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.

Authors

Gary R. Mottola
Stephen P. Utkus

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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.

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 IXI 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.

Figure 2. Distributions by Plan

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

Source: Vanguard, 2007.

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.

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

	Traditional plan		Cash balance plan	
Demographic characteristics	Lump sum	Annuity	Lump Sum	Annuity
	n=1,146	*n=422*	*n=3,328*	*n=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 inpute nonretirement plan household financial wealth at the standard United States Postal Service delivery address designation ZIP+4 level.

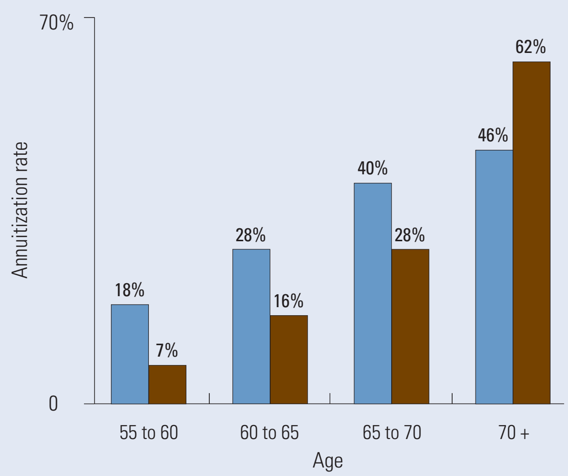
Note: Excludes cash-outs, lump-sum-ineligible participants, and participants younger than 55 at termination.

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.

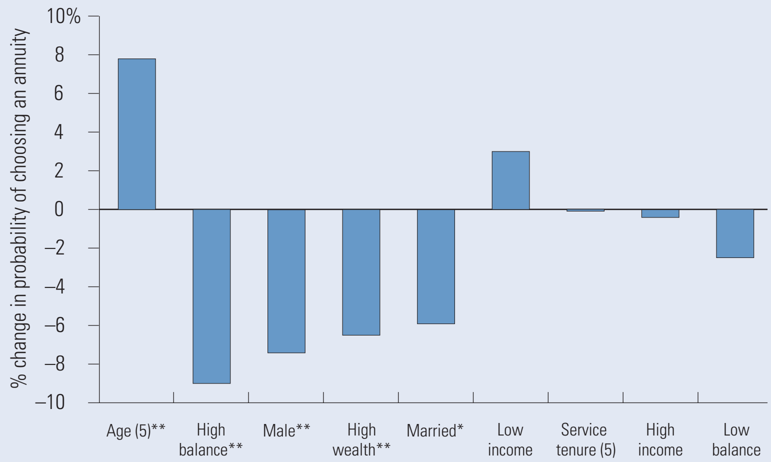
Our regression results indicate that even after adjusting for a host of demographic factors, age plays a very prominent role in the annuitization decision. In the traditional plan (**Figure 5**), a five-year increase in age is associated with an eight percentage point increase in the likelihood to annuitize. 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.

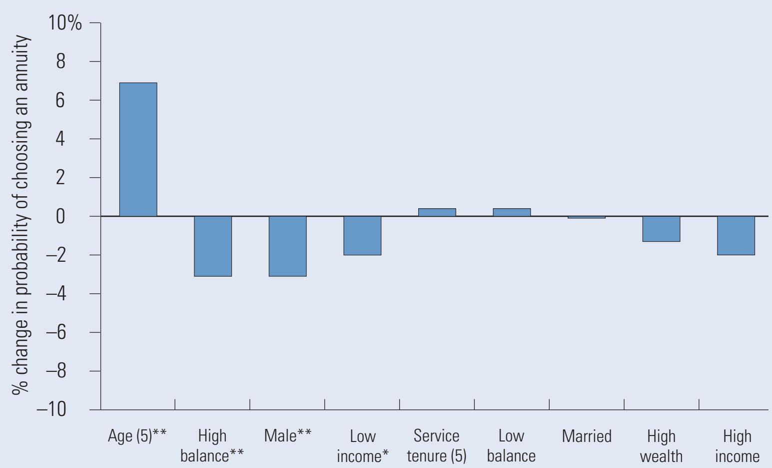
* Indicates variable significant at the .10 level.

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.

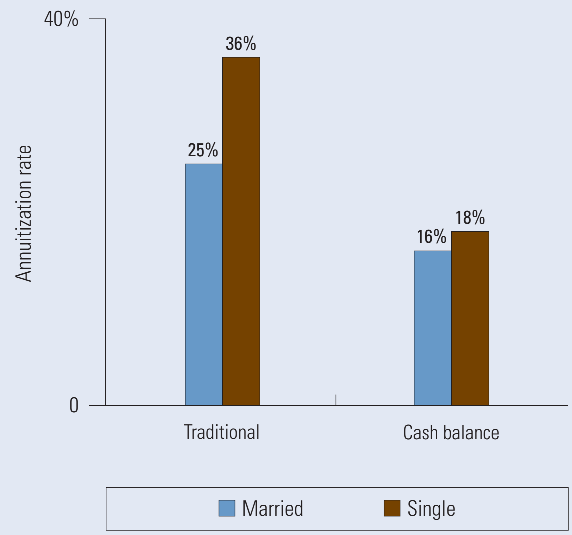
Default impact

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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Vanguard Institutional
Investor Group

P.O. Box 2900
Valley Forge, PA 19482-2900

Connect with Vanguard® > www.vanguardretirementresearch.com > vcrr@vanguard.com

Contributors

Samuel Atlee
Rebecca Freedman
John Friel
Susan Fuhs
Amy Hoffman

CRRLSA 112007