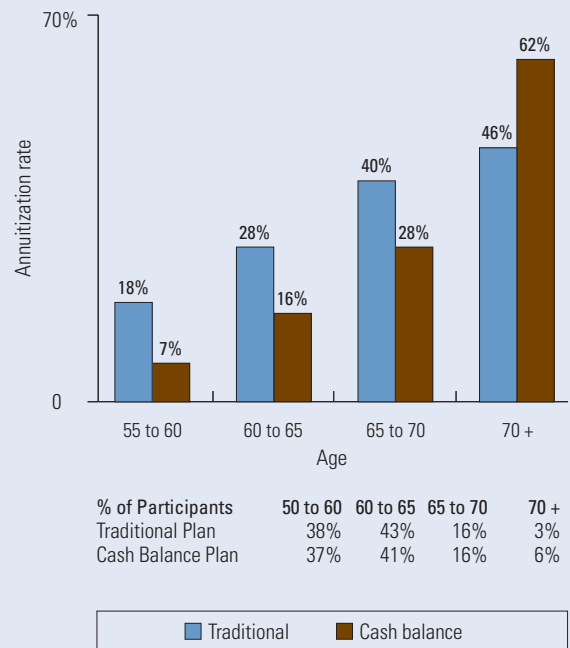
Note: Excludes cash-outs, lump-sum-ineligible participants, and participants younger than 55 at termination.

Source: Vanguard, 2007.

Another important finding is the strong positive relationship between age and annuitization (**Figure 4**). In the traditional plan, the annuitization rate is 18% for participants between ages 55 and 60. The rate steadily climbs with age and peaks at 46% for participants 70 and older—a 156% increase in the annuitization rate. The relationship is even stronger in the cash balance plan. Again, as noted earlier, the age we observe is that of the distribution, which may coincide with, or be later than, the age when the participant actually separated from service.

Although we see a strong relationship between age and annuitization, it is possible that other factors are having an impact. For example, age is correlated with income and service tenure, so perhaps these factors (and not age alone) are fully or partially responsible for the decision to annuitize. To better understand the influence of age on the annuity/lump-sum choice, we used regression analysis to isolate the effect of age after accounting for a variety of other demographic variables.⁵ We conducted a separate analysis for each plan.

Figure 4. Annuitization Rate by Age



% of Participants	50 to 60	60 to 65	65 to 70	70 +
Traditional Plan	38%	43%	16%	3%
Cash Balance Plan	37%	41%	16%	6%

Note: Excludes cash-outs, lump-sum-ineligible participants, and participants younger than 55 at termination.

Source: Vanguard, 2007.

⁵ Detailed results from our logit models, including coefficients and marginal effects, are available from the authors upon request.

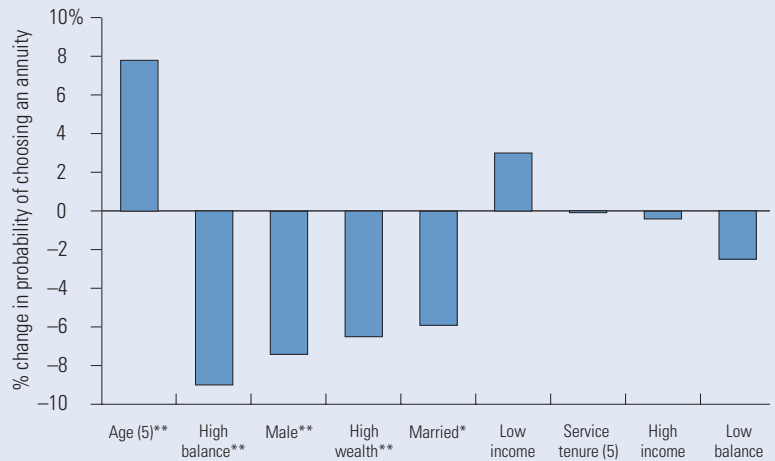
Our regression results indicate that even after adjusting for a host of demographic factors, age plays a very prominent role in the annuitization decision. In the traditional plan (Figure 5), a five-year increase in age is associated with an eight percentage point increase in the likelihood to annuitize. Consistent with our earlier findings, other demographic variables influence the annuitization decision in this plan. For example, married, male, and high-balance participants are less likely to annuitize.

Another way to gauge the impact of age is to compare the effect with the overall annuitization rate in the traditional plan. While the approach only provides us with an approximation, it suggests that for every five-year increase in age the likelihood that a participant will choose an annuity rises from 27% to about 35%. If we increase the participant's age by ten years, the likelihood of choosing an annuity increases to 43%.

In the cash balance plan (Figure 6), age is also the dominant factor driving the annuitization decision. Similar to the data for the traditional plan, a five-year increase in age shows a seven percentage point increase in the likelihood to annuitize. Since the overall annuitization rate in the cash balance plan is lower than the traditional plan, age represents an even stronger effect. For example, if we raise the age of the average participant by five years, the likelihood to annuitize increases from 17% to about 24%—a 41% increase.

Figure 5. Factors Related to Annuitization in the Traditional Plan

Change in probability of choosing an annuity



** Indicates variable significant at the .05 level.

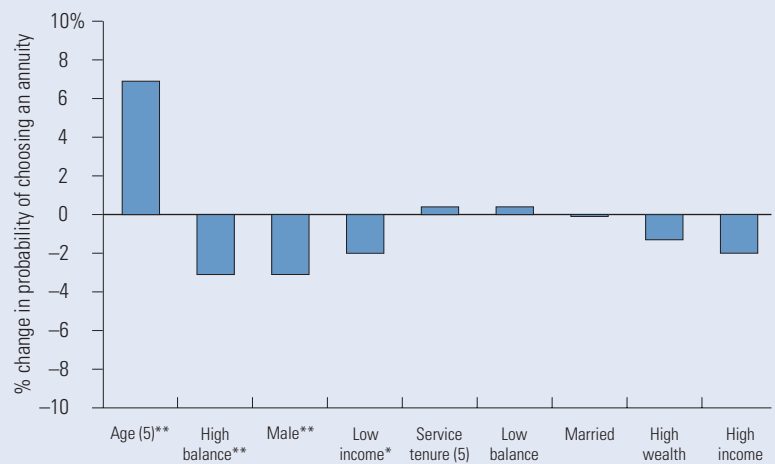
* Indicates variable significant at the .10 level.

Note: Excludes cash-outs, lump-sum-ineligible participants, and participants younger than 55 at termination.

Source: Vanguard, 2007.

Figure 6. Factors Related to Annuitization in the Cash Balance Plan

Change in probability of choosing an annuity



** Indicates variable significant at the .05 level.

* Indicates variable significant at the .10 level.

Note: Excludes cash-outs, lump-sum-ineligible participants, and participants younger than 55 at termination.

Source: Vanguard, 2007.

Our two regression models underscore the importance of age in influencing the choice between lump-sum and annuity payouts. However, to varying degrees, wealth, gender, and marital status also play a role in the decision to annuitize.

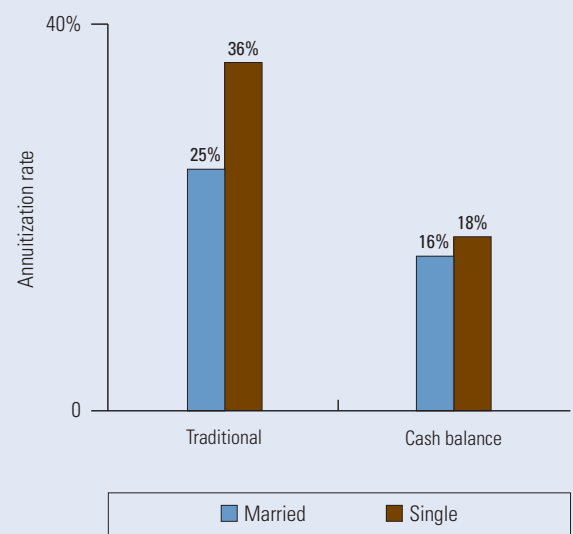
Default impact

Under federal law, a joint-and-survivor annuity is the mandated default option for married participants. To receive a lump sum, married participants must have their spouses waive their right to a joint-and-survivor annuity in writing. The document must be notarized, which requires the payment of a small fee, and both spouses must be physically present in front of the notary to sign the waiver. If inertia was a dominant decision heuristic among participants making this distribution choice—as it is among DC participants during the accumulation phase of retirement savings—we would expect a much higher rate of annuitization among married participants.

Yet the actual annuitization rate by marital status is exactly the opposite of what we would expect (Figure 7). In the traditional plan, married participants are much less likely to annuitize than single participants, while in the cash balance plan, marital status produces no material differences. Furthermore, the overall level of annuitization for married couples is quite low—25% in the traditional plan and 16% in the cash balance plan.

From a behavioral perspective, these findings are striking. It appears that when it comes to accessing their money at retirement, married participants are actively engaged decision-makers. This is in sharp contrast to the inertia that characterizes 401(k) enrollment, trading, and rebalancing behavior. Married participants work actively to “deannuitize”—to overcome the federally mandated default of a joint-and-survivor annuity and choose a lump sum instead.

Figure 7. Annuitization Rates by Marital Status



Note: Excludes cash-outs, lump-sum-ineligible participants, and participants younger than 55 at termination.

Source: Vanguard, 2007.

The fact that deannuitizing requires the physical presence of both spouses in a specific location in front of the notary, and the payment of a small fee, is even more compelling evidence of the absence of inertia.

Our findings underscore a powerful drive to deannuitize and a willingness to make active choices at retirement. Perhaps this heightened engagement arises because distribution decisions at retirement have a large and immediate impact on a participant’s financial situation, whereas 401(k) enrollment and investment decisions have a more subtle and distant impact. In any event, as suggested by the evidence from our two plans, it would appear that the payout phase is qualitatively different than the enrollment and savings phase of the retirement life-cycle, and, as such, it may require different approaches to optimize behavior and enhance retirement security.

Conclusions and implications

The debate over lump-sum versus annuity payouts is likely to continue as the availability and use of annuities within private-sector retirement plans declines. Our research sheds light on this debate by confirming that in the context of the lump-sum/annuity payout decision in two large DB plans, annuitization rates are low, although not as low as commonly cited.⁶ We also find evidence of rising annuity demand among participants taking distributions from their retirement plans at older ages. Finally, it seems clear that there is a strong desire for married couples to “deannuitize,” with many actively working to overcome the federally mandated default of a joint-and-survivor annuity.

These findings offer several implications for plan sponsors, financial services firms, and policymakers. First, particularly in the early stages of retirement, there is strong demand among participants for lump-sum distributions. Some will argue that this decision represents a misjudgment in terms of financial literacy. But there are equally valid arguments that it is a rational decision, given the annuity payouts from Social Security and retiree concerns about flexible spending. If participants are to benefit from pooling of longevity risks, a new generation of financial products—those permitting flexible access to savings and longevity guarantees—may be a possible way forward.

Second, there still is some latent demand for traditional annuitization, particularly among older participants. In our two plans, a significant minority of participants chose the annuity option at younger ages, but this rate rose to about half among older participants taking a distribution. This result suggests that annuity demand may occur at older ages, and that the prevalence of lump-sum distributions is the result of many individuals exiting their employers in their 50s and early 60s. Furthermore, since retirement age seems likely to increase in the coming years for a number of reasons—including the increase in Social Security’s normal retirement age and rising health care costs—annuities may become a more compelling option for an aging workforce.

For some sponsors and policymakers, these developments may argue for offering or encouraging annuity payouts in DC retirement plans. Yet at the same time, there is a strong desire to “deannuitize,” and many sponsors are concerned with the fiduciary liability of offering an annuity plan option within a DC plan. An alternative strategy might be to promote education addressing the annuity versus lump-sum payout decision, and to accommodate annuity options “beyond the plan,” particularly at older ages.

Third, the most striking behavioral result from our research is the absence of inertia in the lump-sum/annuity decision, as evidenced by the fact that married couples actively work to avoid the federally mandated default option. At retirement, participants

⁶ We believe that in some cases the very low annuitization rates cited reflect annuitization rates for defined contribution plans. For example, Milevsky and Young, 2001, using HRS data report that 8% of respondents with a defined contribution plan chose an annuity payout.

are more likely to exert themselves to make active choices, and the model of decision-making that applies during their accumulation years (the model of the disengaged participant) seems no longer valid. This suggests that education and communication programs can have a stronger impact on participants at the critical juncture when they are about to leave their employers and embark on their retirement.

Fourth, neither plan in our study allowed a participant to split their distribution between an annuity and a lump-sum payout. However, this might be an appealing option for participants seeking to balance control over their assets with a desire for some longevity protection. It is true that allowing split distributions would add administrative costs to the plan and complicate the annuity/lump-sum decision for participants. Yet forcing an “all or nothing” decision may be counterproductive. It remains to be seen whether such split distributions would actually alter the annuity versus lump-sum balance, whether it is offered as a voluntary option or as a default.

Finally, several caveats are in order. Given that our sample consists of only two plans, it is impossible to determine whether our results are due to the plan design (traditional versus cash balance) or whether they are related to other unique factors associated with the two firms or workforces. Therefore, we cannot conclude that the cash balance plan leads to lower annuitization rates because of its hybrid design, but our findings suggest that this is a possibility worthy of future research.

Similarly, the level of interest rates over time affects the value of a lump-sum payment relative to an annuity. Both the generally low interest rate environment of the last several years, along with the uniquely low yields of 30-year Treasury bonds, may have increased the percentage of participants opting for a lump sum. While our regression models take time effects into consideration, we could not adequately examine the relationship between interest rates and the annuity/lump-sum payout decision because of data limitations. Future research with a larger sample of plans and more time-series data will be needed to examine these issues.

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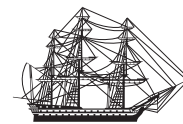
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Executive summary. A new generation of retirement income products has emerged in the marketplace. Payout funds simplify the process of establishing a withdrawal program from a portfolio. Living benefit annuities offer guaranteed income and access to underlying assets. Investors and advisors face the challenge of crafting retirement income plans that integrate traditional income-generating strategies with these newer offerings.

Retirement income framework. As in their accumulation years, investors in the spend-down phase must strike a balance among risk, return, and cost. They need to weigh competing objectives for their assets (regular income, spending flexibility, survivor needs, and bequests), while considering a range of risks, including the unique risk of the deaccumulation phase—longevity risk. Meanwhile, they must seek to minimize investment costs, the costs of guarantees, and the impact of taxes.

Nonguaranteed options. The conventional strategy for generating income from a portfolio is a systematic withdrawal plan (SWP). In an SWP, portfolio withdrawals are based on some spending rule, applied to the value of the portfolio over time. The main risk of an SWP is longevity risk—either spending too quickly and depleting savings, or spending

too meagerly and leaving too much to one's heirs. Payout funds, which integrate an SWP within a mutual fund, simplify the process of establishing such plans.

Guaranteed options. Immediate income annuities eliminate market and longevity risks in retirement. Yet they remain unpopular with investors for several reasons, not least of which is that the contracts are illiquid and irreversible. A new generation of living benefit annuities offers a guaranteed income, the potential for future growth, and access to underlying capital at fair market value. However, costs can be high, and the guaranteed element depends critically on the insurer's skill at hedging capital markets risk. Meanwhile, other guaranteed strategies, such as longevity insurance and reverse mortgages, remain underdeveloped.

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Implications. As the baby boomers retire and more Americans receive savings in the form of a lump sum, the challenge they face is not a lack of retirement income products and strategies. Rather, for both individual investors and advisors, the main challenge appears to be how to create a personalized retirement income plan from both traditional and newer income options. Such a plan would integrate nonguaranteed and guaranteed elements and be tailored to an

individual's preferences for return, risk, and cost. For plan sponsors and policymakers, it remains to be seen which of the newer strategies will emerge as payout mechanisms within defined contribution (DC) plans. For the time being, most of the innovations are likely to be adopted "beyond the plan" for use within IRAs.

Introduction

The question of how to generate a sustainable income stream from a pool of retirement savings is emerging as a critical issue in the United States. Increasingly, American workers in the private sector, whether in defined contribution (DC) plans or defined benefit (DB) plans, are taking their plan benefits as a lump sum rather than a lifetime annuity. They face the challenge of translating their lump-sum savings into a regular stream of payments in retirement.

Today, nearly two-thirds of American households in their mid-career own some type of tax-advantaged retirement savings account, through a 401(k) or similar savings plan, an IRA, or other tax-deferred account (Figure 1). By comparison, only about one in three Americans age 75 and older owns a retirement account.

Meanwhile, life expectancies are rising and retirement health care costs are growing. Future retirees must ensure that their savings last longer and keep pace with inflation. They will need regular income from their savings, as well as the flexibility to tap their assets for unpredictable expenses, such as out-of-pocket health care costs and long-term care expenses.

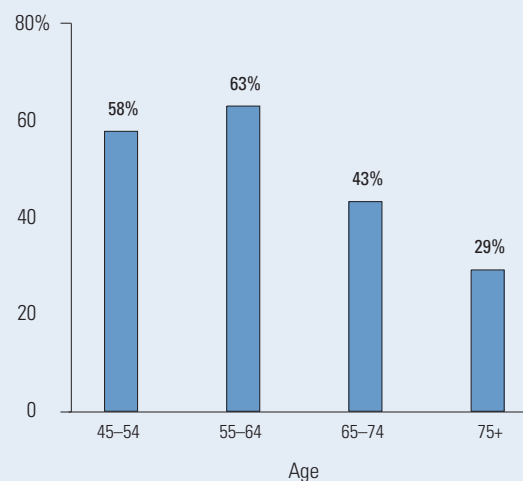
In this report, we describe the current state of the retirement income landscape. The marketplace is in a period of rapid innovation, as new strategies are devised by asset managers, insurers, and banks to meet the retirement income needs of the baby boom

generation. We begin with an overview of the issue using a risk, return, and cost framework. We then consider traditional strategies for generating income as well as new approaches. We conclude with recommendations for individuals, advisors, plan sponsors, and policymakers.

This report can be read in conjunction with other Vanguard retirement income research, including papers on annuities generally, the role of annuities in DC plans, and the retirement income behavior of older American households.¹

Figure 1. Incidence of retirement accounts

Percentage of households with a tax-advantaged retirement account



Source: Federal Reserve Board, Survey of Consumer Finances (2004).

¹ See Vanguard 2008a, 2008b, 2008c, and 2008d.

I. Retirement income framework

Generating an income stream for routine living expenses using assets held in a long-term retirement account has often been described as creating a “paycheck for life.” However, although generating regular income is a top priority, it is only one element in a complex set of trade-offs that investors must navigate among risk, return, and cost.

In retirement, most individuals have three broad return objectives (Figure 2):

- Generating a regular income stream for predictable or regular living expenses.
- Meeting discretionary or unpredictable spending needs, such as out-of-pocket health care costs or long-term care costs, or even unexpected housing or transportation expenses.
- Providing bequests to survivors, heirs, or charities.

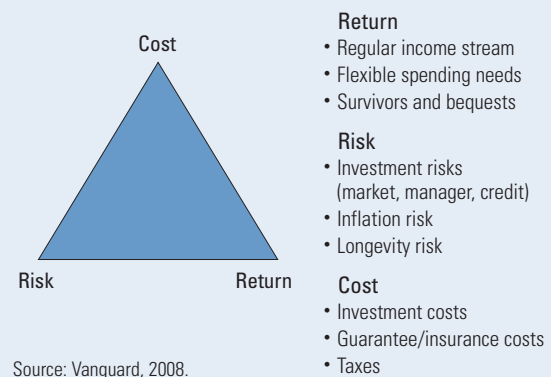
The emphasis on each objective will vary from individual to individual, and over time in retirement. But all three typically play some role in an individual’s decision-making.

Another important element of a retirement income strategy is the desire to mitigate financial risks. As in their accumulation years, individuals face the usual investment risks of markets, managers, and inflation. But unique to the drawdown phase is longevity risk: the risk of spending down savings too quickly and thereby depleting assets prematurely.

Longevity risk, however, is not solely the risk of overspending. It is also the risk of underconsumption or underspending. In other words, longevity risk can also mean spending too little in retirement, out of fear of depleting savings, and leaving too much in the form of residual bequests. In the end, the challenge in managing longevity risk is to balance the risk of being a spendthrift against the risk of excessive frugality.

Retired individuals must also consider three types of costs: investment costs, guarantee costs (the cost of providing protection against market, longevity, or other risk), and taxes. All things being equal, higher costs

Figure 2. Retirement income framework



will reduce an individual’s ability to achieve a given goal for a given level of risk. Lower costs will enhance an individual’s ability to achieve a given goal.

Decisions about how to spend money from a long-term retirement account take place in the broader context of other income-related decisions, including:

- *Timing of retirement.* One of the most significant errors individuals can make is retiring too early and having inadequate resources. Postponing retirement can improve retirement income levels. Some individuals retire gradually using a phased approach, while others stop work entirely. In some ways, the choices of a retirement age and an approach to retirement may be the most critical retirement income decisions preretirees make.
- *Social Security and DB plans.* Social Security benefits are more generous the longer an individual waits to enroll. For participants with DB plans, the choice between an annuity or lump sum (if offered) has a major effect on the timing of income needs.²
- *The house.* Most older Americans own their home, raising the issue of how home equity might be used to generate retirement income. Although home equity levels have fallen recently because of declining house prices and rising debt levels, home equity is likely to remain an important retirement resource beyond the current credit cycle.

² While DB plans are in general decline among private sector workers, there are still millions of households with private- or public-sector DB pensions.

Figure 3. Retirement income landscape

	Portfolio-based strategies	Annuity or other guaranteed strategies
First generation	Income investing Systematic withdrawal plan (SWP)	Immediate income annuity
Second generation	Payout funds	“Living benefit” annuity*

Other retirement income solutions include: “DB in DC” deferred annuities, longevity insurance, and reverse mortgages.

*Such as a guaranteed minimum withdrawal benefit (GMWB) annuity.

Source: Vanguard, 2008.

- *Debt management.* As they approach retirement, older households need to consider how to manage outstanding mortgage, installment, and credit card debt.
- *Health insurance.* Health insurance is an important element in determining income needs. Before age 65, individuals not covered by employer plans need to purchase coverage, if it is available. After they are eligible for Medicare at age 65, they face expenses for supplemental insurance and other out-of-pocket costs, as well as the potential expense of long-term care.
- *Household focus.* Decisions about retirement income are often household decisions—for example, the decision of one’s spouse or partner to elect a DB plan annuity or take a lump sum may alter one’s own retirement income preferences.

It is within the context of these choices that individuals must decide upon the orderly and tax-efficient liquidation of their savings over time.

To address investors’ retirement income needs, an array of investment, insurance, and banking products has emerged in the marketplace (Figure 3). One set of strategies is portfolio-based. These strategies do not provide guaranteed income streams, but use portfolio diversification and spending policies to manage certain elements of risk.

A second set of strategies is based on annuity-type products and offers a guarantee. In exchange for some explicit or implicit cost, these strategies typically provide a guaranteed level of income, an income guaranteed for life, or both.

The remainder of this report assesses these two types of strategies in detail. We also consider other less developed approaches, such as longevity insurance, reverse mortgages, and “DB in DC” accumulation annuities.

II. Nonguaranteed options

Two common strategies for generating income in retirement from a portfolio—on a nonguaranteed basis—are income investing and SWPs. Meanwhile a third option, the payout fund, has emerged as a way to simplify the creation of an SWP.

Income investing

Perhaps the simplest strategy for generating income from savings is income investing—spending only interest, dividends, or other investment income from a portfolio. The portfolio can be invested in bank deposits, mutual funds, stocks, bonds, or other instruments. By “never touching principal” and consuming only investment income, investors are in some sense able to self-insure against the risk of depleting savings.

With income investing, investors are exposed to the conventional risks associated with any portfolio-based strategy, such as market risk, manager risk, and inflation risk. Income investors also face income volatility risk—the risk that income levels may rise and fall with market yields. At the same time, an income investor’s assets are liquid and portable and can be accessed flexibly as needed.

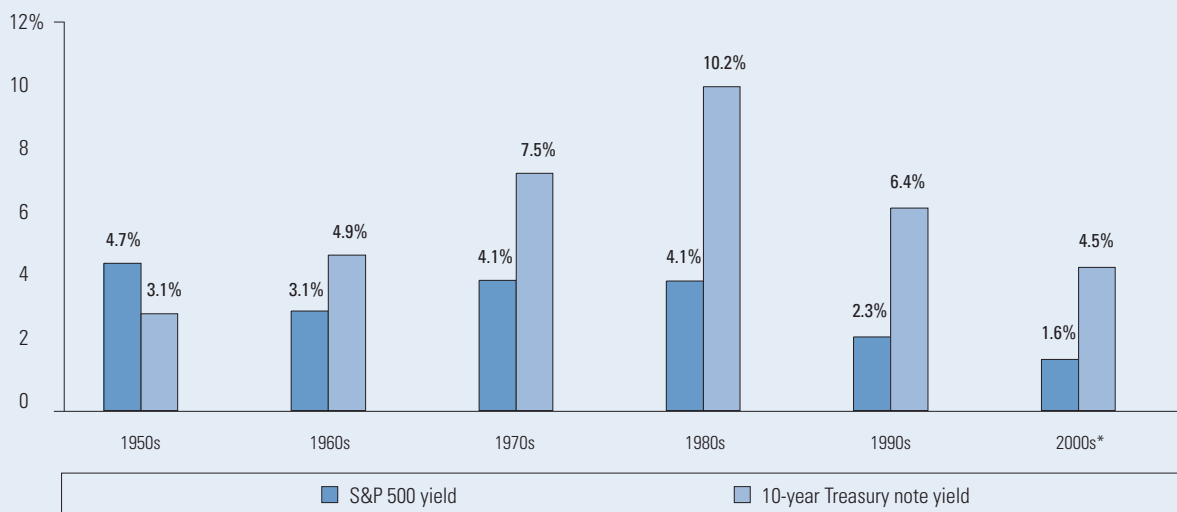
In structuring a portfolio to generate income, investors must make trade-offs among the current level of income offered, the stability of income over time, along with the potential for future income growth. For example, stock dividends offer low yields but the potential for higher future income growth; bond yields are typically much higher, but with negligible growth.

Inevitably, if income investors seek to maximize current income only, their portfolios will suffer, becoming poorly diversified. They will be concentrated in asset classes with high current yields, such as value stocks, real estate investment trusts, and long-duration corporate bonds; and underweighted in asset classes where return comes mainly from capital gains, which would include stocks in general or small-capitalization and emerging markets equities in particular.

This underscores an important drawback of income investing. Equity and fixed income yields have fallen in recent decades (Figure 4).³ Meanwhile, the portion of future equity returns expected from capital gains has risen. When they adopt an income investing strategy, investors choose to live off modest income yields—while leaving their initial capital, plus all future capital gains in retirement, to their beneficiaries. In effect, income investors are underutilizing their savings in financing their own retirement in favor of the needs of their survivors, heirs, and charitable bequests.

As a result, income investing is likely to be appealing in a few specific situations. It’s useful for investors who want a simple strategy to generate some income from their savings. It’s also suitable for affluent investors who are satisfied with lower yields from their savings and plan to leave much of their capital to others.

Figure 4. Asset class yields, 1950–2007



* 2000–2007.
Source: Vanguard, 2008.

3 A major portion of the decline in fixed income yields since the 1970s has been, of course, the decline in inflation, not in real yields.

Systematic withdrawal plans

An alternative to income investing is the adoption of some form of installment or SWP from a portfolio. With an SWP, an investor manages assets on a diversified total return basis and adopts a rule for gradually spending down the portfolio. The amount withdrawn can include investment income, capital gains, or initial principal. In this way, the investor's spendable income is not limited to portfolio yield but can be based on initial capital and the portfolio's total return.

SWP strategies can be simple—for example, a plan to withdraw a fixed percentage or dollar amount per year (Figure 5). They can also be more elaborate. For example, using a strategy like that of some endowments, an investor might apply a rolling-average spending rule, such as spending 5% of the average value of his account over the prior three or five years.

Another SWP strategy popular with some financial planners is the so-called "4% rule." In the first year of retirement, an individual spends 4% of his entire retirement savings. In each subsequent year, the dollar value of the withdrawal is increased by the rate of inflation. For example, a retiree with \$100,000 would spend \$4,000 in the first year

of retirement. If inflation were 2% during the year, his withdrawal for the subsequent year would increase to \$4,080—2% more than the previous year. In effect, the retiree pays himself an annual cost-of-living increase on the amount withdrawn from his portfolio.

Other SWP strategies include the modeling of withdrawals using sophisticated simulation techniques, and ensuring that withdrawals are structured to minimize taxes.

The goal of any SWP strategy is to provide some reasonable level of income over time, and ideally to have that income grow with inflation. The main obstacle is longevity risk: setting a withdrawal amount too high and depleting assets prematurely during retirement. The greatest risk of asset depletion occurs when an investor takes large withdrawals at a time of poor market returns. This is particularly true in the early years of retirement, when, in an example of "reverse compounding," high withdrawals and poor returns can combine over time to exhaust capital in the later years of retirement.

Figure 5. Types of systematic withdrawal strategies

Spending rule	Example
Simple % or \$ spending rule	Withdraw 3% of assets per year. Withdraw \$500 per month.
Endowment-like rule	Withdraw 5% of average of three prior years' asset value.
4% or 4½% rule	Spend 4% or 4½% of total retirement savings in first year of retirement. Increase dollar amount by inflation rate each year thereafter.
Monte Carlo or other simulations	Model withdrawal rates simulating effects of changing investment returns; adjust spending accordingly.
Tax-sensitive withdrawals	First withdraw assets from Roth savings or taxable assets subject to preferential capital gain tax rates. Postpone taxable pre-tax withdrawals.
RMD withdrawals	Spend only required minimum withdrawals from IRAs and other retirement plans once age 70½ and older (see page 7).

Source: Vanguard, 2008.

RMDs as an income strategy?

One possible strategy for an SWP is to base withdrawals on the tax rules for required minimum distributions (RMDs). Federal tax law requires investors in IRAs and DC plans to begin taking RMDs from their accounts once they reach age 70½. Because of this provision, some DC plans actually include life-expectancy-based withdrawals as a plan distribution option for retirees.

Are RMDs a suitable approach to generating a long-term retirement income? The short answer is, sometimes yes—and sometimes no.

Consider an investor at age 70½ with \$100,000 in his IRA as of the prior year. His first-year RMD is approximately \$3,800 (Figure 6). Assume that the investor decides to spend all of his RMD each year. Also assume his account grows at a 3% real rate of return, which permits us to compare his real purchasing power over time and ignore the volatility of investment returns.

Under the RMD rules, the investor's real purchasing power grows over time, reaching a peak of nearly \$5,300 in current dollars by age 89. But then, if the investor lives to age 90 or beyond, his RMD amount falls in real terms.

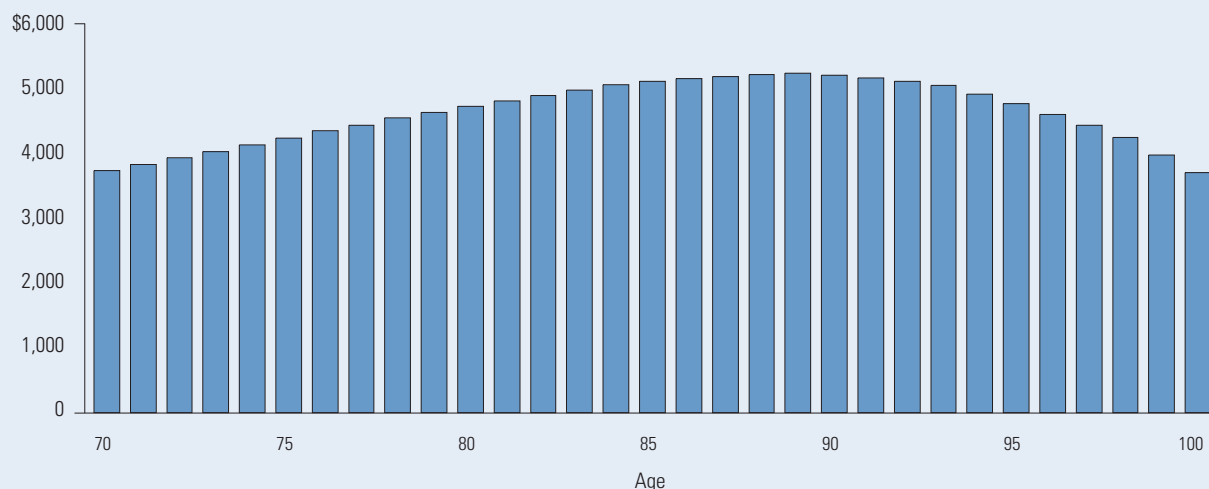
There is a sharp drop in his standard of living for every year he lives beyond 90. In effect, an investor who is fortunate enough to live a long life is penalized by a significant decline in the real value of his retirement spending.

Besides this risk, RMDs have risks similar to other simple SWPs. By using a percentage of an account balance once a year, the investor can experience significant increases or decreases in the amount withdrawn, depending on how volatile the underlying portfolio is.

For these reasons, RMD withdrawals from IRAs or DC plans, while essential to comply with tax laws, may not be a sustainable strategy for generating a predictable retirement income. At the margin, they can be a simple way to generate some income. But for those who live a long life, there is the risk that the RMD income level falls sharply in one's 90s. And portfolio income can be volatile depending on how the underlying assets are invested.

Figure 6. RMD withdrawals

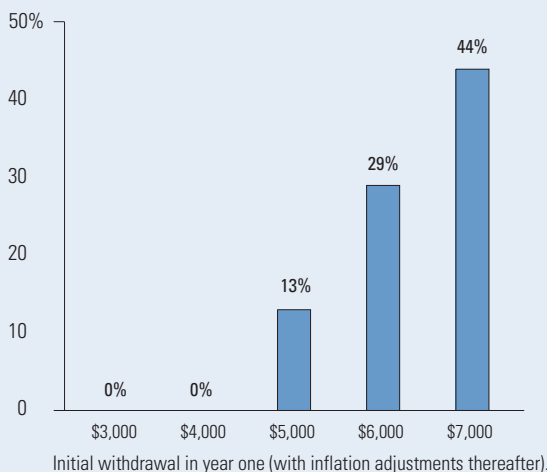
Required minimum distributions (RMDs) from a \$100,000 portfolio



Note: Assumes \$100,000 initial investment and a 3% real return. See text.
Source: Vanguard, 2008.

Figure 7. The risk of inflation-adjusted systematic withdrawals

Historical chance of depleting savings over a 30-year period



Note: Assumes a 60/40 stock and bond portfolio from 1926–2007.

Important: **The projections or other information generated by this analysis regarding the likelihood of various investment outcomes are hypothetical in nature, do not reflect actual investment results, and are not guarantees of future results.**

Note: This analysis does not consider taxes. Annual returns and inflation for a given asset allocation are based on historical data from 1926 through 2007. Past performance is not a guarantee or a prediction of future results. Stock market returns are for Standard & Poor's 500 Index from 1926 to 1970, the Dow Jones Wilshire 5000 Index from 1971 through April 22, 2005, and the MSCI U.S. Broad Market Index thereafter; bond market returns are based on the Standard & Poor's High Grade Corporate Index from 1926 to 1968, the Citigroup High Grade Index from 1969 to 1972, the Lehman Long-Term AA Corporate Index from 1973 to 1975, and the Lehman Aggregate Bond Index thereafter. Results may vary with each use and over time.

Source: Vanguard, 2008.

As an illustration, consider applying the 4% rule to a \$100,000 portfolio over a 30-year period in retirement (Figure 7). If the initial withdrawal rate in the first year of retirement is \$4,000 (4%) or less, with inflation adjustments in future years, there have been no historic periods in which an investor would have depleted capital in 30 years. But if the investor started with a \$5,000 withdrawal in the first year, again with subsequent inflation adjustments, there is a 13% historical chance of running out of money. At higher starting levels—for example, a \$7,000 withdrawal in the first year with subsequent inflation adjustments—there is nearly a 50-50 chance of depleting capital. This risk arises, of course, not

simply because the investor has made the initial 7% withdrawal, but that the withdrawal amount increases each year by the cost of living.

These simulations raise several broader issues:

- The typical investor or advisor is unlikely to follow a given spending strategy naively until one day the portfolio runs out of money. In the event of poor market returns, for example, an investor can reduce spending from the portfolio, or at least stop increasing the amount spent. This is just longevity risk in another form—not the risk of running out of money per se, but the risk of having to reduce spending to ensure that one's savings last.
- These figures show the risks of completely depleting one's retirement savings. But even in some of the "successful" outcomes, an investor's retirement savings might fall dramatically in value. So, while the investor's account balance might still be positive, he could perceive his assets as having been substantially exhausted.
- These simulations are based on a balanced portfolio of 60% U.S. stocks and 40% U.S. bonds. An even more diversified portfolio, such as one holding international stocks or other noncorrelated investments, might lead to a higher probability of success with this SWP strategy or any other. However, historical simulations have their limitations. Future returns could always be lower, in which case the probability of loss could be higher than expected.

Payout funds

Investors seeking to establish an SWP from their portfolio face a number of important decisions. At what rate should money be withdrawn? How should the portfolio be invested if it is being used to generate a regular stream of withdrawals? What approaches can be used, both in terms of investment strategy and spending rate, to manage the risks of running out of money? For many investors, answering these questions can be daunting. In spending down their assets today, most individuals appear to rely on relatively unstructured approaches.⁴

⁴ See Vanguard, 2008d, for details.

Payout funds have been created by asset managers to simplify such decisions. The aim is to streamline the process of establishing an SWP—in essence, to delegate the complex decisions about withdrawal rates and portfolio strategy to the fund manager. Payout funds combine a standardized or algorithmic spending rule along with a customized investment strategy, while using the mechanics of mutual fund distributions to make actual payouts to investors.

Payout funds come in two types:

- *Endowment-like funds.* Endowment-like payout funds mimic the characteristics of a university or other charitable endowment. They are designed to generate regular payouts and preserve capital over the long term. A simple approach might be to distribute a portion of a fund's assets each year. Another might be to use a more complex spending rule—such as 5% of the rolling three-year average net assets of the fund.
- *Time horizon funds.* Time horizon payout funds are intentionally self-liquidating over a specific horizon, such as 10, 20, or 30 years. Their aim is to provide regular payouts from earnings and capital consistently over a given time period. Ideally, at the fund's termination date, the account is generally exhausted with the final payout.

Conceptually, both types of funds make critical trade-offs between the initial level of the payout, growth of the payout and capital, and time. As an example, endowment-like funds may offer a choice between a low initial payout with high future growth potential and a high initial payout with little growth potential.

The two types of payout funds have varying uses. Endowment-like funds by their design are intended to produce regular payouts in perpetuity. The payouts can be used for living expenses with the residual value available for bequests. Time horizon funds can be used to provide additional spendable income over a specified period—including payments for a specific debt obligation, such as a mortgage, or for higher discretionary spending during the early active years of retirement.

Payout funds are investment, not insurance, vehicles, and thus the payout amount and any expected future growth of capital are not guaranteed. They are not guaranteed income solutions. Payout amounts and account balances will fluctuate and can decline. There is also the risk that fund managers may fail in their payout and investment strategies, leading to premature depletion of savings. At the same time, the funds come without the added costs associated with a guaranteed insurance product.

As investment vehicles, payout funds are flexible and portable. Investors can stop or start payments, increase or decrease their investment, or liquidate their interest entirely and invest in other assets—although in taxable accounts there may be a taxable gain or loss for such changes.

III. Guaranteed options

Perhaps the best-known strategy for generating guaranteed income in retirement is the immediate income annuity. Yet immediate annuities are not widely utilized, in part because savings in an income annuity are illiquid. As a result, a new generation of living benefit annuities is emerging. These products offer annuity-like guaranteed income and access to underlying assets, although with a quite different profile of risks and costs.

Immediate income annuities

The traditional vehicle for insuring against longevity risk is an immediate income annuity. An income annuity is an insurance contract that typically provides an income for life to either a single individual or two individuals if survivor benefits are elected.

The traditional fixed income annuity offers an income fixed in nominal terms for life. However, annuity contracts are also available in which the payout is inflation-adjusted (the income starts at a lower level, but grows with inflation over time) or is variable (the income rises and falls over time depending on underlying investment results).⁵

5 Our discussion here focuses on income annuities, which are used to generate monthly income, and not deferred annuities, which are used to generate income on a tax-deferred basis. Deferred annuities are used widely in nonprofit retirement plans as well as by affluent households outside retirement plans seeking to shelter investment income and capital gains from current taxation.

Annuities eliminate longevity risk through pooling (Figure 8). In any given annuity pool, individuals have varying life spans. Yet an insurance company can predict with some certainty the average life expectancy of a large pool of investors. In a simplified example, imagine a pool consisting of three investors with a collective life expectancy of age 86. In exchange for loss of access to their savings, they are promised a guaranteed lifetime income by the pool. Over time:

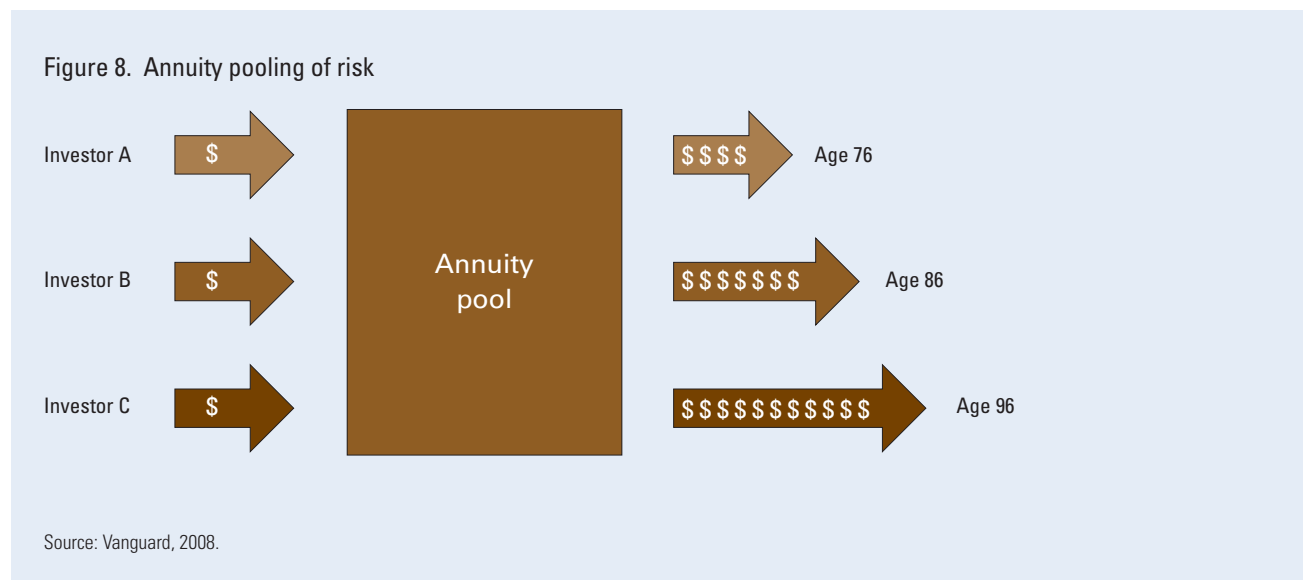
- Investor A lives only to age 76. The assets that would have been used to fund Investor A's income until age 86 are instead reinvested in the pool upon his death.
- Investor B lives to age 86, the life expectancy of the pool. In effect, his own savings (the return on his invested capital less costs for the annuity pool) fund his entire lifetime income.
- Investor C lives to age 96. She receives the assets she contributed, the net returns on those assets, and the assets and returns from Investor A, who died earlier than expected.

The pooling of risk in an annuity allows for several benefits. One is the ability to provide an income guaranteed for life. A second is the ability to generate higher income from a given set of retirement savings, all other things being equal. Without risk pooling, all of the investors in our example would have had to save

enough to self-insure their income through age 96, the maximum life span in our example. With annuity pooling, all investors can collectively base their income stream on a life expectancy of age 86—knowing that, if they live longer, assets from those who have died earlier will continue to fund income payments.

Finally, fixed and inflation-adjusted annuities provide guaranteed income that does not fluctuate with market conditions. Naturally, to cover the cost of these guarantees with respect to longevity risk and market fluctuations, insurers must add costs, typically known as the mortality expense, within the annuity contract. Some investors mistakenly view these costs as superfluous investment charges, but they are not. They are the costs of the guarantee against longevity and market risks.

Despite the potential benefits they provide, annuities remain unpopular with investors. Within DB plans offering a lump-sum option, the majority of participants typically select a lump sum.⁶ Within DC plans, annuity options are not widely available or frequently used.⁷ In the U.S. individual annuity market, only about \$15 billion of assets were annuitized in 2006.⁸ This is in a retirement market with \$3 trillion in IRAs and with hundreds of billions of dollars in lump-sum distributions flowing annually from retirement plans.



6 See Vanguard, 2007, for a study of lump-sum versus annuity behavior in two Fortune 500 defined benefit plans.

7 The Profit Sharing/401k Council of America (PSCA) reports that about one-fifth of DC plans offered an annuity distribution option (PSCA, 2007). Among Vanguard recordkept plans, less than 5% of 401(k) and profit-sharing plans are estimated to offer an annuity payout option.

8 See LIMRA, 2007.

The preference for lump sums

A substantial body of research has emerged that examines why retirees do not make greater use of immediate income annuities.⁹ In fact, the lack of demand for annuities is sometimes referred to as the “annuity puzzle” in modern economics.

One strand of annuity research is based on the assumption that individuals are economically rational agents in their preference for lump sums over annuities. The arguments for a low demand for annuities include:

- *Other annuity income.* Investors already have annuity income from Social Security or DB pensions, and that may be all of the annuity income they need.
- *Flexible spending.* Individuals want flexibility as well as regular income—flexibility to use their savings to pay for unexpected living expenses. Access to savings is important when they face large, unexpected housing, transportation, or health care costs, particularly long-term care expenses.
- *Illiquidity and lack of control.* Assets in an annuity contract are transferred to the insurer and are outside the investor’s control. Also, the purchase of an annuity is typically irrevocable (except during an initial cancellation period). The contract is essentially illiquid and irreversible. (Some of these drawbacks have been addressed by new and more flexible products in the annuity market.)
- *Bequests.* Another motivation for retaining assets in retirement is the desire to leave assets to heirs and charities upon one’s death or to give gifts during one’s lifetime.

In addition, annuities are subject to credit risk—the chance that the annuity provider could fail to make good on the contract’s promises.¹⁰ Traditional fixed income annuities are also subject to inflation risk.

Although inflation-adjusted and variable payout annuities have emerged to address this concern, they are even less frequently used than traditional fixed income annuities.

The second strand of research, originating from a behavioral finance perspective, suggests that psychological biases may cause individuals to misperceive annuities. These include:

- *Wealth illusion.* Individuals may mistakenly overvalue a large lump sum compared with a series of smaller income payments that are guaranteed for life, even though the two are equally valuable on a present value basis.
- *Misunderstanding of longevity risk.* There is some evidence that individuals misunderstand longevity risk. They appear to overstate the risk of dying too young and thus worry too much about the risk of “forfeiting” their annuity investment to the insurance company; and they underestimate the risk of living a long life, and therefore undervalue the benefits of longevity protection.
- *Financial illiteracy.* Annuity contracts can be quite complex and may be difficult for many individuals to understand and interpret. Perhaps the demand for annuities would rise with improved financial education. A related issue is that annuities are generally relatively expensive because of the cost of the guarantee. Individuals may misperceive this portion of the cost, failing to understand that it is not a higher investment fee but an expense for the insurance element of the contract.

If behavioral biases are the main issue, then perhaps behavioral techniques such as reframing and default arrangements might change investor demand for annuities. Nonetheless, despite the range of hypotheses on the issue, no single factor appears to fully explain why individuals have such a strong preference for lump sums over annuities.

9 This summary draws on Brown, Mitchell, Poterba, and Warshawsky (2001); Brown (2007); and Ameriks, Caplin, Laufer, and Van Nieuwerburgh (2008).

10 In the case of annuities offered by private-sector DB plans, annuity payouts are typically guaranteed by the federal agency, the Pension Benefit Guaranty Corporation (PBGC). However, the PBGC may not guarantee a retiree’s entire pension amount. In the case of annuities offered by a private insurer, a complete bankruptcy by an insurer would be quite rare, although it has occurred. Private insurers are regulated at the state level, and policies are generally insured by guaranty association funds supported by contributions from insurers in each state. However, the benefits from the guaranty funds could be frozen or delayed pending the outcome of litigation surrounding a bankruptcy.

Living benefit annuities

The limited popularity of traditional annuities has led insurers to create a new class of annuities providing both guaranteed levels of income and flexible access to savings. They are generally known as variable annuities with lifetime or living benefits, and are often referred to as guaranteed minimum income, withdrawal, or lifetime benefit annuities. They also can be described as hybrid annuities because they combine the guaranteed element of an insurance contract with the flexibility and control of an investment account.

The features of this type of annuity can vary substantially. A typical contract would offer an investment portfolio and a guaranteed income stream (Figure 9). In such a contract, an individual's savings would be invested in a balanced fund. That portfolio would be wrapped with an annuity contract providing a guaranteed income for life, such as 5% of the initial amount invested. The income could grow over time with investment performance, but it would never decline.

For example, a 65-year-old retiree investing \$100,000 in such a contract might initially receive \$5,000 a year for life. Over time, depending on the contract and assuming buoyant financial markets, the guaranteed

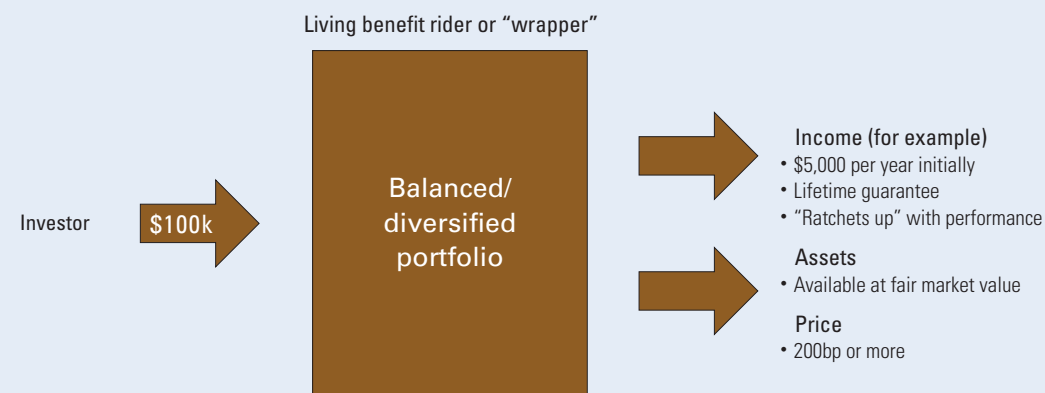
lifetime income might “ratchet up” to higher levels—\$5,100, \$5,300, and so on. This new income level is then guaranteed for a lifetime.

Importantly, investors in such contracts have a benefit unavailable in traditional annuities: the ability to withdraw assets at their current fair market value. The underlying fair market value of the contract will rise and fall with investment results. But the balance is always available for withdrawal, although sometimes insurers impose surrender charges to discourage redemptions.¹¹

Despite their guarantee elements and flexibility, living benefit contracts do have their limitations. First, fees are quite high. Annual retail fees are typically on the order of 2% to 3% or more. A portion of these fees is required to finance the unique guarantee structure of the products. However, a meaningful portion is also related to marketing, distribution, and other costs. Over time, lower cost versions are emerging for the institutional marketplace.

High fees pose a substantial hurdle for the performance of living benefit annuity contracts. In a low or modest return environment, high fees could absorb a large percentage of future investment returns. As a result, the contract's value and the

Figure 9. Example of hybrid annuity feature



Note: General characteristics of a variable annuity contract with a living benefit rider. Not intended to represent the actual features of any actual annuity contract.

¹¹ If the investor does withdraw a portion of assets, the income paid by the contract declines on a pro rata basis. For example, if an investor withdraws 25% of the market value of the account, the guaranteed income is adjusted downward by 25%. Some contracts may impose redemption or surrender charges as well to discourage redemptions.

income it generates might grow slowly—or not at all—for an extended period. From the investor’s perspective, what might have appeared to be an investment offering guaranteed income and growth could instead become a high-cost investment with only guaranteed income and no growth.

Second, it is difficult to assess these annuities’ long-term performance potential, given the variation in fee levels and complex contractual features that exist from provider to provider. Investors will struggle with understanding whether the guaranteed elements are delivering fair value relative to the fees being charged.

A third issue is whether such contracts will actually be used to generate guaranteed retirement income. In today’s market, living benefit features are quite common in new deferred variable annuities, which are purchased mainly by affluent investors as an accumulation-oriented investment. To date, the contracts have not been widely used to pay guaranteed income. In the worst case scenario, an investor could purchase a high-cost contract for the potential guarantee—but never use the guaranteed income element, and so never receive a benefit for the costs incurred.

A final concern is the nature of the insurer’s skills and the level of capital backing the guarantees being offered. Contracts with lifetime benefits are relatively new, so few of the contracts are in the annuitization or payout phase. They require careful hedging of stock and bond market risks. In effect, investors in such contracts are being offered a put option on future stock and bond prices—in the event that markets decline, investors receive income as if the market losses hadn’t occurred.

It is difficult for investors to know whether a given insurer will be able to actually hedge the risks accurately. If they fail to price them accurately, the insurer may not maintain sufficient capital on hand needed to back the contracts when stock and bond markets fall. And if the hedging does go awry, how will the insurance regulatory system—both state regulators and the state guaranty funds—respond?

In comparing the two “next generation” income solutions—payout funds and hybrid living benefit annuities—it seems clear that both pose risks to investors. But the character of the underlying risk is quite different.

- Payout funds are designed to be an off-the-shelf SWP for investors who are unsure of how to set up their own withdrawal program. Like other investment products, they provide no guarantees with respect to income or capital and expose investors to underlying portfolio-related risks, including the risk of spending from a portfolio in a declining market. In exchange, they provide flexibility and liquidity.
- The new generation of living benefit annuities provides guaranteed income and flexible access to savings—thus offering both liquidity and insurance against market and longevity risks. However, high costs may hinder their effectiveness, and the risk always remains that insurers could fail in their ability to support the complex guarantees.

Other solutions

Three other strategies may play a role in helping retirees generate income. To date, however, the market for these approaches remains underdeveloped.

Longevity insurance. Longevity insurance is an annuity contract that pays a lifetime income only if the contract holder reaches an advanced age, such as 80 or 85. An investor deposits a lump sum with the insurer at retirement, say at age 60 or 65. In exchange, the insurer promises an income at age 80 or 85—but no benefit if the investor dies earlier.

Longevity insurance has a certain intuitive appeal because it provides an insurance policy for the one element of risk—the risk of living too long—that individuals cannot readily self-insure against. It has been described as the “term insurance” of the spend-down phase—namely, an insurance contract specifically targeted at the risk of living a long life. In practice, an investor might use an SWP or similar strategy to manage assets through their life expectancy and purchase longevity insurance against the “long tail” risk of running out of savings at an advanced age.

The question remains whether investors will actually find longevity insurance appealing. The product requires investors to be exceptionally long-sighted—to forfeit their right to a portion of their savings at retirement in exchange for a benefit that may materialize in 20 or 25 years if they live a long life, or that will not materialize at all if they die sooner. This appears to pose a major behavioral obstacle to the adoption of these products.

Reverse mortgages. More than 80% of older Americans own a home. In addition, despite the recent turbulence in the housing market, home equity represents a substantial portion of the total wealth of the early wave of the baby boom generation. As a result, policymakers and mortgage companies are keenly interested in expanding the reverse mortgage market as a source of retirement income.

Reverse mortgages do not directly affect how individuals manage their liquid financial savings in retirement plans or personal accounts. But they do have an indirect impact on such savings. Homeowners who choose to receive guaranteed income from their home equity may have a reduced need for regular income streams from their liquid assets.

In the typical reverse mortgage contract, the homeowner can choose to receive a lump sum, a line of credit, a fixed monthly payment for a set term or for as long as they live in the house, or some combination of these methods. The loan is repaid when the homeowners cease to occupy the house. This generally occurs if the house is sold or if the homeowners die. The loan balance is usually repaid by selling the home, although the loan can be repaid by other assets if they are available.

While in theory an attractive way to generate income, the reverse mortgage market is immature and has been hobbled by a number of concerns:

- *Only a portion of equity is available.* Retirees are able to extract only a portion of the home's equity—what has been referred to as “consumable

net worth.”¹² For a typical new retiree, only half the value of the equity may be accessible.¹³ In addition, volatility in the housing market can impact the amount of equity available to homeowners. However, reverse mortgages have a “nonrecourse” feature, so the amount owed cannot exceed the appraised value of the house. Should the value of a house fall so low that the amount owed exceeds the value, the lender would absorb the loss.

- *Term-certain limits in some contracts.* Some reverse mortgage contracts do not provide a lifetime income guarantee, but only an income for a term certain, such as 30 years. Thus, they fail to provide a full longevity guarantee. However, the homeowner cannot be evicted from the home if he or she outlives the term of the reverse mortgage. The loan does not have to be repaid as long as the homeowner lives in the house and keeps current on taxes and insurance.
- *Equity cannot be used for nursing home care.* There is evidence that home equity is used by older Americans to pay for nursing home care or other long-term care costs. By entering into a reverse mortgage contract, homeowners diminish their ability to use home equity in this way.
- *Complexity and cost.* The reverse mortgage contract requires a settlement process that can be daunting to some older investors, and the fees can run as high as 10% of the principal loan amount.¹⁴

“DB in DC” annuities. A recent development in the retirement marketplace is the repackaging of accumulation (or deferred) annuity contracts as investment options for DC plans. In essence, with each contribution into a DC savings plan, a participant purchases both a current-day asset and a promised level of income at retirement. Hence the term “DB in DC”—DC savings are being used to purchase guaranteed lifetime annuities payable at retirement.

Deferred annuity contracts may be offered as fixed annuities (i.e., offering a stable principal value and a fixed rate of return) or variable annuities (i.e., investing

¹² Sinai and Souleles, 2007.

¹³ See Eschtruth, Sun, and Webb, 2006.

¹⁴ See Fannie Mae, 2002, p.66.

in equities, balanced funds, life-cycle funds, or similar assets with a varying return and market value). Besides offering exposure to a given asset class, deferred annuities convert a participant's current balance in the contract into an income stream at retirement, typically at age 65. Participants can also defer payments until a later age to receive a higher monthly income. In the typical DB-in-DC product, plan participants see both their contract account balance and a guaranteed level of future income on statements and websites.

The merits and drawbacks of such contracts are discussed in a separate Vanguard research note.¹⁵ The main risk associated with such contracts is that plan participants may pay for certain guarantees over extended periods, yet fail to exercise the lifetime income feature. For example, a participant may spend a career accumulating guaranteed income—only to retire, take a lump sum, and decide not to annuitize. Other considerations include fiduciary oversight within retirement plans, fees, and portability.

IV. Implications

The growing number of Americans retiring with lump-sum savings is driving interest in retirement income strategies. The retirement income landscape is quite varied. Nonguaranteed options for generating income in retirement include income investing, SWPs, and payout funds. Guaranteed options include immediate income annuities and living benefit annuities, along with less widely used strategies such as longevity insurance and reverse mortgages.

For individuals and advisors, the challenge does not appear to be a lack of strategies for managing retirement income risks. Rather, the challenge appears to be how to help individuals make informed choices among the available options, and in particular how to strike the right balance among guaranteed and nonguaranteed options in their portfolio.

In short, an increasing number of individuals will need a retirement income plan. Such a plan would combine nonguaranteed and guaranteed elements, depending on the trade-offs an investor is willing to make among risk, return, and cost. At one extreme, the most risk-averse investor will seek some combination of guaranteed options that protect fully against market and longevity risks. At the other extreme, the more risk-seeking investor will be satisfied with Social Security as a sole source of guaranteed income and will utilize nonguaranteed strategies like SWPs or payout funds. Many households, we surmise, will want a blend of options in their retirement income plan. Advisors will need to respond by developing methodologies for creating such plans for clients.

Within DC plans, the main income options today are typically systematic withdrawal features. Annuities are infrequently offered, and even less frequently utilized by participants. For plan sponsors and policymakers, several other retirement income products are emerging in the IRA marketplace as potential alternatives. It remains to be seen, depending on the IRA experience, whether these strategies will be suitable as within-plan distribution options.

What seems clear is that the next generation of retirees will have at its disposal an expanded set of choices for managing retirement income risks. Yet many of these options remain relatively new and untested. How will investors in portfolio-based income approaches react in times of high market volatility? Will the issuers of new guaranteed options be able to hedge their risks effectively and be able to keep their promises? These are the questions facing the retirement income marketplace as it develops.

In this environment, the retirement income decision for most individuals will come down to the same principle that governed decisions in the accumulation phase—the need to strike a careful balance between risk, return, and cost.

¹⁵ See Vanguard, 2008c.

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Comparative information

	<i>Vanguard Managed Payout Funds</i>	<i>Vanguard Lifetime Income Program Life-Only Fixed Annuity*</i>
Objective	Managed Payout Growth Focus Fund seeks to make monthly distributions of cash while providing inflation protection and capital appreciation over the long term. Managed Payout Growth and Distribution Focus Fund seeks to make monthly distributions of cash while providing inflation protection and capital preservation over the long term. Managed Payout Distribution Fund seeks to make monthly distributions of cash while providing capital preservation over the long term.	To provide a fixed, guaranteed monthly payment for the life of the annuitant.
Payments	Monthly; set each year based on a fund's annual distribution rate and its average share price over the preceding three years or since inception, whichever is shorter.	Monthly; fixed unless you choose annual adjustments according to an inflation-based index or by a fixed percentage rate selected at the time you purchase the annuity.
Costs and expenses	Expense ratios as of May 5, 2008: Growth Focus Fund: 0.58% Growth and Distribution Focus Fund: 0.58% Distribution Focus Fund: 0.57%	No initial sales loads, charges, or surrender fees. Fees are incorporated into the rate quoted at the time of purchase. Also see "Taxes" below.
Liquidity	You can redeem shares from these open-end mutual funds at any time. Any change in your share balance will affect your next monthly payout.	None. You surrender any claim to principal in exchange for the annuity.
Guarantees and safety	You receive no guarantees; payments and principal can go up or down significantly.	Payments are guaranteed based on the claims-paying ability of the insurance company that issues the annuity.
Fluctuation of principal	Share prices can fluctuate significantly.	Not applicable because you surrender your principal.
Taxes	Distributions may comprise any combination of income, capital gains, and return of capital.	Payments are generally treated as ordinary income. Annuities purchased with after-tax dollars will receive a partial return of capital in each payment. Some states may assess a one-time premium tax on annuity purchases.

* The life-only fixed annuity option of the Lifetime Income Program offers additional options such as period-certain, which provides payments for a predetermined number of years in exchange for other considerations.

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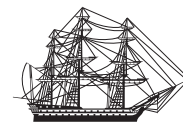
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Spending the nest egg: Retirement income decisions among older investors

Volume 35

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Vanguard[®]

Executive summary. Our survey of older American investors (age 55–75 with \$50,000 or more in savings) reveals that half of retired households tapped their long-term accounts in the past year, typically as a large, one-time withdrawal. Only a small group of retirees is generating systematic payments from long-term accounts. However, these patterns are likely to change as the number of older Americans seeking to generate regular income from retirement lump sums increases.

Withdrawing assets. Half of retired households withdrew assets from one or more of their long-term savings or investment accounts in the past year. Most withdrawals were taken on a one-time basis, and they tended to be large (half were more than \$10,000), whether or not the household had a traditional pension. Withdrawals were used mostly for living expenses and big-ticket purchases. However, two in ten households spending from their long-term accounts relied on some type of systematic or regular income payment program.

Multiple objectives. In thinking through objectives for spending down their long-term savings, many households pursue seemingly conflicting goals. Most survey respondents seek to have both a guaranteed monthly

income and protection of assets—while also maintaining investment control, keeping up with inflation, and having access to savings for unexpected expenses.

Spending strategies. Spenders use a variety of strategies to guide their withdrawal decisions from long-term accounts—from basing withdrawals on living expenses (37% of spenders), to using a regular dollar amount (21%), spending investment income (16%), or using other rules of thumb. Other spenders have no formal approach (21%) or use gut feelings (10%). Less than one in ten appear to have a formal spending rule in place. Meanwhile, only 44% had a regular approach to reviewing their spending strategy.

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Financial complexity. The typical older-American-investor household owns six distinct accounts; one-fifth hold ten or more accounts. In addition to transaction accounts, one-third of older households held three different types of long-term accounts (IRAs, employer plans, and personal accounts), and 39% held two types. Furthermore, 94% of respondents in our sample own a home, 48% were receiving a traditional pension, and another 28% expected to receive one in the future.

The role of debt. About half of fully retired households in our sample carried mortgage debt; half carried credit card debt. Debt levels were higher among those not yet retired (78% with mortgage debt, 64% with credit card debt). In addition, households carrying debt were much more likely to withdraw assets from their long-term accounts in the past 12 months.

Advice. More than nine in ten spenders relied on their own judgment or their spouse's assistance in making spending decisions. Forty-two percent relied on professional sources of advice, although most judged advisors as only "somewhat" important in making spending choices.

Implications. About one-half of retired households in our survey are tapping their long-term savings, although most withdrawals are large and infrequent, and only a few attempted to generate systematic payouts. In light of the ongoing shift to lump-sum payouts from retirement plans, our findings suggest several implications.

First, an increasing number of individuals need help translating an account balance into a regular income stream. New investment and insurance products have emerged to help with this task. They may prove especially valuable if they replace the relatively intuitive approaches used by investors today with systematic spending strategies.

Second, in terms of priorities, individuals rank attributes of portfolio-based solutions (e.g. flexibility, control) as highly as attributes of guaranteed solutions (e.g., guaranteed monthly income). This suggests that many investors would prefer a mix of retirement income solutions, not a single approach, and need help balancing these competing goals.

Third, complexity is quite common for many households with long-term accounts. Helping individuals manage that complexity, or possibly shift to simpler financial situations, can be an important goal for education programs and advisors.

Finally, education and advice programs will be essential in helping investors derive regular income from their long-term accounts. For many, a holistic approach will be needed—combining a strategy for spending down a specific account with related income issues including Social Security, pensions, home equity, and, for at least half of retirees, mortgage and credit card debt.

Background

Increasingly, older Americans working in the private sector are receiving retirement plan benefits in the form of a lump sum rather than a lifetime annuity. Driving this development has been the growth of defined contribution (DC) plans, an increase in the number of defined benefit (DB) plans offering a lump-sum payout, and the expanded role of IRAs, which are principally funded by rollovers from employer plans.

These developments have led to a growing interest in the spend-down, or retirement income, phase of the savings life cycle. Yet little is known today about how older Americans currently spend from their accumulated savings. The goal of our current study is to develop a basic understanding of how older Americans decide to spend assets in their long-term savings and investment accounts—just before and in the early years of retirement.

The results in this report are based on a national online panel survey of older Americans, age 55 to 75, with \$50,000 or more of accumulated financial assets. A total of 1,478 respondents participated in the survey, which was conducted in May 2008. Top-line survey results have a +/- 3% sample error. Our methodology is discussed further in the Appendix.

In this report, we begin by examining the frequency of withdrawals from long-term savings and investment accounts, as well as the factors driving those withdrawals. We then examine the broader issue of financial complexity facing older households—including the number and type of long-term accounts held. We then examine the role of professional and nonprofessional help. The report concludes with a discussion of implications.

A note on terminology

Our survey respondent population might best be described as “older American investors,” given their age (55–75) and asset holdings (\$50,000 or more). We use this term informally, but technically all of our responses are at a household level, not an individual level. Also, they are representative of households in this age range with \$50,000 or more in savings. We estimate the survey to be representative of at least one-half of older Americans in this age range, given the savings threshold, but obviously not the entire population of older Americans in this group.

Throughout this report we interchangeably use the terms “withdrawals” and “spending.” However, our survey asked respondents only about their withdrawal behavior, not whether respondents actually spent the money they withdrew. A reasonable assumption from our findings is that, over time, most withdrawals are eventually spent, since most respondents indicate that they took withdrawals for daily or discretionary living expenses, as well as “big-ticket” purchases.

Incidence of withdrawals

Our respondents were asked whether they had withdrawn any money from long-term savings and investment accounts over the past year. They were specifically asked about withdrawals from the following types of accounts:

- Employer accounts—any retirement or investment account sponsored by an employer or held at the workplace.
- IRAs.
- Personal accounts—any other (generally taxable) bank, brokerage, investment, or insurance account.

We use the term “long-term accounts” to refer to the three nontransaction accounts— employer, IRA, and personal—and the term “retirement accounts” to refer to IRAs and employer accounts.¹

¹ Our research focus is on liquid asset accounts. Illiquid holdings, such as business interests or investment real estate that are typically held by only a fraction of affluent households, are incorporated in our analysis if the respondent included them in “personal accounts” and assigned a value to them.

Among those who reported being fully retired, 47% indicated that they had taken at least one withdrawal in the past year from any of their long-term accounts (Figure 1). Among the partially retired, more than one-third reported taking a withdrawal from any long-term account. In the entire sample, including those who were retired, partially retired, and still working, about one-third reported withdrawing money from any of their long-term accounts.

Spending is also occurring among those not yet retired. Twenty-seven percent of nonretired respondents reported spending from their long-term accounts sometime in the past year. One reason may be that older workers are supplementing their current resources with withdrawals from long-term accounts. Another reason is that, because retirement is self-reported, respondents may view themselves as not retired—even though they may have exited their full-time occupation and are working at a lower income, and thus need to take withdrawals from their savings.

Why are older American investors tapping their long-term accounts? The main reason is to pay for daily living expenses, cited by 44% of those withdrawing from personal accounts, 48% of those withdrawing from employer plans, and 43% of those

withdrawing from IRAs (Figure 2 on page 5). Paying for discretionary expenses (such as leisure and entertainment) is also important. Big-ticket expenditures (e.g., housing, cars, appliances) accounted for a smaller but still-significant percentage of those making withdrawals (22% to 39%, depending on the type of account withdrawn from).

Under U.S. tax law, owners of IRAs and employer retirement accounts must take required minimum distributions (RMDs) once they turn age 70½. Since our survey population included individuals up to age 75, some respondents taking withdrawals cited RMDs as the reason for withdrawing from employer and IRA accounts. The incidence of RMD-driven withdrawals was more common for IRAs than for employer accounts because, on average, IRA holders in our survey were older than the respondents with employer plans.

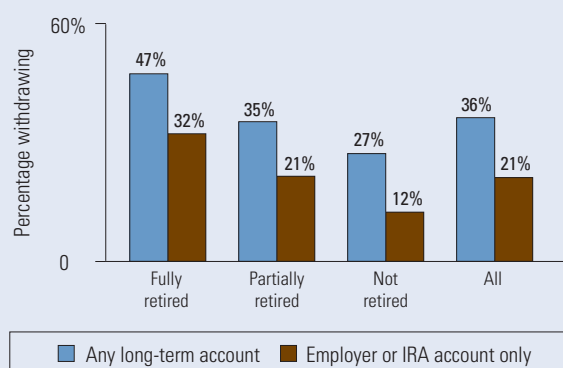
Who is spending?

In an attempt to better understand the factors that drive the withdrawal decision, we conducted a regression analysis that examined the relationship between a host of demographic variables and the decision to spend assets from long-term accounts over the past year.²

The main factors influencing the decision to spend are being older and being retired (Figure 3 on page 5). Investors that were ten years older were 11% more likely to make a withdrawal (versus a base withdrawal rate of 34%); being retired raised the probability of spending by 10%.

Does the presence of a traditional pension influence spending from long-term accounts? In our analysis, it did not. Forty-eight percent of our sample reported they were currently receiving a pension, and another 28% expected to receive one in the future.³ In our regression analysis, there was no link between receipt of a current pension, our “pension” variable, and the probability of spending from long-term accounts in the past year.

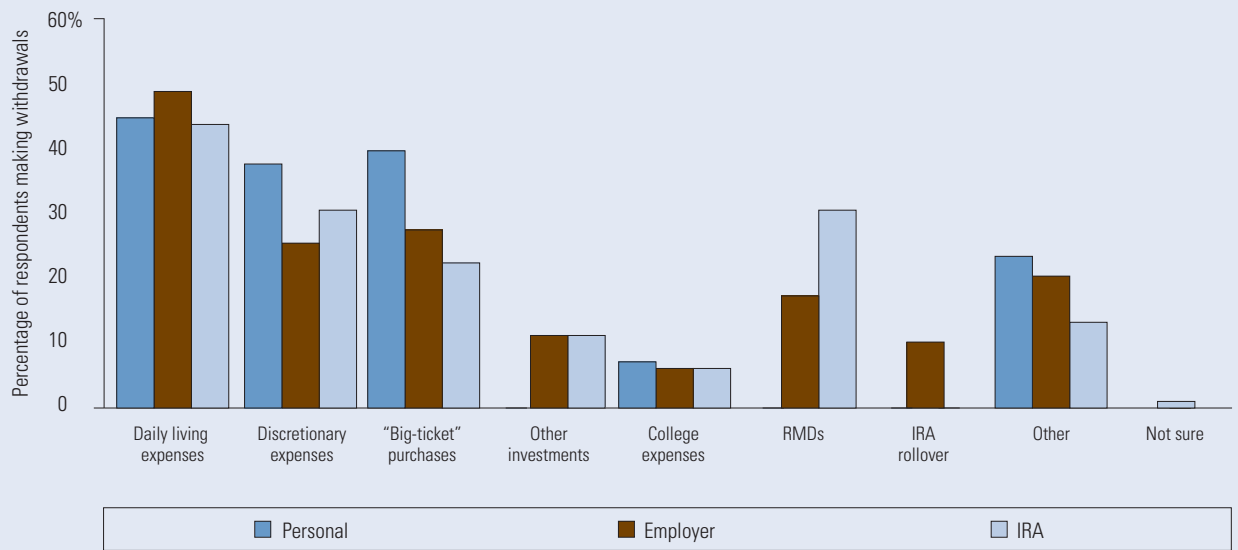
Figure 1. Incidence of Withdrawals In Past 12 Months



Source: Vanguard, 2008

2 Our model is a logistic regression relating the presence of a withdrawal from a long-term account in the past 12 months to a variety of demographic variables. We report here only marginal effects. Complete regression results are available from the authors.
 3 Our pension coverage estimate may appear high. Purcell (2008) reports that, in our age ranges, 9-15% of households are currently receiving a public pension and 12-30% are receiving a private pension. Assuming no overlap between private and public pension coverage, no more than 45% of households in these age ranges are currently receiving a DB pension benefit. Our higher figure may reflect the greater affluence of our survey population, the failure of respondents to understand their pension eligibility, or a confusion between DB and DC plans.

Figure 2. Reasons for Withdrawals for Spending Households

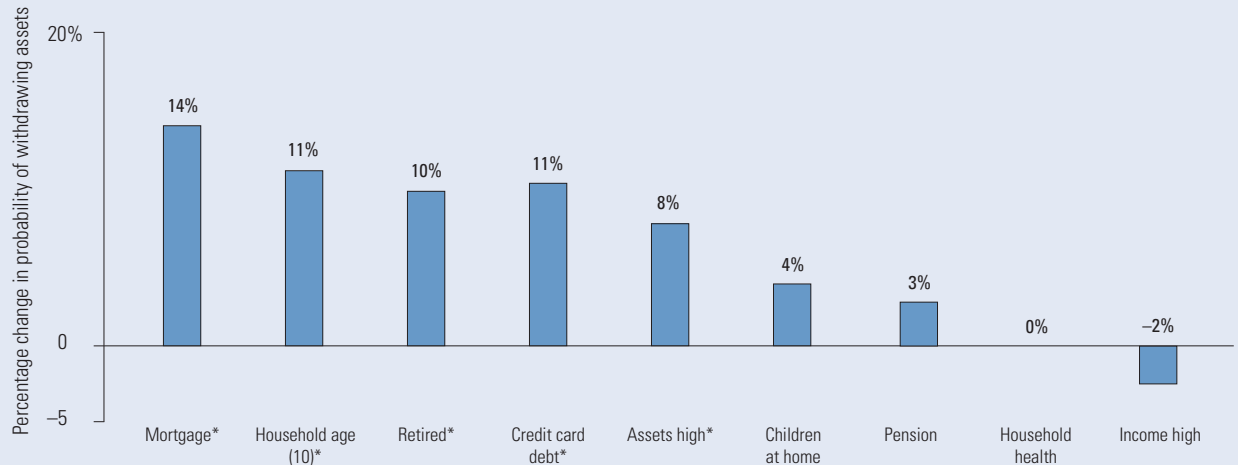


Note: RMDs are required minimum distributions from IRAs or employer plans after age 70½.

Source: Vanguard, 2008.

Figure 3. Factors Influencing Withdrawals

Among those spending from long-term accounts



Note: * Indicates variable significant at .05 level.

Source: Vanguard, 2008.

In our sample, 49% of retired households reported carrying credit card debt and 50% reporting having a mortgage (compared with 64% and 78% for nonretired households). What is striking is the role played by mortgage and credit card debt in influencing the spending decision between ages 55 and 75. Mortgage holders were 14% more likely to withdraw assets from their accounts relative to nonmortgage holders—that is the equivalent of a 41% increase on our base withdrawal rate of 34%. In addition to mortgage debt, households with credit card debt were 11% more likely to tap their accounts than households without credit card debt.

We return to the issue of debt management in retirement later in this report.

Motivation for strategy

Those respondents spending from long-term accounts reported attempting to balance a wide range of goals, many of which can be conflicting. In terms of factors perceived to be “very important” or “somewhat important” in setting a spending strategy, older American investors cited a range of considerations: ensuring that money lasts, paying for basic living

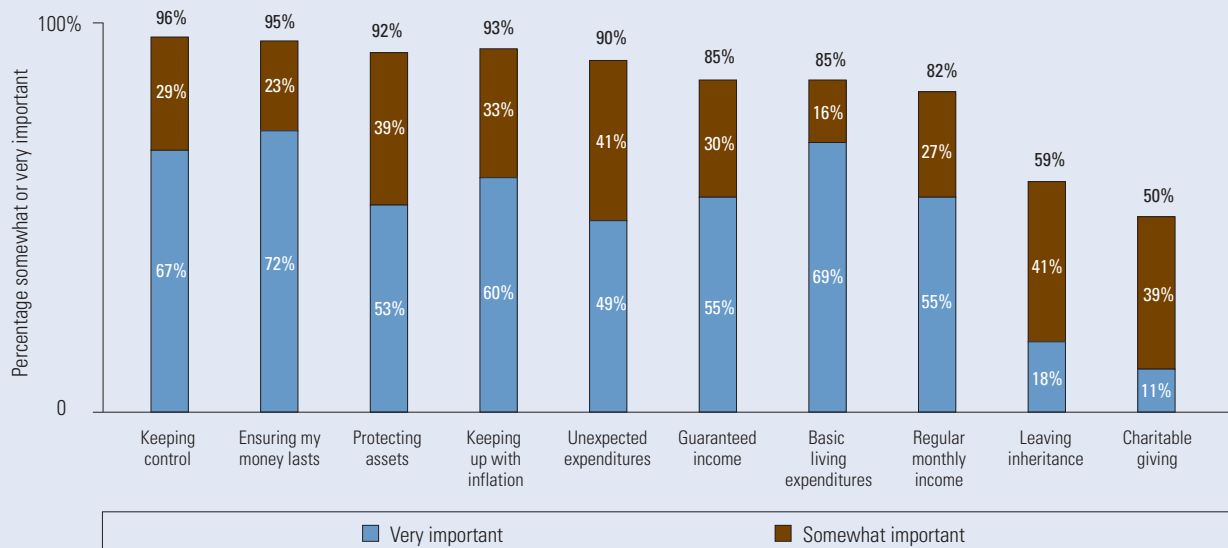
expenses, retaining control over assets, having a guaranteed income, and keeping up with inflation, among others (Figure 4).

Yet in reality, assets that provide a regular or guaranteed income (e.g., fixed income securities, fixed annuities) also are often subject to inflation risk, while assets that provide protection against premature liquidation of assets (e.g., income annuities) can entail loss of control and loss of flexibility. Similarly, assets offering control and flexibility, such as portfolio-based withdrawals, do not necessarily provide guaranteed income and asset protection.

Additionally, more than 80% of respondents cited eight different factors as being “somewhat important” or “very important” to their spending decisions. These results underscore the challenge of helping households make appropriate trade-offs among competing priorities. It also suggests that households may need a holistic or blended approach to retirement income solutions. Rather than simply choosing portfolio-based income solutions or guaranteed options, households may prefer a mix of strategies.

Figure 4. Motivation for Withdrawal Decisions

Among those spending from long-term accounts



Source: Vanguard, 2008.

The only factors that did not appear to be universally important were bequest motives. Eighteen percent of respondents mentioned bequeathing assets to heirs as “very important” and 11% cited bequeathing assets to charities as “very important.” Even among households with more than \$1 million in assets, the percentages increased to 19% for heirs and 15% for charities. However, the proportion considering these goals important rose to about six in ten households when “somewhat important” and “very important” responses are included together. Thus, while not a primary goal, respondents appear interested in bequeathing assets should their financial situation allow it. In a sense, bequests are a residual goal for many households, even the more affluent.

Spending patterns

The types of spending strategies used by investors varied according to the type of account from which they were withdrawing. IRAs and employer plans had the same pattern of spending approaches (Figure 5). The most common approach was a single withdrawal in the past 12 months, used by approximately six in ten investors spending from their IRAs or employer

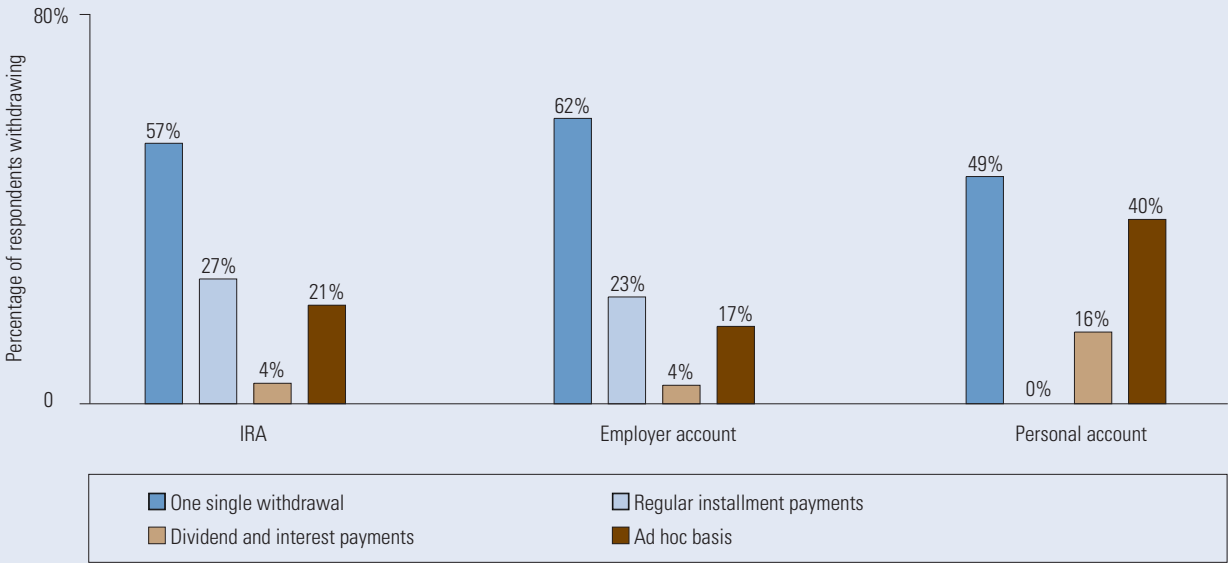
accounts. The second most common strategy, used by roughly one-quarter of spenders from these accounts, was an installment or systematic withdrawal plan. Ad hoc withdrawals (meaning more than one withdrawal in the past year, but with no set schedule) were also reasonably common among about one-fifth of those spending from IRAs or employer plans.

For personal accounts—which are more often taxable investment or savings accounts—the pattern of withdrawal strategies was different. About one-half of spenders took a single withdrawal, and four in ten favored an ad hoc approach. None of our respondents reported using an installment payment on these accounts, but 16% indicated they withdrew only dividend and interest payments—most likely driven in part by an effort to control the realization of capital gains taxes.

Given the emphasis on one-time withdrawals, most withdrawals were large in dollar terms. About 50% of withdrawals during the past 12 months were for more than \$10,000, and about 20% were for more than \$25,000 (Figure 6 on page 9).

Figure 5. Withdrawal Frequency by Account Type

Among those spending from long-term accounts



Source: Vanguard, 2008.

Somewhat surprisingly among our respondents, these withdrawal patterns were not affected by traditional pension coverage. Households making withdrawals took large, infrequent withdrawals regardless of whether they were receiving regular monthly income from a pension. Households without a traditional pension did not appear to replicate monthly payments through greater use of installments.

The fact that withdrawal patterns are unaffected by the presence of traditional pensions could be explained by several factors. Households may face financial literacy constraints and may not know how to create a regular income stream from a long-term account. Households may also be slowly spending from their transaction accounts, not from their long-term savings.

Withdrawal strategies

There was no dominant respondent strategy for spending from long-term accounts (Figure 7 on page 9). The most common strategy, cited by 37% of spenders, was to base withdrawals from long-term accounts on the amount they needed for current living expenses. Other respondents set their withdrawals based on a specific dollar amount (21% of spenders), a rule of thumb they had developed (20%), or investment income (16%). Fewer respondents used percentage rules (9%) or some type of formal spending rule (6%).

A minority of respondents used intuitive or unstructured approaches. These included having no formal strategy for how to spend-down savings (21% of spenders) or gut feeling (10%).

While many strategies appear to be structured, it's impossible to derive from our survey whether these rules were designed to help mitigate longevity risk (the risk of living a long life and prematurely depleting resources). For example, basing withdrawals on current living expenses appears to be inattentive to longevity risk. A longevity-risk-sensitive approach would base withdrawals on how long a portfolio

might last, not on what an individual needs for living expenses. Similarly, the dollar or percentage rules used by some could be set too high (leading to a premature depletion of savings) or too low (leading to too little spending in retirement).⁴

However, what does emerge from our survey is a dichotomy between the strategies used by older American investors and the techniques recommended by financial planners and advisors. Such formal strategies include spending policies such as the so-called 4% rule.⁵ While some of our respondents may be following such a program, most are not.

The frequency with which spenders review their approach alludes to the informal nature of their withdrawal strategies. Forty-four percent of spenders reported reviewing their spending approach regularly, while 56% did so with no set schedule, very infrequently, or not at all (Figure 8 on page 10).

Account complexity

For older American investors, the decision of how to spend savings in retirement takes place in the context of a specific structure of individual accounts. The complexity of those accounts—and thus of the decisions facing investors—varies considerably.

Our respondents were asked about the number of total accounts they held—long-term accounts such as employer plans, IRAs, or personal accounts, as well as the number of transaction accounts (such as checking or money market accounts) used to pay routine bills.

Forty-five percent of households in our survey held fewer than six total accounts, while 43% held more than six (Figure 9 on page 11). At one extreme, about one-fifth (21%) of households had a relatively simple account structure, with three or fewer accounts; at the other, about one-fifth (18%) owned ten or more accounts.⁶

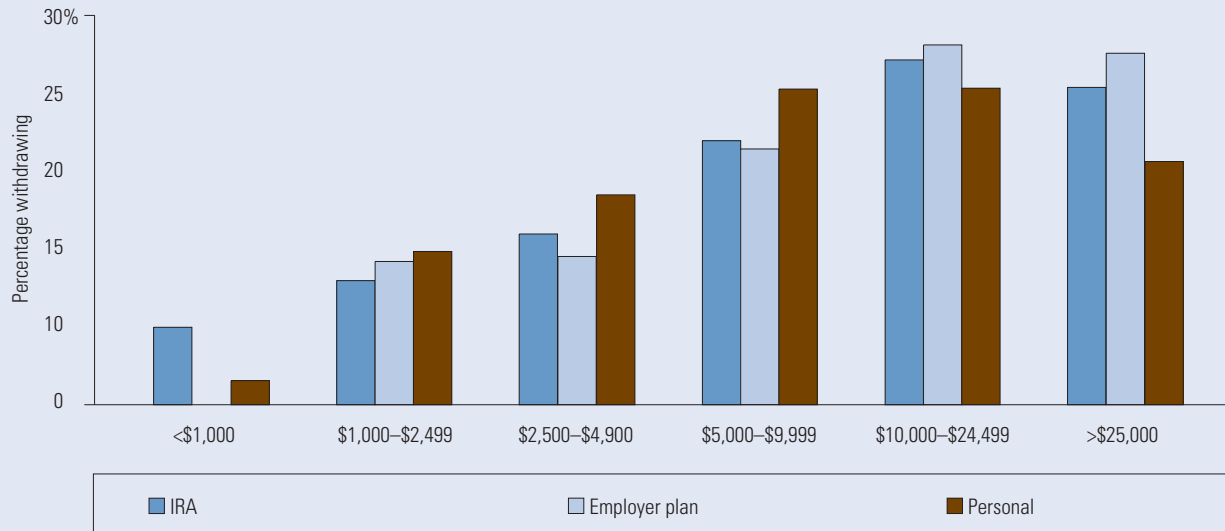
4 See Vanguard, 2008a, for an in-depth discussion of longevity risk.

5 With the 4% rule, an investor spends 4% of total portfolio assets in the first year of retirement—and then adjusts the dollar amount in each future year by the rate of inflation.

6 We believe our estimate has a downward bias because some respondents may have conflated financial accounts with financial relationships. For example, if they had two IRAs at a financial institution they may have responded that they have one account.

Figure 6. Dollar Value of Withdrawal by Account Type

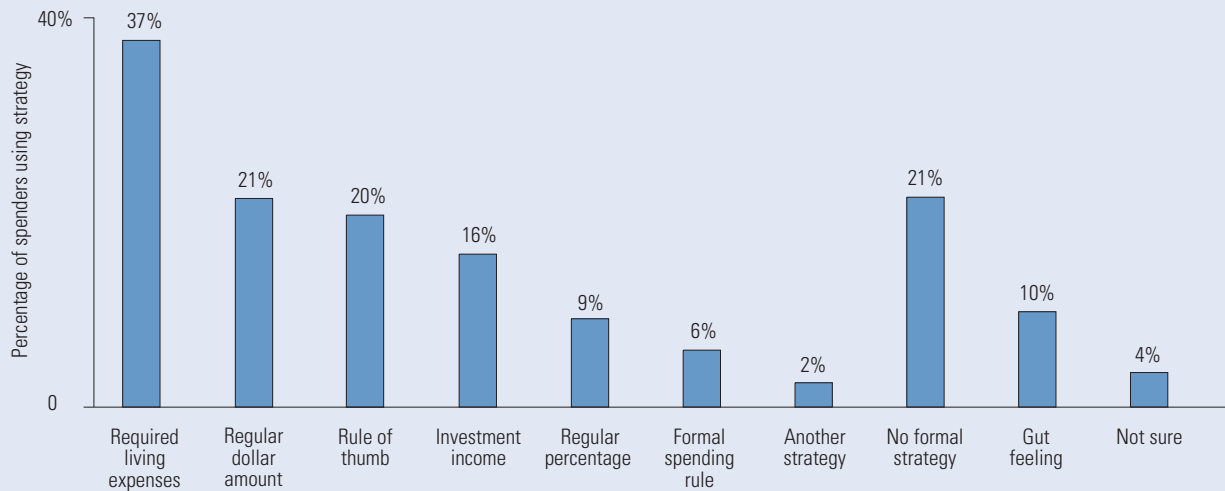
Among those spending from long-term accounts



Source: Vanguard, 2008.

Figure 7. Withdrawal Strategies

Among those spending from long-term accounts

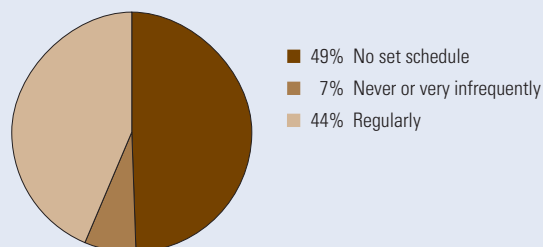


Note: Multiple strategies possible.

Source: Vanguard, 2008.

Figure 8. Frequency of Review

Among those spending from long-term accounts



Source: Vanguard, 2008.

The level of complexity is even greater because of the types of accounts households own. Nine of ten older American households in our sample held a transaction account, with the average number of accounts held being close to two (**Figure 10 on page 11**). Eight of ten owned personal accounts, holding nearly 3 accounts on average. Approximately seven of ten owned IRAs (2.5 on average), and six of ten had employer accounts (just fewer than two on average).

Different households held varying combinations of these accounts, further adding to complexity (**Figure 11 on page 12**). About one-third (32%) of households in our survey held accounts of all four types: transaction, IRA, employer, and personal. On average, those households had ten distinct accounts. Another 39% held a transaction account or accounts along with two other types of long-term accounts (i.e., personal and IRA, IRA and employer, or personal and employer). In other words, seven of ten respondents face a reasonably complex account structure. At the other extreme, three of ten respondents only held one or two account types, with a relatively modest number of accounts.

Besides the complexity of long-term accounts, older investor households must consider other elements of their financial situation:

- 94% own a home, and home equity can be used in a variety of ways in retirement (for bequests, for nursing home costs, for regular income).

- 48% of households surveyed are currently receiving an employer pension. And an additional 28% are expected to receive a pension in the future.

Furthermore, nearly all households are eligible for Social Security benefits. For many investors, these assets and income streams add another layer of complexity onto an already complex financial situation.

Who faces the greatest complexity?

We completed a regression analysis relating various demographic factors to account complexity.⁷ For the purposes of this analysis, we categorize households with all four types of accounts (transaction, IRA, employer, and personal) as having a complex account structure; all other households were classified as not complex.

All things being equal, households with more than \$250,000 in assets are 23% more likely than households with less than \$250,000 in assets to have complex account structures (**Figure 12 on page 12**). To put this in perspective, 32% of households in our sample have complex account structures, so a 23% increase over a base of 32% is a relative increase of 72%.

In addition, households with incomes of more than \$100,000 are 12% more likely to have complex account structures relative to households with incomes of less than \$100,000. Conversely, older and retired households, as well as households carrying debt, are less likely to have complex structures.

These results suggest that households may be simplifying their accounts as they grow older. At the same time, the greater complexity of accounts among those in their 50s versus those in their 70s in our sample may be due to the greater prevalence of employer-sponsored DC accounts among younger households.

⁷ Our model is a logistic regression relating account complexity to a variety of demographic variables. We report here only marginal effects. Complete regression results are available from the authors.

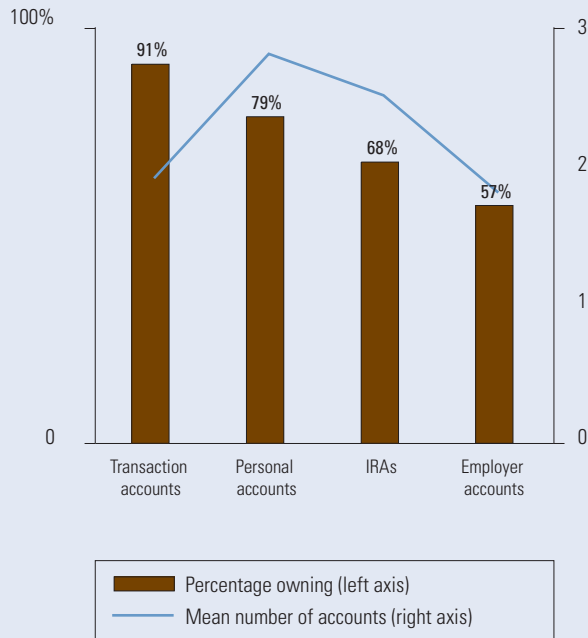
Figure 9. Number of Accounts

Including both transaction and long-term accounts



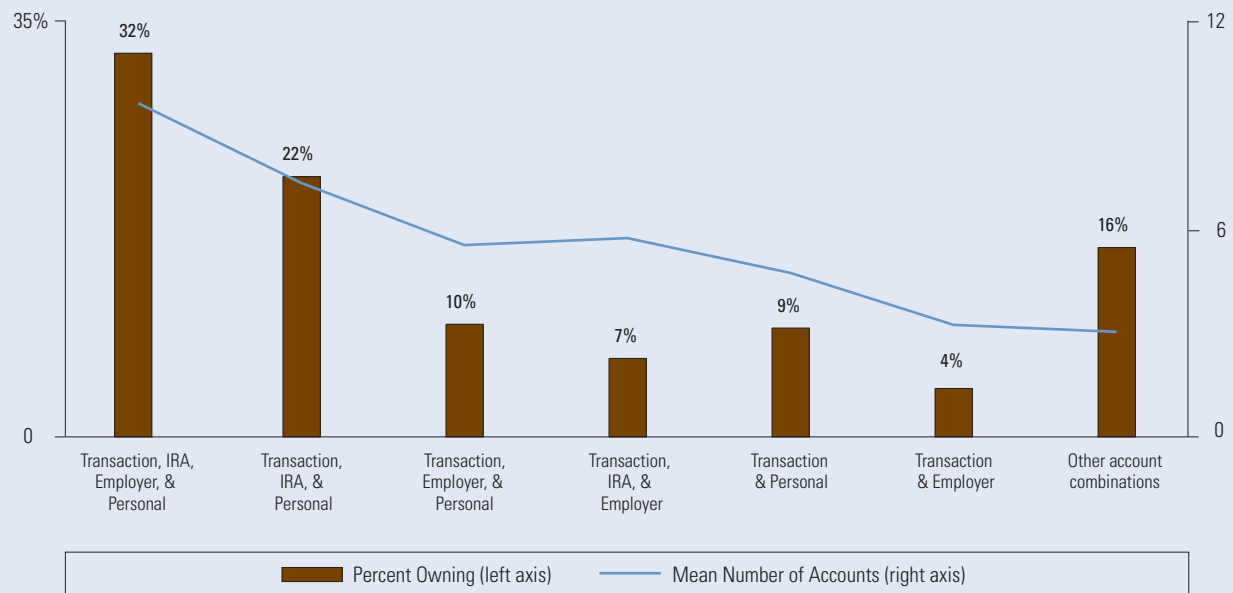
Source: Vanguard, 2008.

Figure 10. Types of Accounts



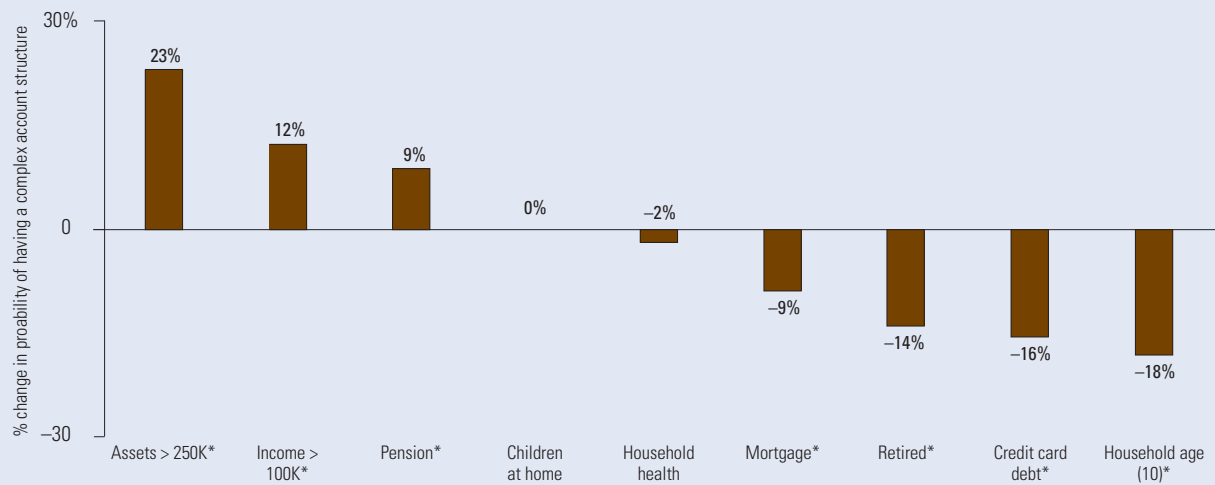
Source: Vanguard, 2008.

Figure 11. Account Combinations



Source: Vanguard, 2008.

Figure 12. Factors Related to Complex Account Structures



Note: * Indicates variable significant at .05 level.

Source: Vanguard, 2008.

Mortgage and credit card debt

Mortgage and credit card debt add another layer of complexity to spending decisions at or near retirement. Sixty-three percent of the households in our sample still carried a mortgage, although that figure dropped to 50% for fully retired households (Figure 13). Thirty percent of households surveyed had a mortgage balance of more than \$100,000.

Figure 13. Mortgage and Credit Card Debt by Retirement Status

	All	Fully retired	Partially retired	Not retired
Mortgage debt				
Percent holding	63%	50%	67%	78%
% with over 100k on mortgage	30%	25%	29%	38%
Credit card debt				
Percent holding	56%	49%	57%	64%
% with over 5k in debt	23%	15%	26%	34%

Source: Vanguard, 2008.

Similarly, 56% of all households and 49% of retired households carry credit card debt. Of the total households surveyed, 23% had more than \$5,000 in debt and 12% had more than \$10,000. Households with credit card debt have about the same household income as households without credit card debt, but they have lower asset levels. Furthermore, households with credit card debt are more likely to have children living at home and to carry a mortgage.

As noted earlier (Figure 3), debt burdens may contribute to older American investors tapping their long-term accounts earlier than debt-free households do. There are a couple explanations why debt and withdrawal behavior may be linked:

- As they approach retirement, older Americans are making withdrawals from savings in an effort to pay down debt levels.
- Some older households need to withdraw from savings to service their mortgage or credit card debt.

In any event, what is evident from the data is that for a large group of older Americans, all of whom have accumulated at least \$50,000 in savings, the retirement income question is not solely about how to spend down those savings; it is also about how to manage mortgage and credit card debt.

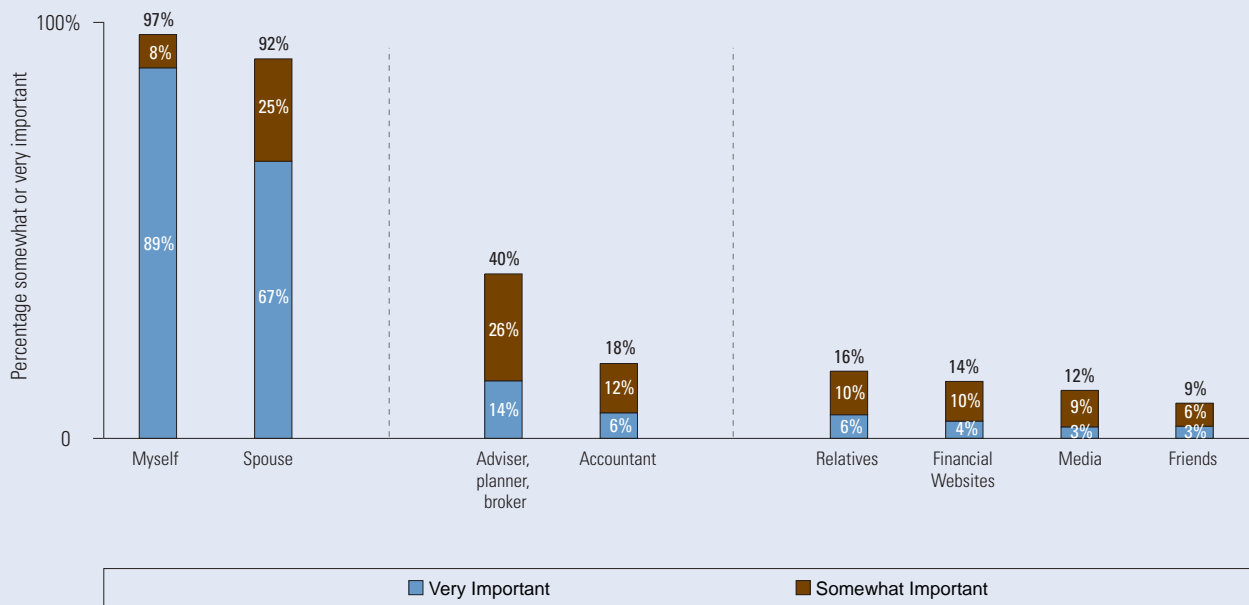
The role of advice

Creating a retirement income strategy can be difficult. Investors need to analyze their income sources, asset holdings, debts, preferences for liquid versus annuitized wealth, current and projected future living expenses (including large out-of-pocket costs for health care), and their interest in bequests and charitable giving. And all of this needs to be considered in light of the features of federal and private benefit programs, the capital markets, taxes, and the range of investment and insurance products available to help manage retirement risks. Given the difficulties involved, it's not surprising that individuals might seek professional advice.

However, our respondents indicated that they rely primarily on themselves or their spouses for making spending decisions from their portfolios (Figure 14 on page 14). Virtually all respondents cited their own or spouse's role as "very important" or "somewhat important" in making spending choices. Forty percent cited an advisor, financial planner, or broker, and another 18% mentioned help from an accountant. Given the complexity of the income issues, what is notable is that few advisors, brokers, planners, or accountants are viewed as "very important" in the spending process—only 14% in the case of advisors, brokers, or planners, and 6% in the case of accountants.

Figure 14. Importance of Source for Spending Advice

Among those spending from long-term accounts



Source: Vanguard, 2008.

These statistics, however, may understate the importance of advice because it looks at each advice provider in isolation. For a broader view, we segmented sources of advice into professional and nonprofessional advice categories—the former including advisors, brokers, planners, and accountants; and the latter including friends, relatives, the financial media, and financial websites. We also compared the attitudes of those already spending from their accounts with those not yet spending.

When aggregated in this fashion, advice does take on a somewhat more prominent role among the spenders (Figure 15 on page 15). Twenty-five percent cite any type of nonprofessional help as important, 42% cite any type of professional help as important, and more than half cite any type of help as important.

A much higher percentage of respondents not yet spending from their accounts cited advice as being important. Depending on the form of advice, one-and-a-half to two times the number of nonspending respondents mentioned advice as important relative to those already spending. There are no meaningful

demographic differences between households that cited advice as important and those that did not.

Implications

Given the long-term decline in traditional DB pensions, and the growth of DC plans and IRAs, there is growing interest in the issue of retirement income—how older households will translate lump-sum savings into a regular payment stream.

One of the striking findings of our survey is that many households in our survey sample (age 55–75 with savings of \$50,000 or more) do not create regular income streams from long-term accounts—a finding that is true of both households with and without traditional pension income. Instead, when they spend from their accounts, the withdrawals tend to be large and infrequent. In addition, the approach many use for withdrawing money appears unstructured or unsophisticated.

As households seek to generate regular income streams from lump sums, our findings suggest

Figure 15. Professional versus Non-Professional Help

Percentage citing source of advice as "somewhat" or "very" important

	Non-professional help	Professional help	Non-professional AND professional help	Non-professional AND/OR professional help
By withdrawal status				
Have already withdrawn from accounts	25%	42%	16%	51%
Have not yet withdrawn from accounts	53%	70%	40%	83%

Source: Vanguard 2008.

several important implications for the future. First, individuals are likely to need more help structuring regular income streams from their long-term accounts. Already, among those spending from their long-term accounts today, about one-fifth reported using some type of systematic spending rule or strategy for generating income. This proportion will only increase in the future.

There will be an increase in demand for insurance and investment products that help investors translate a lump sum into an income stream. It seems that many future retirees could benefit from products that replace today's relatively intuitive or unsophisticated strategies with a more structured approach to generating income.

Second, it is evident that investors have no specific preference for portfolio-based income solutions over guaranteed ones, or vice versa. Rather, they would like to simultaneously pursue attributes associated with portfolio solutions (flexibility, control, growth above inflation) with guaranteed elements (regular monthly income, longevity protection). Helping investors make suitable trade-offs among these goals will be important. It also seems that many investors would prefer a blend of strategies, rather than a single approach, as they plan their retirement income needs.

Third, complexity is quite common for many households. Complexity is a function of the number of accounts plus the varying type of accounts. It is also a function of related retirement income issues—Social Security, pensions, home equity, and for half of our respondents, managing mortgage and credit card

debt in retirement. Helping individuals manage that complexity, and helping them shift when possible to simpler financial situations, appears to be an essential aspect of the retirement income process.

Finally, it is clear that education and advice programs on retirement income will become increasingly important. Investors face the challenge of converting a given account balance into an income stream, but they need to address this challenge in a holistic fashion. More specifically, investors need to consider how a decision about a specific account relates to broader retirement income issues involving Social Security, pensions, and debt management, among other issues. Workplace and retail financial education programs will be increasingly important in addressing this challenge, as will financial advisors, planners, and accountants.

The baby boom generation is heading inexorably toward retirement, and many of its members will have lump-sum savings in hand. As our findings highlight, many investors with accumulated savings still have regular payments from DB pensions as a source of retirement income. However, as the importance of such income streams declines, many older Americans will look to other strategies for converting a lump-sum account into a regular income stream. Our current findings suggest how individuals manage that task today. Future research could examine the rationale and the effectiveness of various withdrawal strategies, as well as how aging households manage mortgage and credit card debt into retirement.

Appendix: Methodology and sample description

This study is based on a national panel survey of older Americans, age 55 to 75, with \$50,000 or more of accumulated retirement savings. A total of 1,478 respondents participated in the survey, which was conducted in May 2008 by Greenfield Online. For proportions summarizing the entire sample, the sampling error is +/-3% at the 95% confidence level. However, the error can be larger when we report statistics based on smaller subsamples.

This respondent population, whom we refer to as “older American investors,” is likely representative of at least half of older Americans age 55–75. Because we are considering how older Americans with financial assets liquidate their savings, our survey population necessarily excludes older Americans with smaller (or no) levels of financial assets. Also, because we are most interested in the impact of recent plan design changes, we exclude older Americans older than 75 in an effort to focus on those approaching retirement or recent retirees.

Summary statistics on the survey respondents can be found in the accompanying table (**Figure 16 on pages 17 and 18**). Our typical respondent is married, age 62, with a household income between \$75,000 and \$99,999 and total financial savings between \$100,000 and \$250,000. Compared with national census data, our respondent households are necessarily more affluent than the typical household in this age range—no doubt because we excluded households with less than \$50,000 in savings. Twenty-nine percent of the households report that they are fully retired, 35% are partially retired, and 32% are not retired.

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Figure 16. Demographics of Survey Respondents

Respondents Age 55–75 with at least \$50,000 in assets (n=1,478)

Age	
55–59	34%
60–64	26%
65–69	20%
70–75	20%
Total	100%

Gender	
Male	50%
Female	50%
Total	100%

Education	
Did not finish high school	0%
High school graduate	19%
Two-year college	22%
Four-year college	24%
Some graduate/professional school	12%
Graduate/professional degree	23%
Total	100%

DB pension benefits	
Currently receiving	48%
Expect to receive	28%
Total	76%

Credit Card Debt	
None	43%
Less than \$500	9%
\$500 to less than \$2,500	14%
\$2,500 to less than \$5,000	9%
\$5,000 to less than \$10,000	11%
\$10,000 and over	12%
Not sure	2%
Total	100%

Home Market Value	
I/we don't own a home	5%
Less than \$50,000	0%
\$50,000 to less than \$100,000	4%
\$100,000 to less than \$250,000	35%
\$250,000 to less than \$500,000	35%
\$500,000 to less than \$1,000,000	16%
\$1 million to less than \$2 million	3%
\$2 million and over	1%
Not sure	1%
Total	100%

Assets	
Less than \$50,000	0%
\$50,000 to less than \$100,000	24%
\$100,000 to less than \$250,000	26%
\$250,000 to less than \$500,000	22%
\$500,000 to less than \$750,000	11%
\$750,000 to less than \$1,000,000	7%
\$1 million to less than \$2 million	8%
\$2 million and over	2%
Not sure	0%
Total	100%

Household Income	
Less than \$20,000	0%
\$20,000 to \$29,999	0%
\$30,000 to \$39,999	1%
\$40,000 to \$49,999	3%
\$50,000 to \$59,999	17%
\$60,000 to \$74,999	24%
\$75,000 to \$99,999	26%
\$100,000 to \$199,999	24%
\$200,000 to \$299,999	3%
\$300,000 and over	1%
Not sure	1%
Total	100%

**Figure 16. Demographics of Survey Respondents
(Continued)**

Respondents Age 55–75 with at least \$50,000 in assets (n=1,478)

Work / retirement status	
Fully retired	29%
Partially retired	35%
Not retired, still working	32%
Other	4%
Total	100%

Mortgage	
I/we have no mortgage	37%
Less than \$50,000	14%
\$50,000 to less than \$100,000	18%
\$100,000 to less than \$250,000	22%
\$250,000 to less than \$500,000	6%
\$500,000 to less than \$1,000,000	1%
Over \$ 1 million	0%
Not sure	1%
Total	100%

Transaction Account Balances	
Less than \$500	4%
\$500 to less than \$1,000	9%
\$1,000 to less than \$2,500	21%
\$2,500 to less than \$5,000	25%
\$5,000 to less than \$10,000	16%
\$10,000 and over	22%
Not sure	3%
Total	100%

Work-related Account Balances	
Less than \$25,000	9%
\$25,000 to less than \$50,000	12%
\$50,000 to less than \$100,000	20%
\$100,000 to less than \$250,000	28%
\$250,000 to less than \$500,000	14%
\$500,000 and over	10%
Not sure	7%
Total	100%

IRA Account Balances	
Less than \$25,000	13%
\$25,000 to less than \$50,000	13%
\$50,000 to less than \$100,000	20%
\$100,000 to less than \$250,000	25%
\$250,000 to less than \$500,000	15%
\$500,000 and over	10%
Not sure	4%
Total	100%

Personal Account Balances	
Less than \$25,000	16%
\$25,000 to less than \$50,000	16%
\$50,000 to less than \$100,000	18%
\$100,000 to less than \$250,000	21%
\$250,000 to less than \$500,000	14%
\$500,000 and over	10%
Not sure	5%
Total	100%



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