How America Saves 2015

A report on Vanguard 2014 defined contribution plan data

CONTENTS

Defined contribution (DC) retirement plans are the centerpiece of the private-sector retirement system in the United States. More than 90 million Americans are covered by DC plan accounts, with assets now in excess of $6.5 trillion.

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Defined contribution (DC) retirement plans are the centerpiece of the private-sector retirement system in the United States. More than 90 million Americans are covered by DC plan accounts, with assets now in excess of $6.5 trillion.[1]

Vanguard is among the leaders in the DC marketplace with more than $670 billion in DC assets under management as of March 31, 2015. In our DC recordkeeping business, we serve more than 4,700 plan sponsors and more than 3.9 million participants. As an industry leader, Vanguard recognizes the importance of having a detailed understanding of DC plans and the role they play in the U.S. retirement system. Accordingly, we are pleased to present *How America Saves 2015: A report on Vanguard 2014 defined contribution plan data*. In this 14th edition of *How America Saves*, we update our analysis of DC plans and participant behavior based on 2014 Vanguard recordkeeping data.

Participants' adoption of professionally managed allocations continues to grow. In 2014, 45% of all Vanguard participants had their entire account balance invested in either a single target-date fund, a single target-risk or traditional balanced fund, or a managed account advisory service. These professionally managed investment options have the potential to reshape retirement savings outcomes for these participants. They signal a shift in responsibility for investment decision-making away from the participant and back to employer-selected investment and advice programs. We predict that sometime during 2015, half of all Vanguard participants will be using a professionally managed allocation.

The first edition of *How America Saves* was published in 2000. In 2011, we introduced a series of benchmark data supplements for selected industry sectors. In 2015, we expanded the industry sector benchmark series to 16 industries. These industry sector supplements have been very well received and a list of the sectors covered is on page 106.

In 2014, we introduced a supplement dedicated to Vanguard Retirement Plan Access™ clients and are pleased to present an expanded analysis of these plans in 2015. Vanguard Retirement Plan Access (VRPA) is a comprehensive service for retirement plans with up to $20-plus million in assets.

We are confident this report will continue to serve as a valuable reference tool and that our observations will prove useful as your organization continues to develop its retirement programs.

Sincerely,

Martha

1 U.S. Department of Labor, *Private Pension Plan Bulletin Historical Tables and Graphs*, December 2014; and Investment Company Institute, *Quarterly Retirement Market Data, Fourth Quarter 2014*, March 2015.

Executive summary

During the past three years, the U.S. and global stock markets rose by double-digit rates, with U.S. stocks gaining 11% in 2014. The five-year period from 2008 to 2014 was marked by a sharp market downturn in 2008–2009 followed by a subsequent market recovery. During this period, as in prior periods of market turbulence, the saving and investment behavior of DC plan participants changed modestly, with neither large-market rallies nor sharp downturns affecting long-term behaviors substantially. As we look to the future, the main concerns affecting retirement savings plans remain largely the same—improving plan participation and contribution rates and enhancing portfolio diversification—although increasingly these changes are occurring through plan and investment menu design decisions made by sponsors, rather than by participants' own decisions.

Professionally managed allocations

An important development in DC plans is the rising prominence of professionally managed allocations. Participants with professionally managed allocations are those who have their entire account balance invested in a single target-date or balanced fund or a managed account advisory service. At year-end 2014, 45% of all Vanguard participants were solely invested in an automatic investment program—compared with 25% at the end of 2009. Thirty-nine percent of all participants were invested in a single target-date fund; another 2% held one other balanced fund; and 4% used a managed account program. These diversified, professionally managed investment portfolios dramatically improve portfolio diversification compared with participants making choices on their own. Among new plan entrants (participants entering the plan for the first time in 2014), 8 in 10 were solely invested in a professionally managed allocation.

Because of the growing use of target-date options, we anticipate that sometime during 2015, half of participants will be entirely invested in a professionally managed allocation—and by 2018 that percentage will reach 63%.

Growth in use of target-date funds

Use of target-date strategies in DC plans continues to grow. Eighty-eight percent of plan sponsors offered target-date funds at year-end 2014, up 17% compared with year-end 2009. Nearly all Vanguard participants (97%) are in plans offering target-date funds. Sixty-four percent of all participants use target-date funds. Sixty percent of participants owning target-date funds have their entire account invested in a single target-date fund. Four in 10 Vanguard participants are wholly invested in a single target-date fund, either by voluntary choice or by default.

An important factor driving use of target-date funds is their role as an automatic or default investment strategy. The qualified default investment alternative (QDIA) regulations promulgated under the Pension Protection Act of 2006 (PPA) continue to influence adoption of target-date funds. That said, voluntary choice is still important, with half of single target-date investors choosing the funds on their own, not through default.

High-level savings metrics

High-level metrics of participant savings behavior remained steady in 2014. The plan participation rate was 77% in 2014. The average deferral rate was 6.9% and the median was unchanged at 6.0%. However, average deferral rates have declined slightly from their peak of 7.3% in 2007. The decline in average contribution rates is attributable to increased adoption of automatic enrollment. While automatic enrollment increases participation rates, it also leads to lower contribution rates when default deferral rates are set at low levels, such as 3% or lower.

These figures reflect the level of employee-elective deferrals. Most Vanguard plans also make employer contributions. Taking into account both employee and employer contributions, the average total participant contribution rate in 2014 was 10.4% and the median was 9.5%. Aggregate contribution rates have also declined slightly from 2007, again likely because of the impact of low default contribution rates for automatic enrollment.

Growth of automatic savings features

The adoption of automatic enrollment has grown by 50% since year-end 2009. At year-end 2014, 36% of Vanguard plans had adopted automatic enrollment, up two percentage points from 2013. In 2014, however, because larger plans were more likely to offer automatic enrollment, 60% of new plan entrants in 2014 were enrolled via automatic enrollment.

More than half of all contributing participants in 2014 were in plans with automatic enrollment. The automatic enrollment feature, while initially applied only to new hires, has now been applied to eligible nonparticipants in half of Vanguard plans with the feature. Seven in 10 automatic enrollment plans have implemented automatic annual deferral rate increases. Almost all plans with automatic enrollment—98%—default participants into a balanced investment strategy—with 95% choosing a target-date fund as the default.

Roth 401(k) adoption

At year-end 2014, the Roth feature was adopted by 56% of Vanguard plans and 14% of participants within these plans had elected the option. We anticipate steady growth in Roth adoption rates, given the feature's tax diversification benefits.

Account balances and returns

In 2014, the median participant account balance was $29,603 and the average was $102,682. Vanguard participants' median account balances declined by 6% and average account balances rose by 1% during 2014. The decline in the median account balance is due to the rising adoption of automatic enrollment which results in more individuals saving, but also a growing number of smaller balances. During the five-year 2009–2014 period, both median and average balances rose by 49% and 28%, respectively.

Reflecting strong stock market performance in 2014, the median one-year participant total return was 7.2%. Five-year participant total returns averaged 9.9% per year.

Among continuous participants—those with a balance at year-end 2009 and 2014—the median account balance rose by 137% over five years, reflecting both the effect of ongoing contributions and market returns during this period. More than 90% of continuous participants saw their account balance rise during the five-year period ended December 31, 2014.

Presence of index core options

Given the growing focus on plan fees, there is increased interest among plan sponsors in offering a wider range of low-cost passive or index funds. A "passive core" is a comprehensive set of low-cost index options that span the global capital markets. In 2014 half (52%) of Vanguard plans offered a set of options providing an index core. Over the past decade the number of plans offering an index core has grown by nearly 90%. Because large plans have adopted this approach more quickly, about two-thirds of all Vanguard participants were offered an index core as part of the overall plan investment menu. Factoring in passive target-date funds, 82% of participants hold equity index investments.

Shift in participant investment allocations

The percentage of plan assets invested in equities rose to 72%, essentially unchanged from 71% in 2013. Equity allocations continue to vary dramatically among participants. One in 8 participants has taken an extreme position, holding either 100% in equities (8% of participants) or no equities (5% of participants), although these extreme allocations have fallen in recent years as a result of the rise of target-date funds and other professionally managed allocations.

Participant contributions to equities rose modestly in 2014 to 74% compared with 71% in 2013. In 2014, 4 in 10 of all new contributions to these plans were directed to target-date funds.

Participant trading muted

During 2014, only 10% of DC plan participants traded within their accounts, while 90% did not initiate any exchanges. On a net basis, there was a shift of 0.6% of assets to fixed income in 2014, with most traders making small changes to their portfolios. Less than 1% (0.3%) of all participants actually abandoned equities during the year—that is, shifted from a portfolio with some equity exposure to a portfolio with no equity exposure.

Over the past decade we have observed a decline in participant trading. The decline in participant trading is partially attributable to participants' increased adoption of target-date funds. Only 2% of participants holding a single target-date fund traded in 2014.

Drop in company stock exposure

A shift away from company stock holdings first observed in 2006 continued into 2014. Among plans offering company stock, the number of participants holding a concentrated position of more than 20% of their account balance fell from 30% in 2009 to 28% in 2014. In addition, the number of plans actively offering company stock to participants declined to 10% in 2014 from 11% in 2009. As a result, only 8% of all Vanguard participants held concentrated company stock positions in 2014, compared with 10% at the end of 2009.

Loan activity flat

There was a slight decrease in new loans issued in 2014, down 4% compared with 2013. In 2014, 17% of participants had a loan outstanding (essentially no change from 2013) and the average loan balance was $9,700. Only about 2% of aggregate plan assets were borrowed by participants.

In-service withdrawals

During 2014, 4% of participants took an in-service withdrawal, withdrawing about 30% of their account balances. All in-service withdrawals during 2014 amounted to 1% of aggregate plan assets. Weak economic conditions appeared to be affecting the withdrawal behavior of a very small group of participants.

Assets largely preserved for retirement

Participants separating from service largely preserved their assets for retirement. During 2014, about 30% of all participants could have taken their account as a distribution because they had separated from service in the current year or prior years. The majority of these participants (85%) continued to preserve their plan assets for retirement by either remaining in their employer's plan or rolling over their savings to an IRA or new employer plan. In terms of assets, 97% of all plan assets available for distribution were preserved and only 3% were taken in cash.

Figure 1. Highlights at a glance

Vanguard recordkeeping statistics	*How America Saves 2015* reference	2010	2011	2012	2013	2014
Number of participant accounts (millions)		3.4	3.4	3.4	3.4	3.6
Number of plans (thousands)		2.1	2.0	2.0	1.9	1.9
Median participant age		46	46	46	46	46
Median participant tenure		8	8	8	8	7
Percentage male		59%	59%	59%	59%	59%
Median eligible employee income (thousands)		$57	$60	$61	$63	$67
Median participant income (thousands)		$65	$68	$67	$70	$77
Median nonparticipant income (thousands)		$41	$45	$46	$45	$49

1. Accumulating

Plan design—page 13						
Plans offering immediate eligibility for employee contributions	Figure 3	54%	58%	58%	55%	58%
Plans requiring one year of service for matching contributions	Figure 3	25%	25%	26%	28%	27%
Plans providing an employer contribution	Figure 5	88%	91%	92%	91%	94%
Plans with automatic enrollment	Figure 15	27%	29%	32%	34%	36%
Plans with automatic enrollment with automatic annual increases	Figure 16	69%	69%	69%	69%	70%
Plans offering catch-up contributions	Text page 37	96%	95%	97%	97%	97%
Plans offering Roth contributions	Text page 38	42%	46%	49%	52%	56%
Plans offering after-tax contributions	Text page 39	19%	19%	19%	19%	18%

Participation rates*—page 27						
Plan-weighted participation rate	Figure 21	76%	77%	78%	78%*	77%*
Participant-weighted participation rate	Figure 21	72%	74%	74%	75%*	69%*
Voluntary enrollment participant-weighted participation rate	Figure 27	70%	71%	71%	70%	61%
Automatic enrollment participant-weighted participation rate	Figure 27	86%	88%	88%	89%	89%
Participants using catch-up contributions (when offered)	Figure 37	13%	14%	13%	14%	16%
Participants using Roth (when offered)	Figure 38	9%	9%	10%	12%	14%
Participants using after-tax (when offered)	Figure 39	7%	7%	7%	8%	7%

Employee deferrals—page 32						
Average participant deferral rate	Figure 29	6.9%	6.9%	6.9%	7.0%	6.9%
Median participant deferral rate	Figure 29	6.0%	6.0%	6.0%	6.0%	6.0%
Percentage of participants deferring more than 10%	Figure 30	22%	20%	20%	20%	22%
Voluntary enrollment plan average participant deferral rate	Figure 35	7.3%	7.3%	7.3%	7.5%	7.3%
Automatic enrollment plan average participant deferral rate	Figure 35	5.0%	5.2%	5.1%	5.6%	6.2%
Participants reaching 402(g) limit ($17,500 in 2014)	Figure 36	10%	11%	10%	11%	10%
Average total contribution rate (participant and employer)	Figure 40	10.4%	10.5%	10.8%	10.9%	10.4%
Median total contribution rate (participant and employer)	Figure 40	9.6%	9.8%	10.0%	10.0%	9.5%

Account balances—page 42						
Average balance	Figure 43	$79,077	$78,276	$86,212	$101,650	$102,682
Median balance	Figure 43	$26,926	$25,550	$27,843	$31,396	$29,603

2. Managing

Asset and contribution allocation—page 49						
Average plan asset allocation to equities	Figure 50	68%	65%	66%	71%	72%
Average plan contribution allocation to equities	Figure 51	70%	71%	70%	71%	74%
Average plan asset allocation to target-date funds	Figure 50	12%	14%	17%	19%	23%
Average plan contribution allocation to target-date funds	Figure 51	22%	27%	31%	34%	41%
Participants with balanced strategies	Figure 78	57%	61%	63%	66%	69%
Extreme participant asset allocations (100% fixed income or equity)	Figure 76	22%	18%	16%	14%	13%

*The 2014 data is preliminary. The previously reported plan- and participant-weighted participation rates for 2013 were 76% and 67%, respectively.

(Continued)

Figure 1. Highlights at a glance

2. Managing (continued)

Plan investment options—page 52	*How America Saves 2014* reference	2010	2011	2012	2013	2014
Average number of funds offered	Figure 55	18.6	18.9	18.4	18.2	18.3
Average number of funds used	Figure 55	3.3	3.2	3.1	3.1	2.9
Plans offering an index core	Figure 59	40%	44%	46%	49%	52%
Participants offered an index core	Figure 60	48%	53%	56%	59%	64%
Percentage of plans designating a QDIA	Figure 61	61%	64%	67%	70%	71%
Among plans designating a QDIA, percentage target-date fund	Figure 61	89%	90%	90%	91%	94%
Plans offering target-date funds	Figure 68	79%	82%	84%	86%	88%
Participants using target-date funds (when offered)	Figure 65	42%	47%	58%	61%	66%
Plans offering managed account program	Figure 80	13%	14%	16%	19%	22%
Participants offered managed account program	Figure 80	41%	44%	47%	52%	55%
Participants with professionally managed allocations	Figure 66	29%	33%	36%	40%	45%
Participants using a single target-date fund	Figure 66	20%	24%	27%	31%	39%
Participants using a single risk-based balanced fund	Figure 66	6%	6%	6%	6%	2%
Participants using a managed account program	Figure 66	3%	3%	3%	3%	4%
Plans actively offering company stock	Figure 65	11%	10%	10%	10%	10%
Participants using company stock	Figure 65	20%	17%	16%	15%	14%
Participants with >20% company stock	Text page 76	10%	9%	9%	9%	8%
Investment returns—page 78						
Average 1-year participant total return rate	Figure 83	12.3%	0.0%	12.4%	20.4%	7.0%
Average 1-year participant personal return rate	Figure 83	13.1%	(0.4%)	12.0%	19.9%	6.8%
Trading activity—page 82						
Participant-directed trading	Figure 87	10%	10%	9%	10%	10%
Recordkeeping assets exchanged to equities (fixed income)	Figure 87	(1.1%)	(2.5%)	(1.7%)	0.2%	(0.6%)

3. Accessing

Loans—page 89						
Plans offering loans	Text page 89	75%	75%	76%	77%	77%
Participants with an outstanding loan (when offered)	Figure 95	18%	18%	18%	18%	17%
Recordkeeping assets borrowed	Text page 91	2%	2%	2%	2%	1%
Plan withdrawals—page 94						
Plans offering hardship withdrawals	Figure 99	81%	81%	82%	83%	83%
Participants using withdrawals (when offered)	Figure 100	4%	4%	4%	4%	4%
Recordkeeping assets withdrawn	Figure 100	1%	1%	1%	1%	1%
Participant account balance withdrawn	Figure 100	30%	33%	33%	32%	31%
Plan distributions and rollovers—page 96						
Terminated participants preserving assets	Figure 109	81%	83%	82%	85%	85%
Assets preserved that were available for distribution	Figure 109	96%	96%	96%	97%	97%
Participant access methods—page 102						
Participants not contacting Vanguard during the year	Figure 110	47%	45%	43%	40%	37%
Participants registered for internet account access	Figure 114	64%	66%	68%	70%	71%
Participant account transactions processed via the web	Figure 115	80%	81%	82%	83%	87%

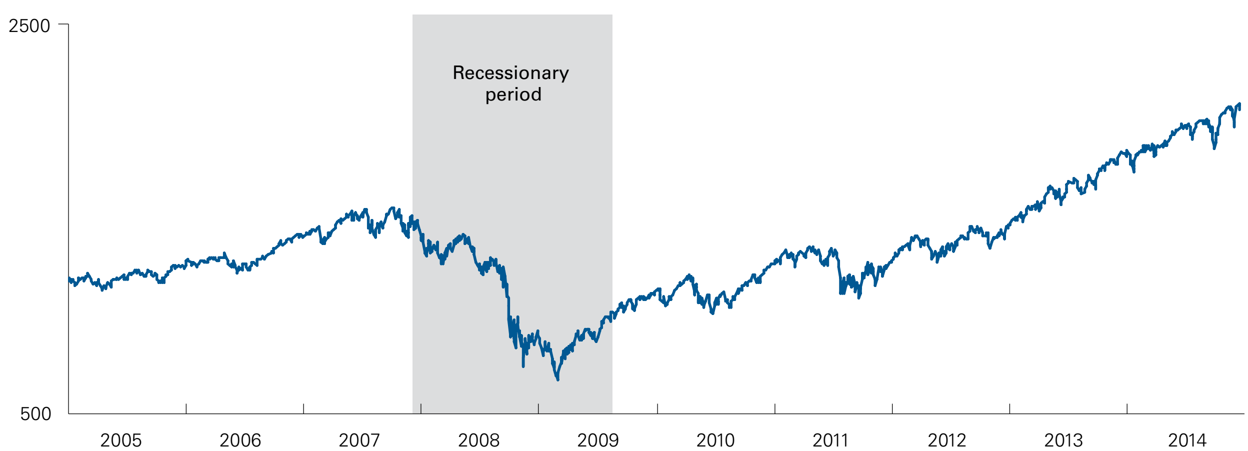
Source: Vanguard, 2015.

Market overview

Since the cyclical low in March 2009, stocks have rebounded by 181% through year-end 2014 (Figure 2). In 2014, stock prices rose 11% for the year, and the year was characterized by volatility more in line with historical norms and was not as volatile as in recent years. As of year-end 2014, the S&P 500 Index had risen 32% above its October 2007 peak before the financial crisis.[2] Double-digit returns have occurred in each of the last three years.

During the crisis, stock prices were exceptionally volatile. In 2008, 16.8% of trading days had a change in stock prices greater than +/–3%. The comparable figure was 8.7% in 2009, 3.2% in 2010, and 4.8% in 2011. However, in 2012, 2013 and 2014, no trading days exhibited this level of volatility. Historically, 1% of stock market trading days are associated with a change in stock prices of greater than +/–3%.

Figure 2. S&P 500 daily close



Source: Standard & Poor's 500.

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

2 These changes reflect on the price-index level; the total return of buy-and-hold stock market investors would have also included reinvested dividends.

DC retirement plans

DC plans are the dominant type of retirement plan sponsored by private-sector employers in the United States, covering nearly half of all private-sector workers. Although there is still a significant minority of individuals eligible for such plans who fail to participate in them, DC plans have nonetheless enabled millions of American workers to accumulate savings for retirement.

The performance of DC plans can be measured in several ways:

Accumulating plan assets. The level of plan contributions is fundamental to retirement savings adequacy. Plan contributions are affected by employee participation rates, participant deferral rates, and the value of employer contributions. Participant deferral behavior is increasingly influenced by employers' automatic enrollment and autoescalation default designations. Overall, retirement plan design varies substantially across employers—and variation in the level of employer contributions does impact the employee contributions needed to accumulate sufficient retirement savings.

Managing participant accounts. After deciding to contribute to a retirement savings plan, participants' most important decision is how to allocate their holdings among the major asset classes. As with deferral decisions, many such investment decisions are increasingly influenced by employer-established defaults, as well as the growing use of all-in-one portfolio strategies such as target-date funds and managed account programs. These investment decisions—including the types of investment options offered by the plan and the choices participants or employers make from among those options—have a direct impact on account performance over time. Thus, investment choices, in conjunction with the level of plan contributions, ultimately influence participants' level of retirement readiness.

Accessing plan assets. Participants may be able to take a loan or in-service withdrawal to access their savings while working. When changing jobs or retiring, they typically have the option of remaining in the plan, rolling over to another plan or IRA, or taking a cash lump sum.

Our analysis shows that, despite a volatile market and economic environment in recent years, most Vanguard DC plan participants have seen their retirement savings grow over one- and five-year periods. Meanwhile, most metrics of participant behavior have returned to prerecession levels.

1 Accumulating plan assets

Historically, employees have had to decide whether to participate and at what rate to save. Increasingly employers are making these decisions through automatic enrollment.

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Plan design

Nine in 10 Vanguard-administered DC plans permit pre-tax elective deferrals by eligible employees. Employee deferral decisions are shaped by the design of the DC plan sponsored by their employer.

DC plans with employee-elective deferrals can be grouped into four categories based on the type of employer contributions made to the plan: (1) plans with matching contributions, (2) plans with nonmatching employer contributions, (3) plans with both matching and nonmatching contributions, and (4) plans with no employer contributions at all. Nonmatching contributions are typically structured as a variable or fixed profit-sharing contribution, or less frequently as an employee stock ownership plan (ESOP) contribution.

In employee-contributory DC plans, employer contributions are typically a secondary source of plan funding. Both the type and size of employer contributions vary substantially across plans.

Eligibility

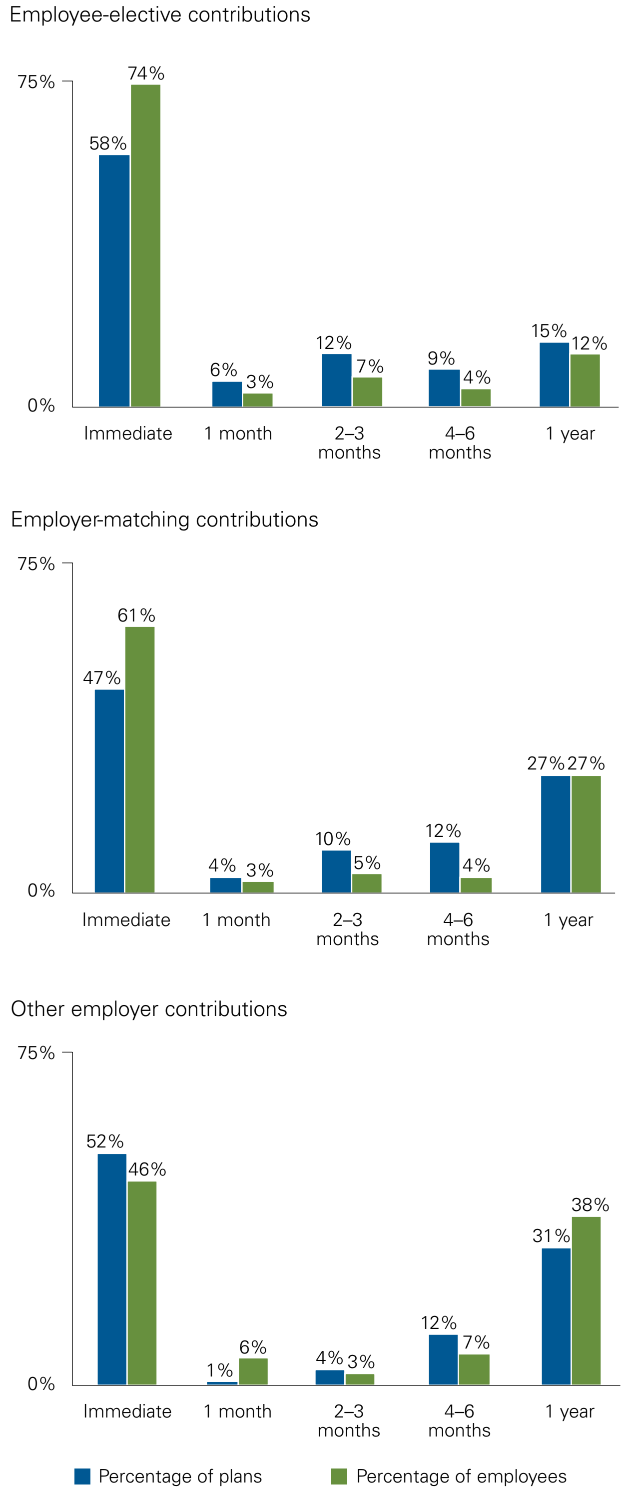
In 2014, 6 in 10 Vanguard plans allowed employees to make voluntary contributions immediately after they joined their employer (Figure 3). Larger plans were more likely to offer immediate eligibility than smaller plans. As a result, three-quarters of employees qualified for immediate eligibility in 2014.

At the other extreme, 15% of plan sponsors required eligible employees to have one year of service before they could make employee-elective contributions to their plan. Smaller plans were more likely to impose the one-year wait. As a result, only 12% of total eligible employees were subject to this restriction.

Eligibility rules are more restrictive for employer contributions, including matching contributions and other types of employer contributions, such as profit-sharing or ESOP contributions. A one-year eligibility rule is much more common for employer contributions, presumably because employers want to minimize compensation costs for short-tenured employees.

Figure 3. Eligibility, 2014

Vanguard defined contribution plans permitting employee-elective deferrals



Source: Vanguard, 2015.

Vesting

In 2014, 45% of plans immediately vested participants in employer-matching contributions (**Figure 4**). Large plans are slightly more likely to offer immediate vesting and about half (47%) of participants are in plans with immediate vesting of employer-matching contributions. Smaller plans are more likely to use longer vesting schedules. One-third of plans with employer-matching contributions use a 5- or 6-year graded vesting schedule. One in 5 participants (21%) with employer-matching contributions is in a plan with a longer vesting schedule.

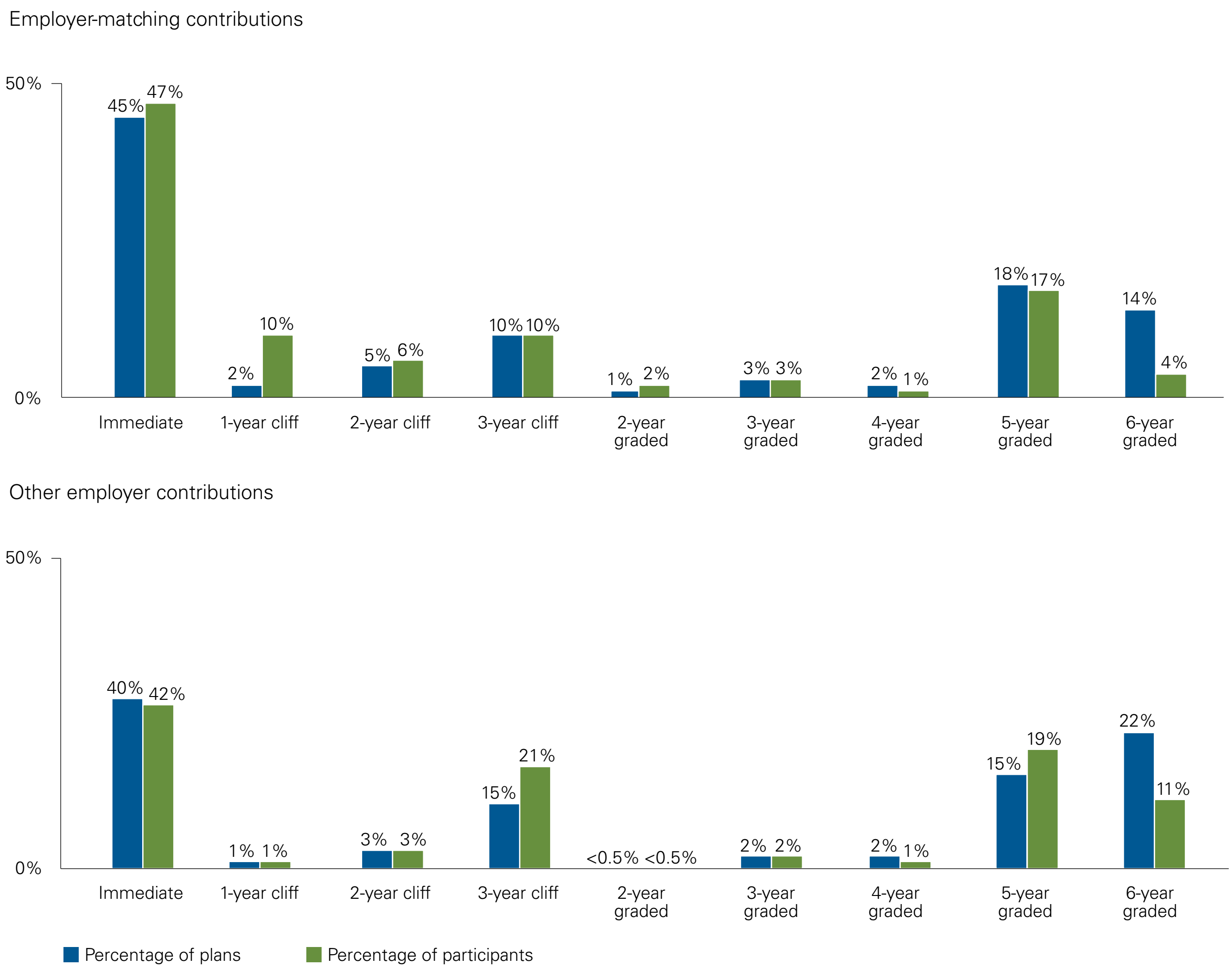
In 2014, 4 in 10 plans immediately vested participants for other employer contributions, such as profit-sharing or ESOP contributions. On the other hand, 4 in 10 plans (37%) with other employer contributions use a 5- or 6-year graded vesting schedule and 3 in 10 participants receiving other employer contributions are in plans with longer vesting schedules.

Employer contributions

Forty-six percent of Vanguard plans provided only a matching contribution in 2014, and this type of design covered 46% of participants (**Figure 5**).

Figure 4. Vesting, 2014

Vanguard defined contribution plans with employer contributions



Source: Vanguard, 2015.

More than one-third of plans (37%), covering half of participants, provided both a matching and a nonmatching employer contribution. Eleven percent of plans provided only a nonmatching employer contribution, and 2% of participants were in this type of design. Finally, 6% of plans made no employer contributions of any kind in 2014, and 1% of participants were in this category.

As noted previously, eligibility for employer contributions is typically more restrictive than eligibility for employee-elective deferrals. In 2014, a higher proportion of plans imposed a one-year waiting period on employer contributions, whether in the form of a matching or other type of contribution, than imposed a one-year waiting period on employee-elective deferrals.

These statistics summarize the incidence of employer contributions to a DC plan that accepts employee deferrals. They do not necessarily reflect the entire retirement benefits program funded by certain employers. Some employers may offer a companion employer-funded plan—such as a defined benefit (DB) plan, a stand-alone profit-sharing, ESOP, or a money purchase DC plan—in addition to an employee-contributory DC plan.

Matching contributions

The wide variation in employer contributions is most evident in the design of employer-matching formulas. In 2014, Vanguard administered more than 225 distinct match formulas for plans offering an employer match. Among plans offering a matching contribution in 2014, three-quarters (covering 74% of participants) provided a single-tier match formula, such as $0.50 on the dollar on the first 6% of pay (Figure 6). Less common, used by 13% of plans (covering 11% of participants), were multitier match formulas, such as $1.00 per dollar on the first 3% of pay and $0.50 per dollar on the next 2% of pay.

Another 8% of plans (covering 13% of participants) had a single- or multitier formula but imposed a maximum dollar cap on the employer contribution, such as $2,000. Finally, a very small percentage of plans used a match formula that varied by age, tenure, or other variables.

The matching formula most commonly cited as a typical employer match is $0.50 on the dollar on the first 6% of pay. This is the match most commonly offered among Vanguard DC plans and most commonly received by Vanguard DC plan participants. In fact, among plans offering a match, 25% provided exactly this match formula in 2014, covering 19% of participants.

Figure 5. Types of employer contributions, 2014

Vanguard defined contribution plans permitting employee-elective deferrals

Type of employer contribution	Percentage of plans	Percentage of participants
Matching contribution only	46%	46%
Nonmatching contribution only	11	2
Both matching and nonmatching contribution	37	51
Subtotal	**94%**	**99%**
No employer contribution	6%	1%

Source: Vanguard, 2015.

Figure 6. Types of matching contributions, 2014

Vanguard defined contribution plans with matching contributions

Match type	Example	Percentage of plans	Percentage of participants
Single-tier formula	$0.50 per dollar on 6% of pay	75%	74%
Multitier formula	$1.00 per dollar on first 3% of pay; $0.50 per dollar on next 2% of pay	13	11
Dollar cap	Single- or multitier formula with $2,000 maximum	8	13
Other	Variable formulas based on age, tenure, or similar variables	4	2

Source: Vanguard, 2015.

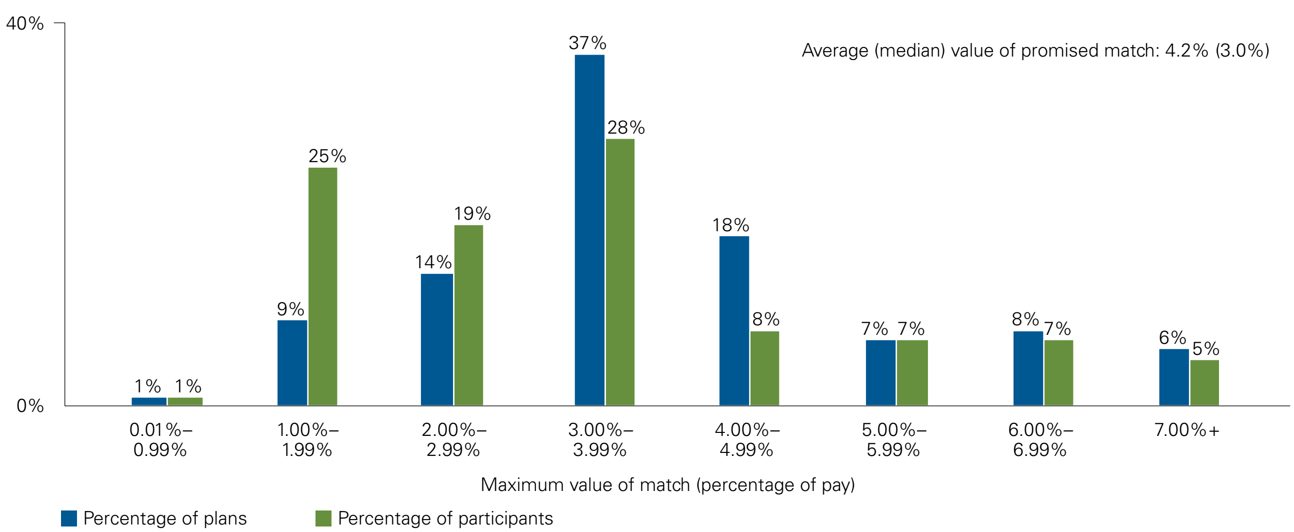
Given the multiplicity of match formulas, one way to summarize matching contributions is to calculate the maximum value of the match promised by the employer. For example, a match of $0.50 on the dollar on the first 6% of pay promises the same matching contribution—3% of pay—as a formula of $1.00 per dollar on the first 3% of pay.

The promised value of the match varies substantially from plan to plan. Among plans with single- or multitier match formulas, 6 in 10 (covering 43% of participants) promised a match of between 3% and 6% of pay (**Figure 7**). Most promised matches ranged from 1% to 6% of pay. The average value of the promised match was 4.2% of pay; the median value, 3.0%. Average promised matches dipped a bit in 2009 following the recession, as some sponsors reduced matches. Average and median promised matches have remained fairly stable between 2005 and 2014 (**Figure 8**).

Another way to assess matching formulas is to calculate the employee-elective deferral needed to realize the maximum value of the match.[3] In 2014, 8 in 10 plans (covering 7 in 10 participants) required participants to defer between 4% and 7% of their pay to receive the maximum employer-matching contribution (**Figure 9**). The average employee-elective deferral required to maximize the match was 7.3% of pay; the median value, 6.0%.

Figure 7. Distribution of promised matching contributions, 2014

Vanguard defined contribution plans permitting employee-elective deferrals with a single- or multitier match formula

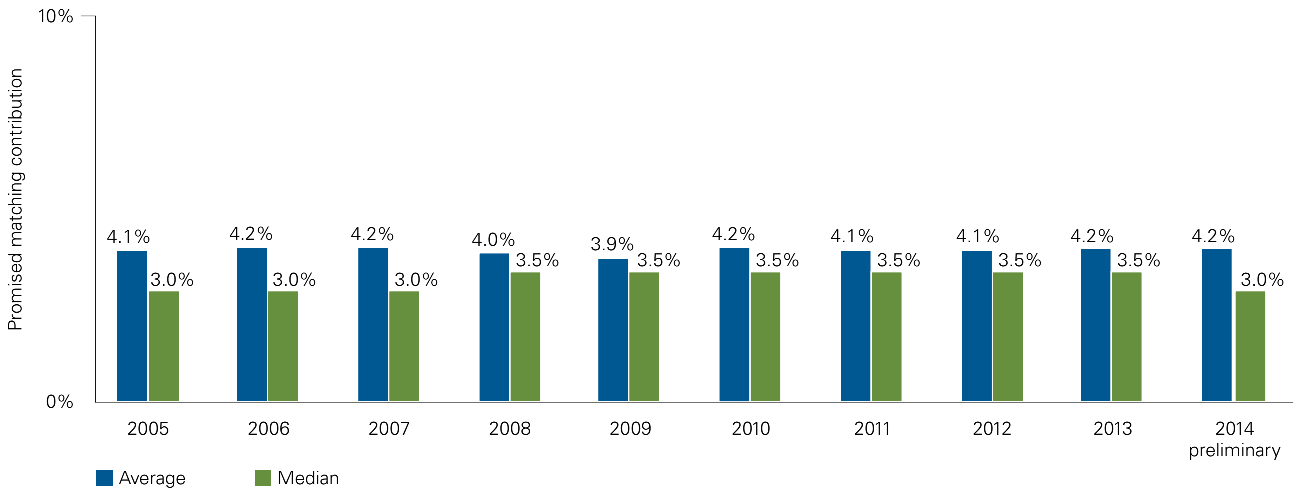


Source: Vanguard, 2015.

3 For an in-depth analysis of whether or not participants receive the full match, see Jeffrey W. Clark, Stephen P. Utkus, and Jean A. Young, 2015, *Maximizing the match in DC plans*, Vanguard research, institutional.vanguard.com.

Figure 8. Promised matching contributions

Vanguard defined contribution plans permitting employee-elective deferrals with a single- or multitier match formula

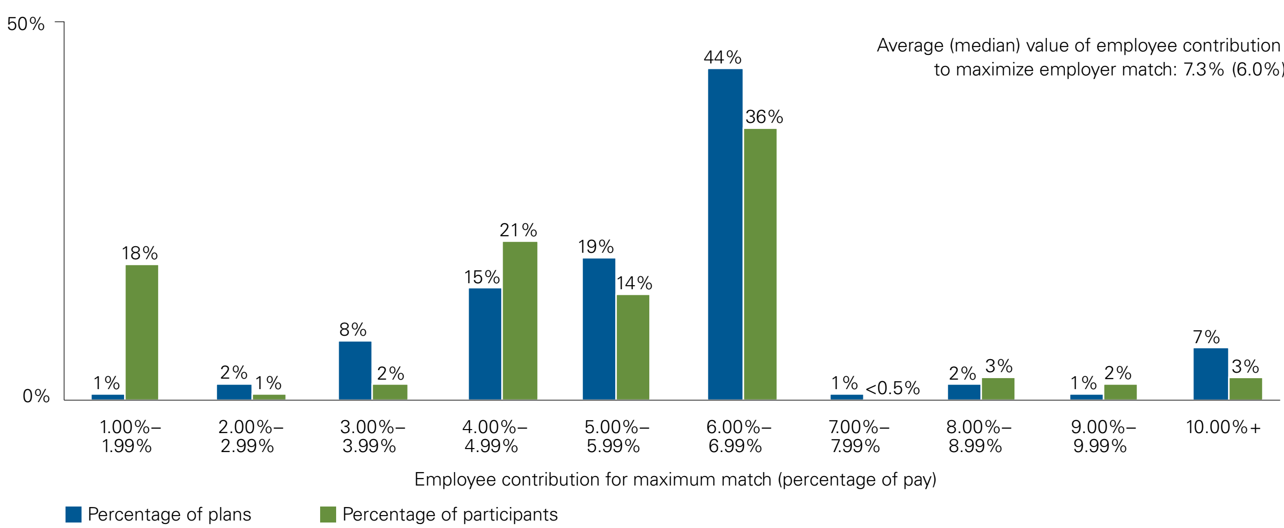


Note: The 2014 employer contribution data are drawn from a subset of plans that had completed nondiscrimination testing by March 2015 and represents approximately half of the clients for whom we perform testing. When testing has been completed for all plans, that analysis is performed again and the data is restated for prior years. Plans that complete testing by March generally have lower participation rates and include plans with concerns related to passing nondiscrimination testing. The previously reported average and median promised matching contributions rates for 2013 were 4.1% and 3.0%, respectively.

Source: Vanguard, 2015.

Figure 9. Employee contributions for maximum match, 2014

Vanguard defined contribution plans permitting employee-elective deferrals with a single- or multitier match formula



Source: Vanguard, 2015.

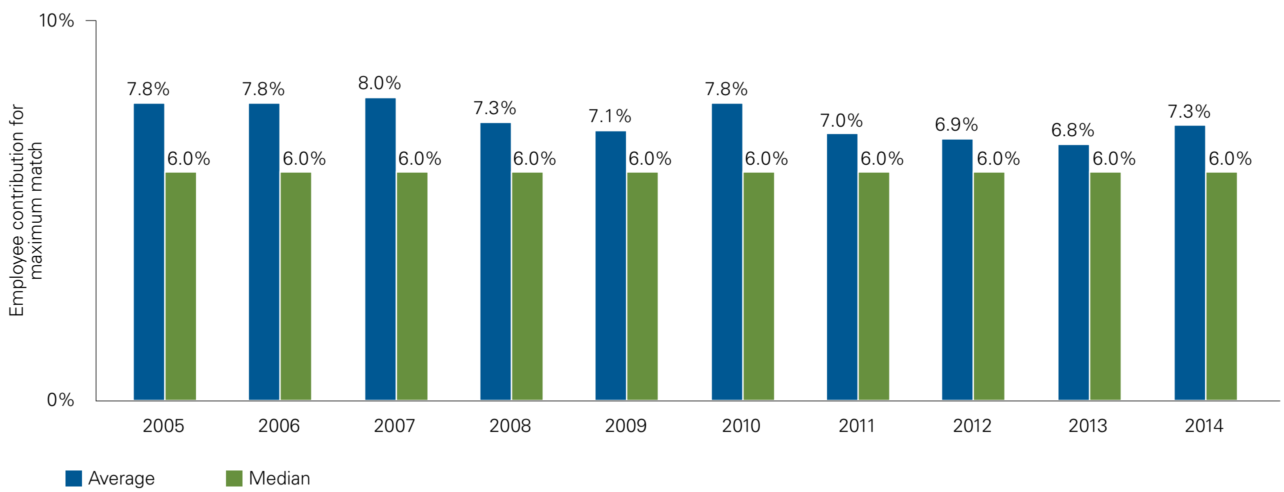
The average employee-elective deferral required to maximize the match declined in 2008 and 2009 and again in 2011 and 2013 before rising in 2014; however, the median deferral required remained constant at 6.0% **(Figure 10)**.

Other employer contributions

As noted previously, in a minority of plan designs, employers may make another contribution to the accounts of eligible employees in the form of a variable or fixed profit-sharing contribution or an ESOP contribution. These contributions, unlike matching contributions, may be made on behalf of eligible employees whether or not they actually contribute any part of their pay to the plan. As with matching contributions, eligibility is more restrictive for these types of employer contributions—many employees are not entitled to receive these contributions until they complete one year of service.

Figure 10. Employee contributions for maximum match

Vanguard defined contribution plans permitting employee-elective deferrals with a single- or multitier match formula

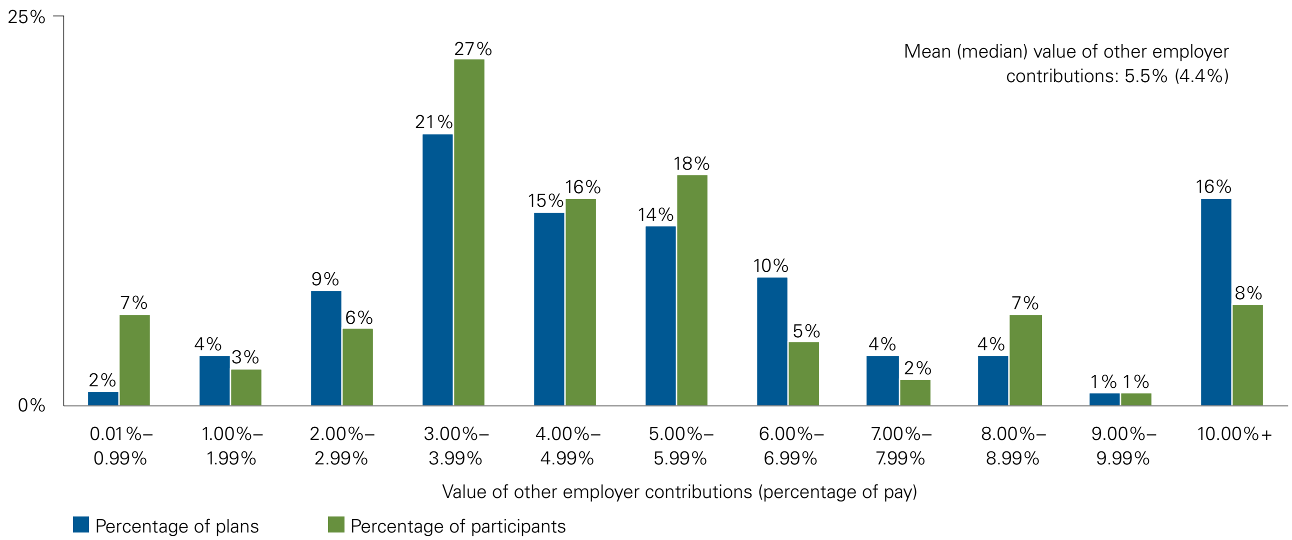


Source: Vanguard, 2015.

The value of other employer contributions also varies significantly from plan to plan. Among plans offering such contributions in 2014, half provided all participants with a contribution based on the same percentage of pay, while the other half varied the contribution by age and/or tenure. These nonmatching contributions varied in value from about 1% of pay to more than 10% of pay (Figure 11). Among plans with a nonmatching employer contribution, the average contribution was equivalent to 5.5% of pay; the median contribution, 4.4% of pay.

Figure 11. Other employer contributions, 2014

Vanguard defined contribution plans with other employer contributions



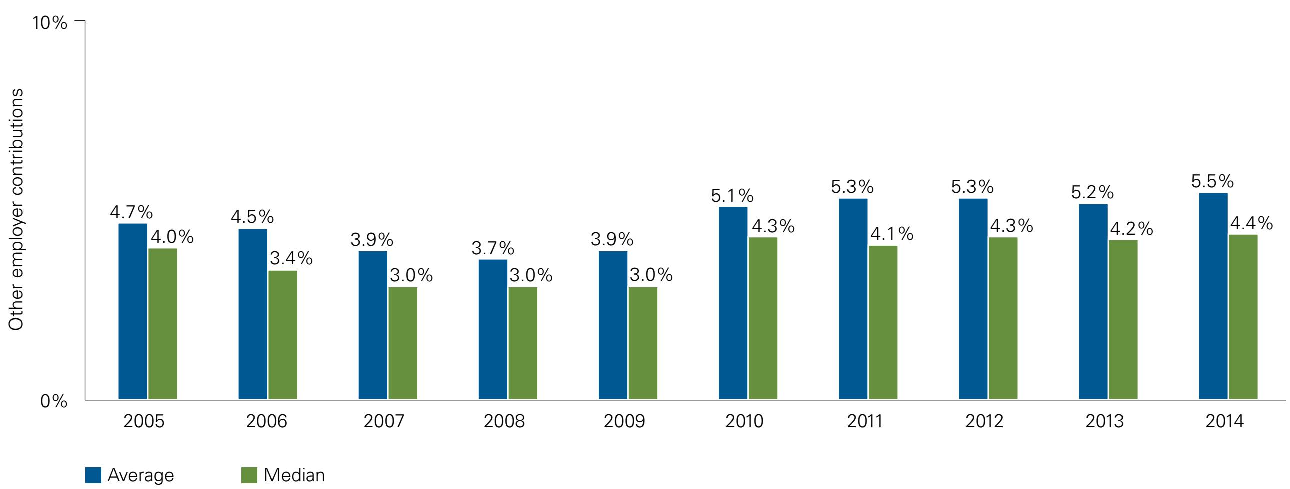
Source: Vanguard, 2015.

Between 2007 and 2009, the average value of other employer contributions was about 20% lower than in 2005 and 2006. We attribute this to reductions in variable profit-sharing contributions—consistent with the economic environment during the period. Between 2010 and 2014, the average value of other employer contributions rebounded and surpassed prerecession levels (Figure 12).

As noted previously, more than one-third of plans (37%), covering half of participants, provided both a matching and a nonmatching employer contribution. In 2014 the average combined value of the promised match and the other employer contribution was 8.2% (Figure 13).

Figure 12. Other employer contributions

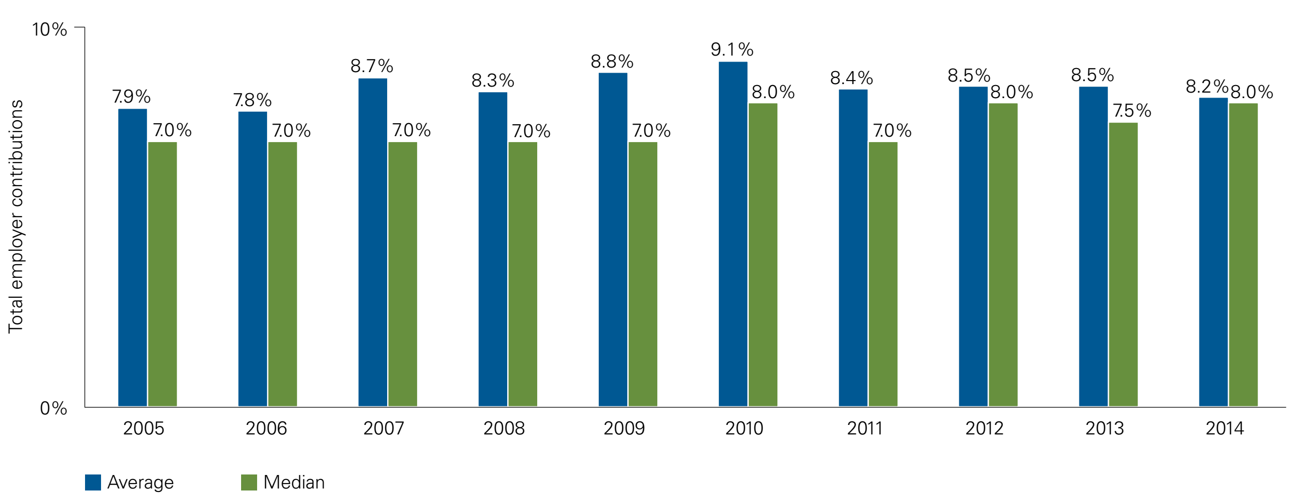
Vanguard defined contribution plans with other employer contributions



Source: Vanguard, 2015.

Figure 13. Match and other employer contributions

Vanguard defined contribution plans with both match and other employer contributions



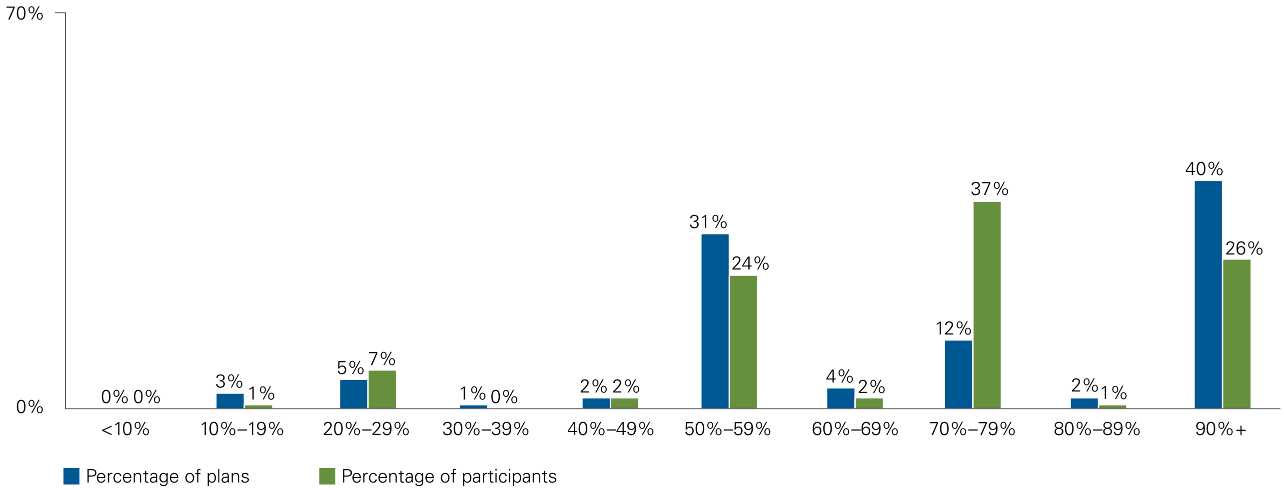
Source: Vanguard, 2015.

Maximum employee contribution limit
Many plans have incorporated expanded contribution limits authorized in the Economic Growth and Tax Relief Reconciliation Act of 2001 (EGTRRA).

Eighty-nine percent of DC plans (covering 90% of participants) have raised to 50% or more the maximum percentage of pay that employees can contribute to their plans (Figure 14).

Figure 14. **Maximum employee-elective contribution limit, 2014**

Vanguard defined contribution plans permitting employee-elective deferrals



Source: Vanguard, 2015.

Automatic enrollment designs

In a typical 401(k) or 403(b) plan, employees must make an active choice to join the plan. The enrollment decision is framed as a positive election: "Decide if you'd like to join the plan." Why do employees fail to take advantage of their employers' plans? Research in the field of behavioral finance provides a number of explanations:

- **Lack of planning skills.** Some employees are not active, motivated decision-makers when it comes to retirement planning. They have weak planning skills and find it difficult to defer gratification.
- **Default decisions.** Faced with a complex choice and unsure what to do, many individuals often take the default or "no decision" choice. In the case of a voluntary savings plan, which requires that a participant take action in order to sign up, the "no decision" choice is a decision not to contribute to the plan.
- **Inertia and procrastination.** Many individuals deal with a difficult choice by deferring it to another day. Eligible nonparticipants, unsure of what to do, decide to postpone their decision. While many employees know they are not saving enough and express an interest in saving more, they simply never get around to joining the plan or, if they do join, to increasing their contribution rates over time.

Automatic enrollment or autopilot plan designs reframe the savings decision. With an autopilot design, individuals are automatically enrolled into the plan, their deferral rates are automatically increased each year, and their contributions are automatically invested in a balanced investment strategy. Under an autopilot plan, the decision to save is framed negatively: "Quit the plan if you like." In such a design, "doing nothing" leads to participation in the plan and investment of assets in a long-term retirement portfolio.

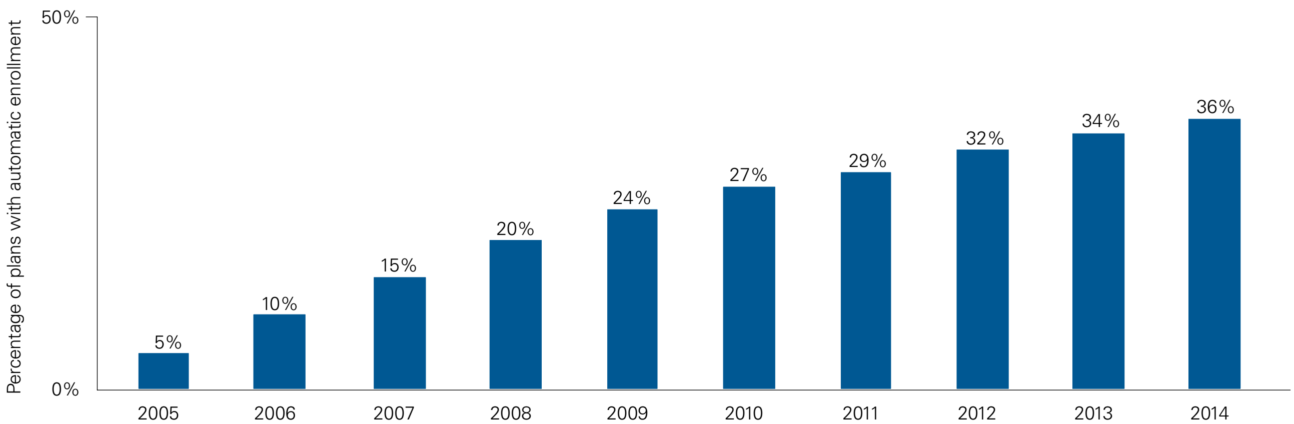
As of December 2014, 36% of Vanguard plans permitting employee-elective deferrals had adopted components of an autopilot design (Figure 15). Large plans are more likely to implement automatic enrollment, with more than half of midsized and large plans using the feature. As a result, 6 in 10 participants are now in plans with autopilot designs, although automatic enrollment itself may only apply to newly eligible participants (Figure 16).

Approximately half of these plans have now "swept" eligible nonparticipants—they implemented automatic enrollment for all nonparticipating employees.[4] The remaining half have implemented automatic enrollment for new hires only. Adoption of automatic enrollment designs grew only modestly in 2014, and by the end of 2014, 6 in 10 large plans had added the feature.

4 For an in-depth analysis of automatic enrollment, see Jeffrey W. Clark, Stephen P. Utkus, and Jean A. Young, 2015, *Automatic enrollment: The power of the default*, Vanguard research, institutional.vanguard.com.

Figure 15. Automatic enrollment adoption

Vanguard defined contribution plans with employee-elective contributions



Source: Vanguard, 2015.

Figure 16. Automatic enrollment design by plan size, 2014

Vanguard defined contribution plans with automatic enrollment

		Number of participants		
	All	<1,000	1,000–4,999	5,000+
Percentage of plans with employee-elective contributions offering	36%	26%	61%	58%
Percentage of participants in plans offering	60%	38%	62%	62%
For plans offering automatic enrollment				
Percentage of plans with automatic enrollment, automatic savings rate increases, and a balanced default fund	70%	65%	78%	68%
Percentage of plans with automatic enrollment and a balanced default fund	28	32	22	32
Percentage of plans with automatic enrollment and a money market or stable value default fund	2	3	0	0

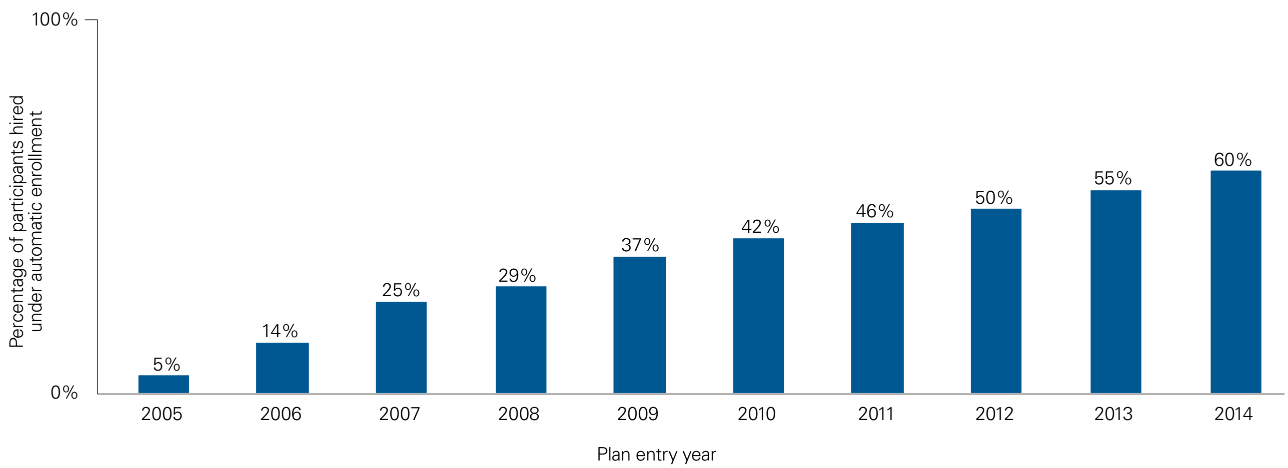
Source: Vanguard, 2015.

Among plans automatically enrolling employees, 7 in 10 use all three features of an autopilot design. These plan sponsors automatically enroll employees, automatically increase the deferral rate annually, and invest participants' assets in a balanced fund. Another 28% of plan sponsors automatically enroll employees and invest participants' assets in a balanced fund but do not automatically increase participant deferral rates. In 2014, 6 in 10 new plan entrants—participants contributing to the plan for the first time in 2014—were in plans that had adopted automatic enrollment (**Figure 17**).

Forty-nine percent of these plans automatically enroll participants at a 3% contribution rate (**Figure 18**). Seven in 10 plans automatically increase the contribution rate annually. Ninety-eight percent of these plans use a target-date or other balanced investment strategy as the default fund, with 95% choosing a target-date fund as the default. The design of automatic enrollment plans is improving. In 2014, 39% of plans chose a default of 4% or higher, compared with 2005 when only 27% did.

Figure 17. **Participants hired under automatic enrollment adoption**

Vanguard defined contribution plans with employee-elective contributions



Source: Vanguard, 2015.

Figure 18. Automatic enrollment design trends

Vanguard defined contribution plans with automatic enrollment

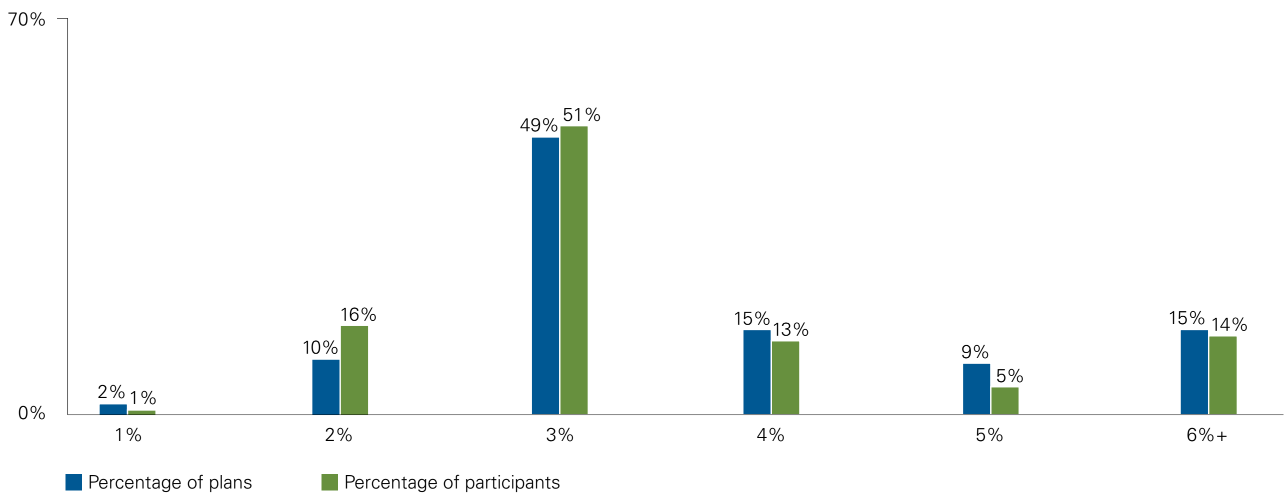
Default automatic enrollment rate	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
1 percent	4%	3%	3%	2%	3%	2%	2%	2%	2%	2%
2 percent	23	20	17	13	14	13	13	13	12	10
3 percent	46	52	56	60	56	57	55	53	51	49
4 percent	12	10	10	10	11	11	11	12	13	15
5 percent	10	8	7	7	7	7	8	8	9	9
6 percent or more	5	7	7	8	9	10	11	12	13	15
Default automatic increase rate										
1 percent	31%	57%	66%	73%	68%	68%	67%	67%	67%	68%
2 percent	0	2	2	2	1	1	2	2	2	2
Voluntary election	44	27	23	16	15	16	16	17	17	18
Service feature not offered	25	14	9	9	16	15	15	14	14	12
Default fund										
Target-date fund	42%	63%	81%	87%	87%	89%	90%	91%	93%	95%
Other balanced fund	33	26	15	11	10	8	7	6	5	3
Subtotal	**75%**	**89%**	**96%**	**98%**	**97%**	**97%**	**97%**	**97%**	**98%**	**98%**
Money market or stable value fund	25%	11%	4%	2%	3%	3%	3%	3%	2%	2%

Source: Vanguard, 2015.

Thirty-nine percent of these plans automatically enroll participants at a contribution rate of 4% or more **(Figure 19)**. One-third of participants in these plans are defaulted to a contribution rate of 4% or more. Four in 10 plans with automatic enrollment and annual increases cap the annual increase at 10% and half of annual-increase participants are capped at 10% **(Figure 20)**. However, one-quarter of plans use caps between 12% and 50%. Six percent of plans have no cap—likely an error. We recommend plan sponsors set the cap at a level where participants are saving 12% to 15% or more, factoring in employer contributions.

Figure 19. Automatic enrollment deferral rate

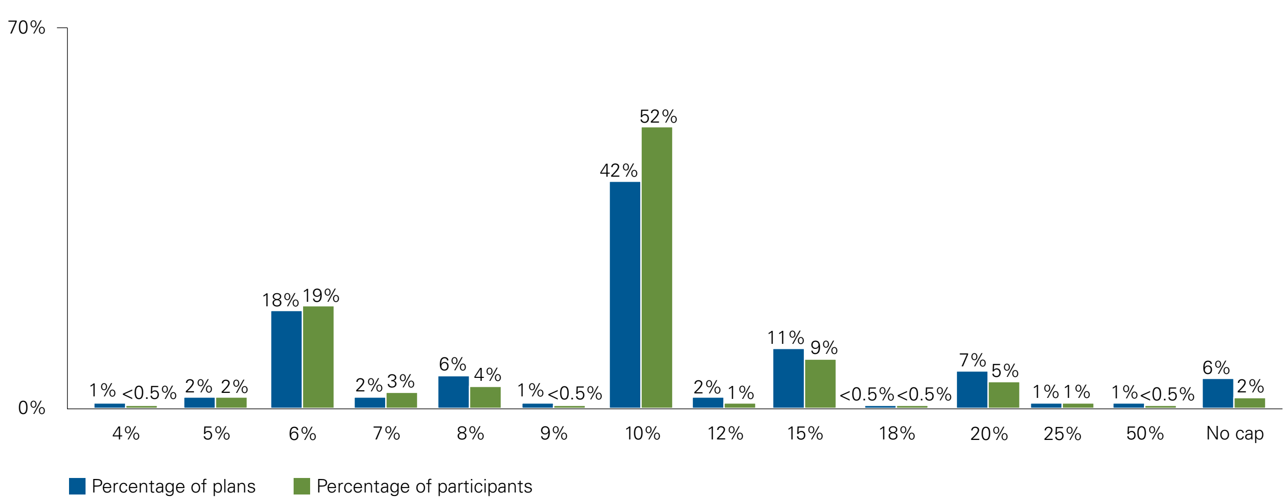
Automatic enrollment plans with an automatic annual increase as of December 31, 2014



Source: Vanguard, 2015.

Figure 20. Automatic increase plan caps

Automatic enrollment plans with an automatic annual incease as of December 31, 2014



Source: Vanguard, 2015.

Participation rates

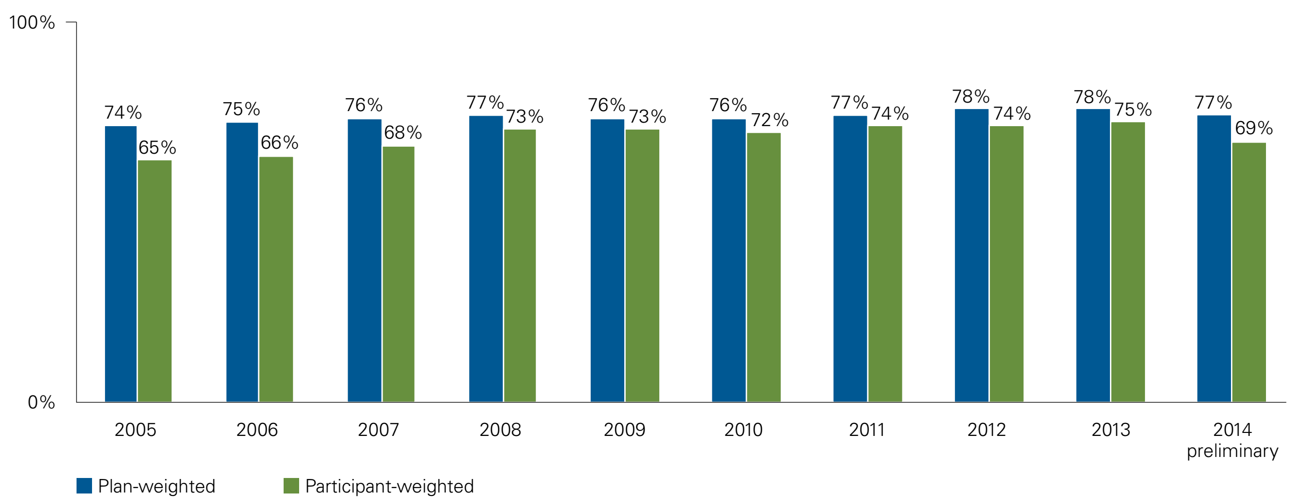
A plan's participation rate—the percentage of eligible employees who choose to make voluntary contributions—remains the broadest metric for gauging 401(k) plan performance. The most common measure of participation rates is calculated by taking the average of participation rates among a group of plans. We refer to this as the plan-weighted participation rate. In 2014, Vanguard's plan-weighted participation rate was 77% and has risen modestly compared with 2005 (Figure 21).

A second measure of participation rates considers all employees in Vanguard-administered plans as if they were in a single plan. We refer to this as the participant-weighted participation rate. Across the universe of Vanguard participants, 69% (preliminary, see Figure 21 note) of eligible employees are enrolled in their employer's voluntary savings program. This broader measure of plan participation has risen in recent years from two-thirds to three-quarters. This increase reflects the adoption of automatic enrollment by larger plan sponsors.

These two measures provide different views of employee participation in their retirement savings plans, although with the rising adoption of automatic enrollment these two metrics are converging. The first measure indicates that, in the average plan, about one-fifth of eligible employees fail to contribute. The second measure, however, shows that within the entire employee universe, about one-quarter of employees fail to take advantage of their employer's plan. The first measure is a useful benchmark for an individual plan sponsor because it is calculated at the plan level; the second is a valuable measure of the progress of 401(k) plans as a whole because it looks at all eligible employees across all plans.

Figure 21. Plan participation rates

Vanguard defined contribution plans permitting employee-elective deferrals



Note: The 2014 participation rates are drawn from a subset of plans that had completed nondiscrimination testing by March 2015 and represent approximately half of the clients for whom we perform testing. When testing has been completed for all plans, the data is restated. Plans that complete testing by March generally have lower participation rates and include plans with concerns related to passing nondiscrimination testing. The previously reported plan- and participant-weighted participation rates for 2013 were 76% and 67%, respectively.

Source: Vanguard, 2015.

Distribution of participation rates

Participation rates vary considerably across plans (Figure 22). In 2014, more than half of plans had a participation rate of 80% or higher, while 1 in 10 plans had a participation rate of less than 50%.

Participation rates also vary by plan size, with larger plans historically having lower participation rates than other plans (Figure 23). One reason for lower participation rates at large companies may be the presence of another retirement plan benefit, such as an employer-funded DB plan, employer profit-sharing, or ESOP contributions to a DC plan.

Figure 22. Distribution of participation rates

Vanguard defined contribution plans permitting employee-elective deferrals

Percentage of plans

Plan participation rate	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014 preliminary
90%–100%	16%	17%	20%	24%	23%	21%	24%	29%	31%	30%
80%–89%	26	28	31	30	29	31	31	28	30	26
70%–79%	25	23	20	20	20	19	17	17	14	18
60%–69%	15	16	14	11	11	12	12	10	9	10
50%–59%	9	8	8	8	7	7	7	7	7	6
<50%	9	8	7	7	10	10	9	9	9	10
Average plan participation rate	**74%**	**75%**	**76%**	**77%**	**76%**	**76%**	**77%**	**78%**	**78%**	**77%**

Note: The previously reported plan-weighted participation rate for 2013 was 76% (see Figure 21 note).
Source: Vanguard, 2015.

Figure 23. Participation rates by plan size

Vanguard defined contribution plans permitting employee-elective deferrals

Number of participants

Plan-weighted participation rate	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014 preliminary
<1,000	75%	75%	76%	77%	75%	75%	76%	77%	77%	77%
1,000–4,999	71	73	75	78	79	78	79	80	81	80
5,000+	69	71	73	78	76	78	80	81	81	74
All plans	**74%**	**75%**	**76%**	**77%**	**76%**	**76%**	**77%**	**78%**	**78%**	**77%**
Participant-weighted participation rate										
<1,000	68%	68%	72%	74%	71%	71%	73%	74%	74%	74%
1,000–4,999	64	66	67	71	72	69	70	72	72	73
5,000+	64	65	67	74	73	75	76	76	77	67
All participants	**65%**	**66%**	**68%**	**73%**	**73%**	**72%**	**74%**	**74%**	**75%**	**69%**

Note: The previously reported plan- and participant-weighted participation rates for 2013 were 76% and 67%, respectively (see Figure 21 note).
Source: Vanguard, 2015.

Other possible reasons include the inherent difficulty of communicating across many locations in a large firm and the fact that large firms often outsource the enrollment process to their provider, while small firms may tend to rely on an in-house human resources representative. With larger plans most likely to add automatic enrollment, there is now less variation in participation rates by plan size.

Participation rates by employee demographics

Participation rates also vary considerably by employee demographics (Figure 24). Income is one of the primary determinants of plan participation rates. About half of eligible employees with income of less than $30,000 contributed to their employer's DC plan in 2014, while 89% of employees with income of more than $100,000 elected to participate. Even among the highest-paid employees, 11% of eligible workers still failed to take advantage of their employer's DC plan.

Participation rates were lowest for employees younger than 25. Only about half of employees younger than 25 made employee-elective deferrals to their employer's plan in 2014, while about 7 in 10 eligible employees between ages 35 and 64 saved for retirement in their employer's plan. Tenure had a significant influence on plan participation. In 2014, only about 6 in 10 eligible employees with less than two years on the job participated in their employer's plan, while three-quarters of employees with tenure of ten years or more participated.

Figure 24. Participation rates by participant demographics

Vanguard defined contribution plans permitting employee-elective deferrals

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014 preliminary
All	65%	66%	68%	73%	73%	72%	74%	74%	75%	69%
Income										
<$30,000	43%	43%	45%	56%	55%	53%	56%	57%	57%	46%
$30,000–$49,999	64	63	66	71	70	69	70	71	71	65
$50,000–$74,999	75	74	76	78	76	76	75	75	76	68
$75,000–$99,999	83	84	84	85	84	83	82	82	82	74
$100,000+	90	91	91	91	90	91	90	90	91	89
Age										
<25	30%	33%	38%	49%	49%	44%	51%	52%	53%	46%
25–34	57	58	61	68	68	68	69	70	71	67
35–44	68	69	70	75	74	74	74	75	76	70
45–54	71	71	74	78	77	77	78	78	79	72
55–64	71	72	74	77	76	76	78	79	80	75
65+	58	57	62	67	68	67	71	74	74	70
Gender										
Male	65%	66%	69%	75%	73%	73%	74%	73%	75%	66%
Female	64	64	67	73	72	71	75	74	77	73
Job tenure (years)										
0–1	42%	45%	49%	58%	55%	56%	61%	61%	62%	57%
2–3	56	58	61	69	69	66	69	71	72	68
4–6	66	67	68	73	72	72	72	73	75	71
7–9	73	73	74	79	77	76	76	78	78	73
10+	77	79	80	82	81	81	81	82	83	76

Note: The previously reported participant-weighted participation rate for 2013 was 67% (see Figure 21 note).

Source: Vanguard, 2015.

Men and women appear to participate at about the same level. But these overall averages fail to account for the income differences between men and women. At most income levels, women are significantly more likely than men to join their employer's plan (Figure 25). For example, in 2014, 81% of women earning $50,000 to $74,999 participated in their employer's plan—compared with 62% of men in the same income group.

Participation rates also vary by industry group (Figure 26). Employees in the agriculture, mining, and construction and the finance, insurance, and real estate industry groups had the highest participation rate, with more than 9 in 10 workers participating in their employer's plan, while employees in the wholesale and retail trade group had the lowest participation rate at 60%.

Figure 25. Participation by income and gender, 2014

Vanguard defined contribution plans permitting employee-elective deferrals

	Female	Male	All
<$30,000	50%	41%	46%
$30,000–$49,999	70	61	65
$50,000–$74,999	81	62	68
$75,000–$99,999	86	70	74
$100,000+	91	87	89

Source: Vanguard, 2015.

Figure 26. Participation rates by industry sector, 2014

Vanguard defined contribution plans permitting employee-elective deferrals

	Plan-weighted	Participant-weighted
Overall	77%	69%
Industry group		
Finance, insurance, and real estate	87	91
Agriculture, mining, and construction	72	91
Manufacturing	76	78
Education and health	77	74
Media, entertainment, and leisure	72	53
Business, professional, and nonprofit	80	76
Transportation, utilities, and communications	75	58
Wholesale and retail trade	78	60

Source: Vanguard, 2015.

Impact of automatic enrollment on plan participation

Reflecting increased adoption of automatic enrollment designs, there has been a dramatic improvement in participation rates between 2005 and 2014 among demographic groups that traditionally have lower voluntary participation rates. Employees subjected to an automatic enrollment feature have an overall participation rate of 89%, compared with a participation rate of only 61% for employees hired under plans with voluntary enrollment (Figure 27).[5]

Plans with automatic enrollment have higher participation rates across all demographic variables. For individuals earning less than $30,000 in plans with automatic enrollment, the participation rate is more than double that of individuals with voluntary enrollment.

Figure 27. Participation rates by plan design, 2014

Vanguard defined contribution plans permitting employee-elective deferrals

	Voluntary enrollment	Automatic enrollment	All
All	61%	89%	69%
Income			
<$30,000	32%	83%	46%
$30,000–$49,999	55	89	65
$50,000–$74,999	62	92	68
$75,000–$99,999	69	95	74
$100,000+	85	97	89
Age			
<25	29%	78%	46%
25–34	54	88	67
35–44	62	88	70
45–54	66	90	75
55–64	70	92	75
65+	64	89	70
Gender			
Male	58%	89%	66%
Female	66	89	73
Job tenure (years)			
0–1	37%	82%	57%
2–3	56	90	68
4–6	62	92	71
7–9	66	93	73
10+	72	93	76

Source: Vanguard, 2015.

5 In prior editions of *How America Saves* we categorized plans and participants based on whether or not the plan had adopted automatic enrollment at the end of the year. As noted previously, about half of plans have implemented automatic enrollment for all eligible employees, by either "sweeping" these nonparticipants when automatic enrollment was initially adopted or at a later date. In 2014 we have refined our analysis to segregate individuals hired under voluntary enrollment design from those individuals subjected to an automatic enrollment design. Participants in plans with automatic enrollment that were not subjected to automatic enrollment are included in the voluntary enrollment category.

Aggregate plan participation rates

As noted previously, some plan sponsors make other nonmatching contributions for all eligible employees, whether or not these employees actually defer any part of their pay to the plan. When these contributions are factored in, both the plan- and participant-weighted participation rates improve. The plan-weighted participation rate rises to 84% and the participant-weighted rate to 73% (**Figure 28**). In other words, across all Vanguard plans, about 80% of employees either make their own contributions, receive an employer contribution, or both.

Employee deferrals

In a typical DC plan, employees are the main source of funding, while employer contributions play a secondary role. Thus, the level of participant deferrals is a critical determinant of whether the DC plan will generate an adequate level of savings for retirement.

Vanguard participants saved 6.9% of their income on average in their employer's plan in 2014 (**Figure 29**). The median participant deferral rate was 6.0%, meaning that half of participants were saving above this rate and half were saving below it.

Vanguard deferral rates are drawn from recordkeeping data and exclude eligible employees not contributing to their plans. Industry deferral rates sometimes include eligible employees not contributing to their plan and are generally self-reported by plan sponsors.

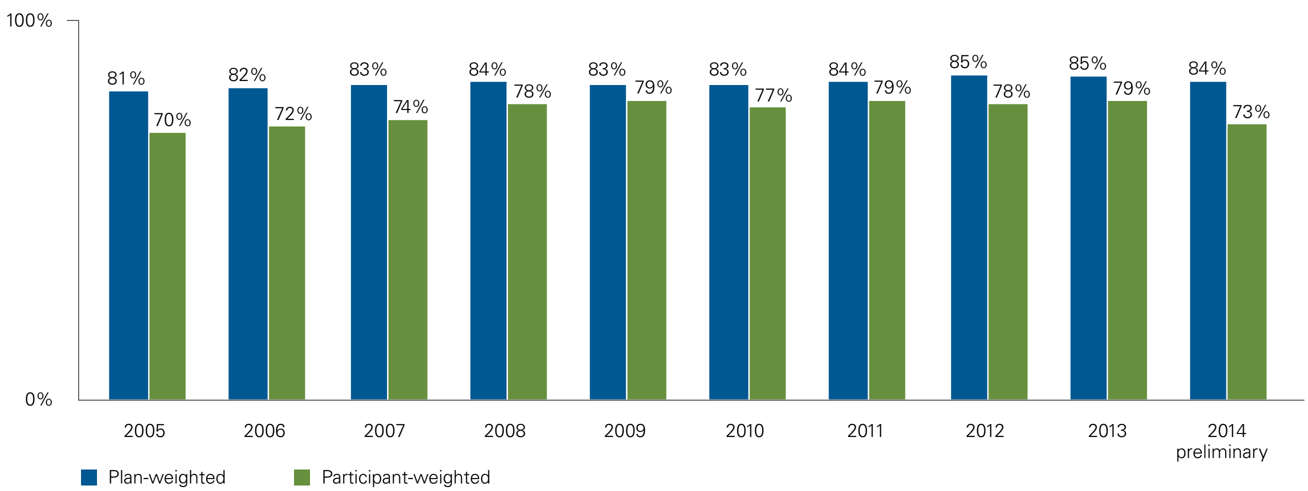
Median deferral rates are unchanged since 2005. However, average deferral rates declined slightly in 2009 by 0.5 percentage points compared with 2007. This slight decline is attributable to the growth in automatic enrollment, where the dominant default deferral rate is 3%.

Distribution of deferral rates

Individual deferral rates vary considerably among participants (**Figure 30**). One in 5 participants had a deferral rate of 10% or higher in 2014, while 3 in 10 had a deferral rate of less than 4%. During 2014, only 10% of participants saved the statutory maximum of $17,500 ($23,000 for participants age 50 or older) (see page 37). In plans offering catch-up contributions, only 16% of participants age 50 or older took advantage of this feature in 2014 (see page 30).

Figure 28. Aggregate participation rates

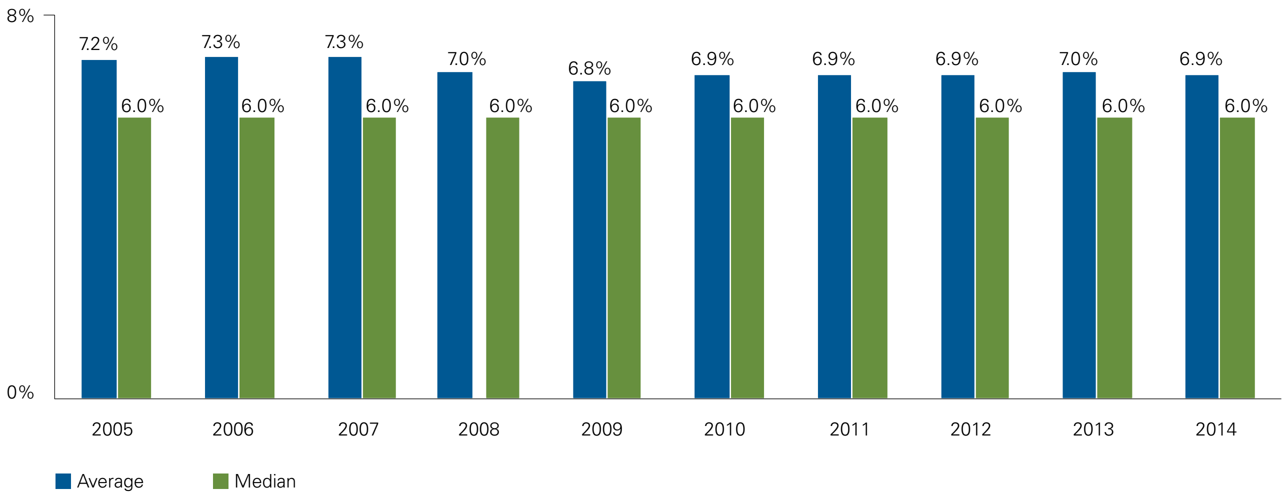
Vanguard defined contribution plans permitting employee-elective deferrals



Note: The previously reported plan- and participant-weighted participation rates for 2013 were 82% and 70%, respectively (see Figure 21 note).
Source: Vanguard, 2015.

Figure 29. Participant employee-elective deferral rates

Vanguard defined contribution plans permitting employee-elective deferrals



Source: Vanguard, 2015.

Figure 30. Distribution of participant employee-elective deferral rates

Vanguard defined contribution plans permitting employee-elective deferrals

Percentage of participants

Deferral rate	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
0.1%–3.9%	26%	26%	27%	30%	32%	28%	28%	29%	28%	31%
4.0%–6.0%	25	24	23	22	22	23	25	23	23	22
6.1%–9.9%	26	26	27	26	25	27	27	28	29	25
10.0%–14.9%	16	16	15	15	14	15	14	14	14	15
15.0%+	7	8	8	7	7	7	6	6	6	7

Source: Vanguard, 2015.

Plan size has little effect on participant deferral rates (Figure 31). In 2014, plans with 5,000 or more participants had an average deferral rate of 7.1%—only modestly higher than the overall average rate of 6.9%. Employees at large firms typically have more generous compensation packages and so arguably should have a higher propensity to save than employees at small companies. But the presence of automatic enrollment and other employer-funded retirement benefits as part of that package may dilute this effect.

Deferral rates by employee demographics

As with plan participation rates, employee demographics have a strong influence on deferral rates (Figure 32). Income is the primary determinant of deferral rates, which generally rise with income, but then decline as highly paid participants reach either the statutory maximum contribution level or plan-imposed caps on contributions related to nondiscrimination testing. The statutory maximum contribution was $17,500 ($23,000 for participants 50 and older), and a highly compensated employee was one who earned $115,000 or more in 2013 (based on the prior year for 2014).

In 2014, participants with incomes of less than $30,000 had deferral rates averaging 4.6%, while participants earning $75,000 to $99,999 had deferral rates of 7.8%—a savings rate that is 70% higher. Deferral rates were 8.4% for participants earning $100,000 or more.

Age is another important variable influencing savings. In 2014, deferral rates were lowest for participants younger than 25. This group saved only 4.6% of income. Deferral rates for participants ages 55 to 64 were nearly twice as high, averaging 8.7%. Deferral rates also rose directly with employee tenure.

Figure 31. Participant employee-elective deferral rates by plan size

Vanguard defined contribution plans permitting employee-elective deferrals

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Average—all plans	7.2%	7.3%	7.3%	7.0%	6.8%	6.9%	6.9%	6.9%	7.0%	6.9%
Median	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Average by plan size (number of participants)										
<1,000	7.2%	7.2%	7.3%	7.1%	6.9%	6.9%	6.9%	6.9%	6.9%	6.8%
1,000–4,999	7.3	7.2	7.2	7.0	6.8	6.9	6.8	6.8	6.9	6.7
5,000+	7.2	7.4	7.4	6.9	6.7	7.0	6.9	6.8	7.0	7.1

Source: Vanguard, 2015.

Figure 32. **Employee-elective deferral rates by participant demographics**

Vanguard defined contribution plans permitting employee-elective deferrals

Average deferral rate	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
All	7.2%	7.3%	7.3%	7.0%	6.8%	6.9%	6.9%	6.9%	7.0%	6.9%
Income										
<$30,000	6.0%	6.0%	5.7%	4.8%	4.7%	4.8%	4.8%	4.7%	4.8%	4.6%
$30,000–$49,999	6.4	6.3	6.2	5.9	5.6	5.8	5.8	5.7	5.8	5.7
$50,000–$74,999	7.7	7.7	7.6	7.4	7.0	7.1	7.0	6.9	7.0	6.9
$75,000–$99,999	8.7	8.9	8.9	8.6	8.4	8.4	8.2	8.1	8.1	7.8
$100,000+	7.6	8.1	8.5	8.1	8.2	8.2	8.1	8.1	8.3	8.4
Age										
<25	4.7%	4.6%	4.5%	4.1%	4.0%	4.2%	4.2%	4.0%	4.4%	4.6%
25–34	6.0	5.9	5.9	5.6	5.5	5.7	5.6	5.4	5.8	5.6
35–44	6.7	6.8	6.7	6.4	6.2	6.4	6.1	6.3	6.4	6.3
45–54	7.6	7.8	7.8	7.5	7.2	7.3	7.2	7.2	7.3	7.3
55–64	9.0	9.1	9.2	8.9	8.5	8.6	8.6	8.5	8.6	8.7
65+	10.4	10.7	10.8	10.4	9.8	9.9	9.8	9.8	9.8	10.2
Gender										
Male	7.2%	7.3%	7.3%	7.0%	6.7%	6.9%	6.9%	6.9%	7.0%	6.8%
Female	7.3	7.3	7.2	6.9	6.8	6.9	6.9	6.8	7.0	7.0
Job tenure (years)										
0–1	5.9%	5.7%	5.6%	5.0%	4.9%	4.8%	4.8%	4.7%	4.9%	4.7%
2–3	6.6	6.6	6.7	6.3	6.1	6.3	6.3	6.0	6.3	6.2
4–6	7.0	7.1	7.1	6.8	6.5	6.8	6.8	6.8	7.0	7.0
7–9	7.2	7.4	7.4	7.1	6.9	7.0	7.0	7.0	7.2	7.2
10+	7.9	8.1	8.2	8.0	7.7	7.8	7.8	7.9	8.0	8.1
Account balance										
<$10,000	4.4%	4.2%	4.1%	4.1%	3.6%	3.8%	3.9%	3.8%	3.8%	3.7%
$10,000–$24,999	6.3	6.4	6.5	6.8	5.8	5.7	5.9	5.8	5.9	6.1
$25,000–$49,999	7.4	7.3	7.4	7.9	7.1	6.8	6.8	6.7	6.9	7.1
$50,000–$99,999	8.8	8.5	8.6	9.1	8.4	8.2	8.1	7.8	7.7	8.1
$100,000–$249,999	9.8	10.1	10.2	10.5	10.0	9.8	9.8	9.6	9.2	9.6
$250,000+	9.3	10.1	10.6	10.1	10.6	10.4	10.3	10.4	10.4	10.7

Source: Vanguard, 2015.

Deferral rates also are correlated with account balances. Participants with account balances of less than $10,000 had the lowest average deferral rate, 3.7% in 2014. As account balances rose, average deferral rates also rose. Overall, men and women appear to save at similar rates. But, as with participation rates, the overall averages understate the difference because they fail to account for women's lower incomes. Across every income group, women saved at rates that are 7% to 16% higher than those of men (Figure 33).

Deferral rates also vary—by about one-third—by industry group (Figure 34). Participants in the agriculture, mining, and construction industry group had the highest median deferral rates in 2014, while participants in the wholesale and retail trade group had the lowest deferral rates.

Impact of automatic enrollment

As noted previously, the increased adoption of automatic enrollment contributed to a deterioration in deferral rates in 2009 as compared with 2007. Plan design, specifically the predominant use of a 3% default deferral rate, means participants in plans with automatic enrollment are saving less.

Participants joining a plan under an automatic enrollment feature have an average deferral rate of 6.2%, compared with 7.3% for participants under plans with voluntary enrollment—a deferral rate that is about 15% lower overall (Figure 35). This is especially remarkable in light of the fact that participants earning less than $30,000 save about 30% more on average under voluntary enrollment designs. This suggests that higher default deferral rates would be amenable to plan participants in automatic enrollment designs. Our research on automatic enrollment indicates that "quit rates" do not deteriorate when higher default percentages are used to enroll employees.

Maximum contributors

During 2014, only 10% of participants saved the statutory maximum dollar amount of $17,500 ($23,000 for participants age 50 or older) (Figure 36). Participants who contributed the maximum dollar amount tended to have higher incomes, were older, had longer tenures with their current employer, and had accumulated substantially higher account balances.

One-third of participants with incomes of more than $100,000 contributed the maximum allowed. Similarly, nearly half of participants with account balances of more than $250,000 contributed the maximum allowed in 2014. One-quarter of participants older than 65 contributed the maximum.

Figure 33. Deferral rates by income and gender, 2014

Vanguard defined contribution plans permitting employee-elective deferrals

Average deferral rate

	Female	Male	All
<$30,000	4.7%	4.4%	4.6%
$30,000–$49,999	5.9	5.5	5.7
$50,000–$74,999	7.2	6.7	6.9
$75,000–$99,999	8.6	7.4	7.8
$100,000+	9.0	7.9	8.4

Source: Vanguard, 2015.

Figure 34. Deferral rates by industry sector, 2014

Vanguard defined contribution plans permitting employee-elective deferrals

Average deferral rate

	Mean	Median
Overall	6.9%	6.0%
Industry group		
Agriculture, mining, and construction	8.2%	7.5%
Media, entertainment, and leisure	6.4	4.7
Education and health	7.8	6.6
Business, professional, and nonprofit	8.3	7.2
Transportation, utilities, and communications	6.8	6.0
Manufacturing	6.7	5.9
Finance, insurance, and real estate	6.6	6.0
Wholesale and retail trade	6.0	4.7

Source: Vanguard, 2015.

Figure 35. Participant deferral rates by plan design, 2014

Vanguard defined contribution plans permitting employee-elective deferrals

Average deferral rates

	Voluntary enrollment	Automatic enrollment	All
All	7.3%	6.2%	6.9%
Income			
<$30,000	5.4%	3.7%	4.6%
$30,000–$49,999	6.2	5.1	5.7
$50,000–$74,999	7.0	6.7	6.9
$75,000–$99,999	7.8	8.1	7.8
$100,000+	8.4	8.3	8.4
Age			
<25	5.4%	3.8%	4.6%
25–34	5.9	5.0	5.6
35–44	6.6	5.7	6.3
45–54	7.5	6.8	7.3
55–64	8.9	8.2	8.7
65+	10.6	9.1	10.2
Gender			
Male	7.1%	6.2%	6.8%
Female	7.5	5.9	7.0
Job tenure (years)			
0–1	5.7%	4.0%	4.7%
2–3	6.3	6.1	6.2
4–6	7.1	6.9	7.0
7–9	7.2	7.1	7.2
10+	8.1	8.2	8.1
Account balance			
<$10,000	4.0%	3.4%	3.7%
$10,000–$24,999	5.9	6.1	6.1
$25,000–$49,999	7.2	6.9	7.1
$50,000–$99,999	8.2	7.8	8.1
$100,000–$249,999	9.8	9.0	9.6
$250,000+	10.7	10.6	10.7

Source: Vanguard, 2015.

Figure 36. Participants contributing the maximum by participant demographics, 2014

Vanguard defined contribution plans permitting employee-elective deferrals

	2014
All	10%
Income	
<$30,000	0%
$30,000–$49,999	1
$50,000–$74,999	2
$75,000–$99,999	6
$100,000+	34
Age	
<25	1%
25–34	3
35–44	8
45–54	13
55–64	18
65+	24
Gender	
Male	10%
Female	9
Job tenure (years)	
0–1	3%
2–3	6
4–6	9
7–9	10
10+	16
Account balance	
<$10,000	0%
$10,000–$24,999	1
$25,000–$49,999	5
$50,000–$99,999	9
$100,000–$249,999	17
$250,000+	45
Industry group	
Agriculture, mining, and construction	20%
Media, entertainment, and leisure	9
Education and health	16
Business, professional, and nonprofit	12
Finance, insurance, and real estate	12
Transportation, utilities, and communications	8
Manufacturing	7
Wholesale and retail trade	6

Source: Vanguard, 2015.

Catch-up contributions

EGTRRA authorized a higher catch-up contribution limit for participants age 50 and older to be adopted by plan sponsors at their discretion. More than 90% of Vanguard plans offered catch-up contributions in 2014. Sixteen percent of age-50-and-older participants eligible for catch-up contributions took advantage of this feature in 2014 (Figure 37). Participants earning less than $100,000 would need deferral rates higher than 20% of income in order to make catch-up contributions, suggesting that adoption of catch-up contributions by participants is actually quite strong.

The characteristics of participants making catch-up contributions are similar to those of participants making the maximum contribution to their plan. They tended to have higher incomes and had accumulated substantially higher account balances.

Four in 10 participants with incomes of more than $100,000 made catch-up contributions. Similarly, 4 in 10 participants with account balances of more than $250,000 made catch-up contributions in 2014.

Roth contributions

Roth contributions were originally introduced in EGTRRA and made permanent in PPA. At year-end 2014, the Roth feature was offered by 56% of Vanguard plans and had been adopted by 14% of participants in plans offering the feature (Figure 38). Those who used this feature tended to be younger and shorter-tenured participants.

Ten percent of plans offered Roth in-plan conversions, and less than 1% (0.6%) of participants with access to the option converted assets between 2010 and 2014.

After-tax contributions

After-tax employee-elective deferrals are available to participants in one-fifth of Vanguard plans. The after-tax feature is more likely to be offered by large plans and 4 in 10 participants have access to this feature. In 2014, only 7% of employees offered the after-tax deferral feature took advantage of it (Figure 39). Those who used the feature also tended to have higher incomes and were older, longer-tenured employees.

Figure 37. Catch-up contribution participation rates by participant demographics, 2014

Vanguard defined contribution plans permitting catch-up contributions

	2014
Percentage of plans offering	97%
Percentage of participants offered	98%
Percentage of participants using if offered	16%
Income	
<$30,000	0%
$30,000–$49,999	1
$50,000–$74,999	3
$75,000–$99,999	9
$100,000+	42
Gender	
Male	16%
Female	15
Job tenure (years)	
0–1	6%
2–3	11
4–6	13
7–9	14
10+	18
Account balance	
<$10,000	1%
$10,000–$24,999	2
$25,000–$49,999	5
$50,000–$99,999	8
$100,000–$249,999	15
$250,000+	42
Industry group	
Education and health	27%
Media, entertainment, and leisure	15
Business, professional, and nonprofit	18
Agriculture, mining, and construction	30
Transportation, utilities, and communications	14
Finance, insurance, and real estate	15
Manufacturing	8
Wholesale and retail trade	10

Source: Vanguard, 2015.

Figure 38. Roth participation rates by participant demographics, 2014

Vanguard defined contribution plans permitting Roth contributions

	2014
Percentage of plans offering	56%
Percentage of participants offered	64%
Percentage of participants using if offered	14%
Income	
<$30,000	13%
$30,000–$49,999	13
$50,000–$74,999	15
$75,000–$99,999	16
$100,000+	13
Age	
<25	21%
25–34	19
35–44	14
45–54	12
55–64	9
65+	6
Gender	
Male	14%
Female	14
Job tenure (years)	
0–1	17%
2–3	18
4–6	15
7–9	14
10+	10
Account balance	
<$10,000	16%
$10,000–$24,999	17
$25,000–$49,999	14
$50,000–$99,999	13
$100,000–$249,999	12
$250,000+	12
Industry group	
Business, professional, and nonprofit	14%
Agriculture, mining, and construction	18
Wholesale and retail trade	4
Education and health	13
Media, entertainment, and leisure	18
Transportation, utilities, and communications	14
Manufacturing	10
Finance, insurance, and real estate	23

Source: Vanguard, 2015.

Figure 39. After-tax participation rates by participant demographics, 2014

Vanguard defined contribution plans permitting after-tax contributions

	2014
Percentage of plans offering	18%
Percentage of participants offered	37%
Percentage of participants using if offered	7%
Income	
<$30,000	2%
$30,000–$49,999	4
$50,000–$74,999	5
$75,000–$99,999	6
$100,000+	12
Age	
<25	4%
25–34	6
35–44	7
45–54	7
55–64	8
65+	7
Gender	
Male	7%
Female	4
Job tenure (years)	
0–1	3%
2–3	6
4–6	7
7–9	7
10+	8
Industry group	
Agriculture, mining, and construction	26%
Finance, insurance, and real estate	2
Manufacturing	5
Business, professional, and nonprofit	8
Media, entertainment, and leisure	10
Education and health	2
Transportation, utilities, and communications	6
Wholesale and retail trade	14

Source: Vanguard, 2015.

Aggregate contributions

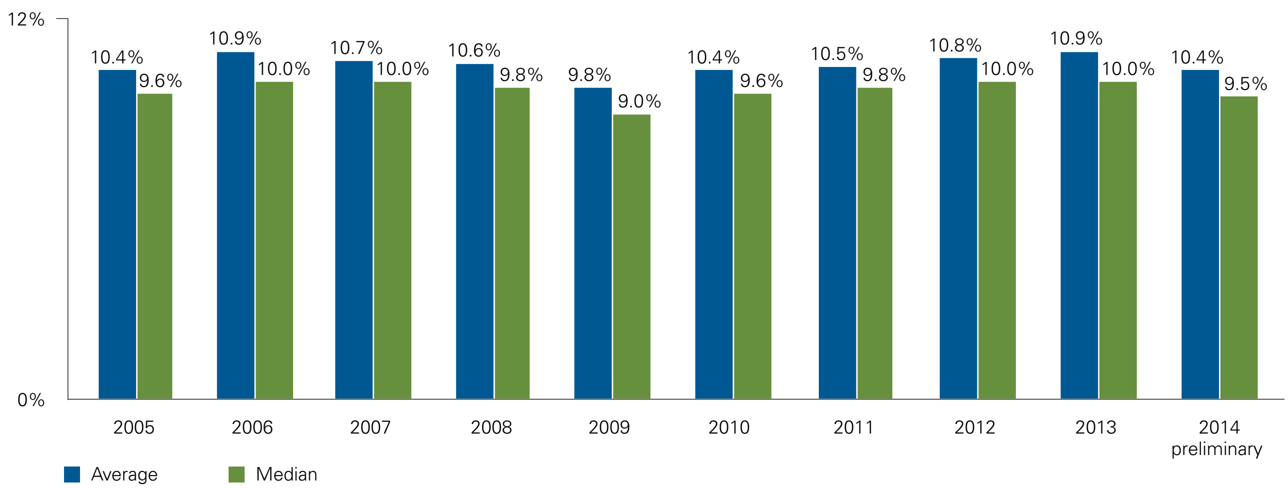
Taking into account both employee and employer contributions, the average total participant contribution rate in 2014 was 10.4% and the median was 9.5% (Figure 40). These rates exclude eligible nonparticipants. When eligible nonparticipants, with their 0% contribution rate, are included, the average aggregate contribution rate is 7.6% and the median is 6.2% (Figure 41). Aggregate contribution rates are generally rising over the 10-year period reflecting the rising adoption of automatic enrollment which results in fewer individuals deferring zero.

Distribution of aggregate contribution rates

Vanguard estimates that a typical participant should target a total contribution rate of 12% to 15%, including both employee and employer contributions. Four in 10 participants in 2014 had total employee and employer savings rates that met those thresholds or reached the statutory contribution limit (Figure 42). For participants with lower wages, Social Security is expected to replace a higher percentage of income and so a lower retirement savings rate may be appropriate. For higher-wage participants, Social Security replaces a lower percentage of income and savings rates may need to be higher. In fact, higher-wage participants may not be able to achieve sufficient savings rates within the plan because of statutory contribution limits.

Figure 40. Aggregate participant and employer contribution rates

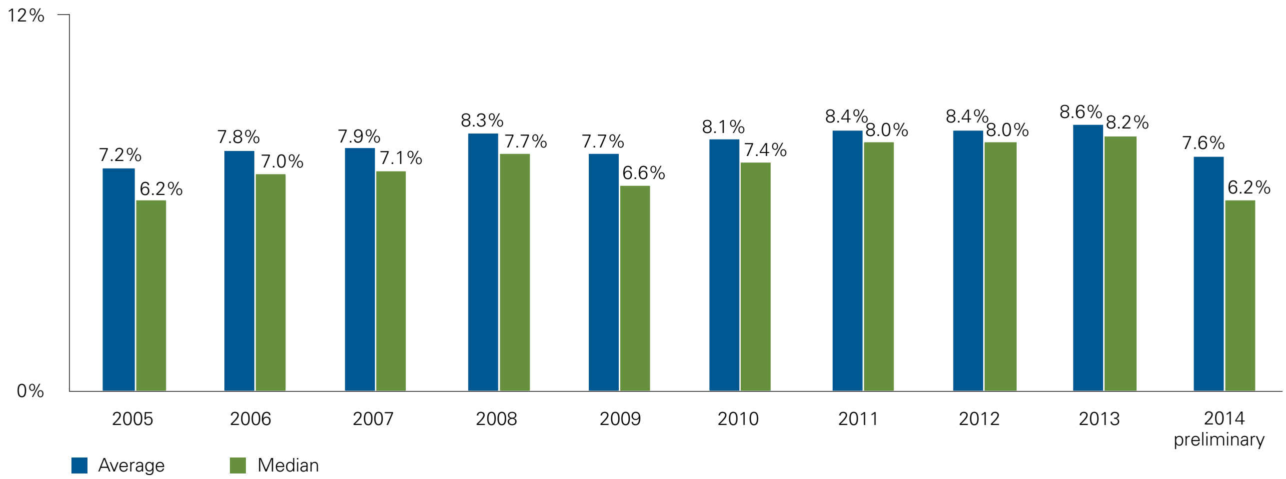
Vanguard defined contribution plans permitting employee-elective deferrals



Note: The previously reported average and median aggregate contribution rates for 2013 were 10.2% and 9.2%, respectively (see Figure 21 note).
Source: Vanguard, 2015.

Figure 41. Aggregate employee and employer contribution rates

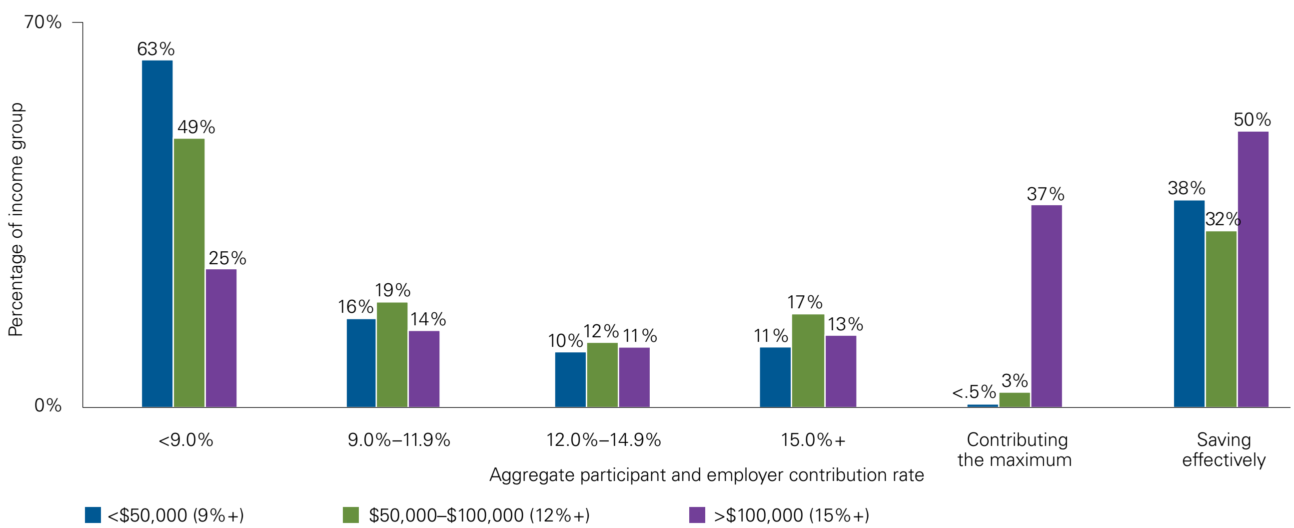
Vanguard defined contribution plans permitting employee-elective deferrals



Note: The previously reported average and median aggregate contribution rates for 2013 were 7.1% and 6.0%, respectively (see Figure 21 note).
Source: Vanguard, 2015.

Figure 42. Distribution of aggregate participant and employer contribution rates, 2014

Vanguard defined contribution plans permitting employee-elective deferrals



Note: The percentage noted after the income range is the total contribution rate recommended for effective savings.
Source: Vanguard, 2015.

Account balances

Account balances are a widely cited measure of the overall effectiveness of DC plans and are determined by contribution levels and investment performance over time.

Vanguard account balances are a measure of how much plan participants have accumulated for retirement at a given employer. In the United States, DC plans are not a closed system. When participants change jobs or retire, their plan assets may remain with the plan of the employer they are leaving, may be rolled over to another employer plan or to an IRA, or may be cashed out. As a result, current DC plan balances often do not reflect lifetime savings and are only a partial measure of retirement preparedness for most participants.

Average versus median balances

In 2014, the average account balance for Vanguard participants was $102,682; the median balance was $29,603 **(Figure 43)**. In 2014, Vanguard participants' average account balances rose by 1% and median account balances fell by 6%. The average 1-year participant total return was 7.0% in 2014 (see page 79).

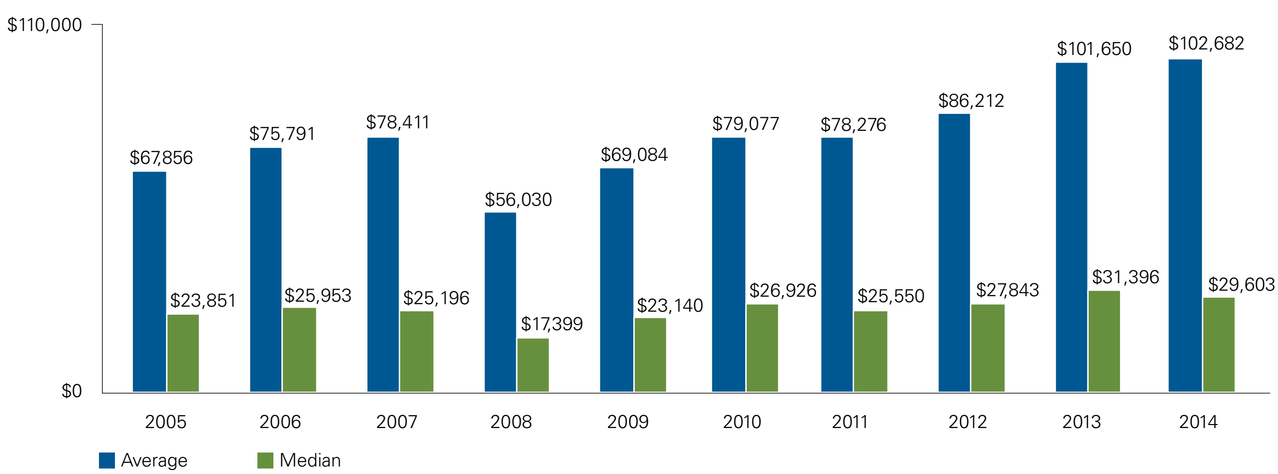
The wide divergence between the median and the average balance is due to a small number of very large accounts that significantly raises the average above the median **(Figure 44)**. Three in 10 participants had a 2014 account balance of less than $10,000, while 27% had balances in excess of $100,000.

Because of the skewed distribution of assets, average balances are indicative of participants at about the 75th percentile (i.e., about 75% of all participants have balances below, and 25% have balances above the average). Average balances are more indicative of the results experienced by longer-tenured, more affluent, or older participants. The median balance represents the typical participant: Half of all participants have balances above the median, half have balances below.

Average account balances also vary somewhat by plan size, with smaller plans having slightly higher balances than larger plans **(Figure 45)**. Automatic enrollment is one factor driving differences in average balances—larger plans have been more likely to adopt automatic enrollment.

Figure 43. Account balances

Vanguard defined contribution plans



Source: Vanguard, 2015.

Figure 44. Distribution of account balances

Vanguard defined contribution plans

Percentage of accounts

Range of balance	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
<$10,000	33%	32%	33%	39%	34%	31%	32%	31%	30%	31%
$10,000–$19,999	13	13	12	14	13	13	13	12	12	11
$20,000–$39,999	15	15	14	14	15	15	14	14	14	13
$40,000–$59,999	9	9	9	8	9	9	9	9	8	8
$60,000–$79,999	6	6	6	6	6	6	6	6	6	6
$80,000–$99,999	5	4	4	4	4	5	4	4	4	4
>$100,000	19	21	22	15	19	21	22	24	26	27

Source: Vanguard, 2015.

Figure 45. Account balances by plan size

Vanguard defined contribution plans

Number of participants

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Average										
<1,000	$73,032	$81,124	$83,988	$63,065	$77,875	$87,637	$88,834	$99,294	$117,680	$123,472
1,000–4,999	$61,997	$69,118	$72,811	$52,516	$66,210	$75,038	$76,613	$85,385	$99,389	$101,376
>5,000	$70,068	$78,234	$80,127	$56,331	$68,648	$79,178	$77,030	$84,285	$99,883	$100,070
All Plans	$67,856	$75,791	$78,411	$56,030	$69,084	$79,077	$78,276	$86,212	$101,650	$102,682
Median										
<1,000	$25,882	$27,770	$27,095	$20,403	$26,729	$30,816	$30,755	$33,474	$37,749	$37,418
1,000–4,999	$22,859	$24,753	$24,254	$16,834	$22,824	$26,427	$23,217	$29,283	$32,603	$30,710
>5,000	$23,945	$26,216	$25,260	$17,102	$22,593	$26,401	$24,414	$26,453	$30,024	$28,197
All plans	$23,851	$25,953	$25,196	$17,399	$23,140	$26,926	$25,550	$27,843	$31,396	$29,603

Source: Vanguard, 2015.

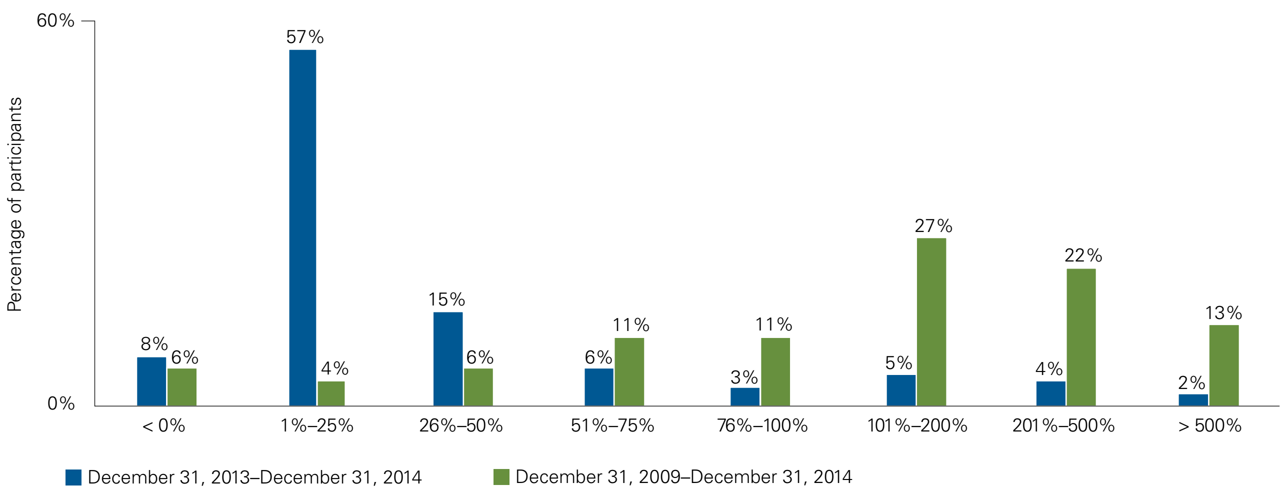
Change in account balances

The change in average and median account balances in 2014 is the result of evolution in the participant base and market performance. When we examine continuous participants—those with an account balance in both December 2013 and December 2014—the median account balance rose by 16% (Figure 46). Ninety-two percent of these continuous participants saw their balances rise because of equity-oriented asset allocations and/or ongoing contributions. Among continuous participants with a balance in both December 2009 and December 2014—the median account balance rose 137%, and 94% of continuous participants had a higher account balance in 2014 than in 2009.

Account balances are widely available on statements and websites, and are often cited as participants' principal tool for monitoring investment results. Because of ongoing contributions, account balances will appear to be less negatively impacted during falling markets. This "contribution effect" may mask the psychological impact of falling stock prices on participants.

Figure 46. Change in account balances, continuous participants

Vanguard defined contribution plan participants with a balance at both the beginning and end of the period



	December 31, 2013–December 31, 2014	December 31, 2009–December 31, 2014
Median change	16%	137%
Percentage of participants with positive changes	92	94

Source: Vanguard, 2015.

Account balances by participant demographics

Median and average account balances vary considerably by participant demographics (Figure 47). Among the factors influencing account balances are income, age, and job tenure. These three factors are intertwined. Not only do incomes, on average, tend to rise somewhat with age, making saving more affordable, but older participants generally save at higher rates. Also, the longer an employee's tenure with a firm, the more likely the employee is to earn a higher salary, participate in the plan, and contribute at higher levels. Longer-tenured participants also have higher balances because they have been contributing to their employer's plan for a longer period.

Gender also influences current balances. Sixty percent of Vanguard participants are male, and men have average and median balances that are about 50% higher than those of women. Gender is often a proxy for other factors, such as income and job tenure. Women in our sample tend to have lower incomes and shorter job tenure than men. However, as noted earlier in this report, women tend to save more than men at the same income level.

Figure 47. Account balances by participant demographics, 2014

Vanguard defined contribution plans

	All participants	
	Average	Median
All	**$102,682**	**$29,603**
Income		
<$30,000	$11,383	$1,390
$30,000–$49,999	$30,849	$9,038
$50,000–$74,999	$60,322	$24,680
$75,000–$99,999	$102,610	$47,798
>$100,000	$226,654	$125,519
Age		
<25	$4,141	$1,430
25–34	$24,378	$9,313
35–44	$65,767	$26,681
45–54	$124,287	$50,925
55–64	$186,404	$76,618
>65	$208,158	$72,845
Gender		
Male	$123,262	$36,875
Female	$79,572	$24,446
Job tenure (years)		
0–1	$10,567	$2,308
2–3	$25,867	$11,005
4–6	$51,193	$24,583
7–9	$81,421	$41,396
>10	$195,609	$99,379

Source: Vanguard, 2015.

A different picture emerges when account balances are compared based on income. When income is less than $100,000, women generally have average and median account balances higher than those of men (Figure 48). For example, female participants with income between $30,000 and $49,999 have average account balances that are 18% higher than their male counterparts, and median balances that are about 50% higher.

Balances by industry group

There are significant variations in account balances by industry sector, which reflect a complex mixture of firm characteristics (influencing employer contributions) and workforce demographics (influencing participant savings rates). Participants employed in the agriculture, mining, and construction industry group have average and median account balances that are about three to four times higher than other participants (Figure 49). Participants employed in the education and health industry group have the lowest average and median account balances.

Figure 48. Account balances by income and gender, 2014

Vanguard defined contribution plans permitting employee-elective deferrals

Average	Female	Male	All
<$30,000	$12,169	$11,686	$11,383
$30,000–$49,999	$34,520	$29,178	$30,849
$50,000–$74,999	$60,184	$60,411	$60,322
$75,000–$99,999	$106,194	$97,660	$102,610
$100,000+	$191,877	$225,872	$226,654
Median			
<$30,000	$1,693	$1,244	$1,390
$30,000–$49,999	$11,641	$7,714	$9,038
$50,000–$74,999	$25,977	$24,427	$24,680
$75,000–$99,999	$54,483	$45,678	$47,798
$100,000+	$118,283	$129,794	$125,519

Source: Vanguard, 2015.

Figure 49. Balances by industry sector, 2014

Vanguard defined contribution plans

	Average	Median
All	$102,682	$29,603
Agriculture, mining, and construction	$229,220	$67,367
Manufacturing	$106,171	$37,031
Business, professional, and nonprofit	$117,987	$36,237
Finance, insurance, and real estate	$100,447	$33,795
Transportation, utilities, and communications	$89,744	$27,397
Wholesale and retail trade	$84,005	$22,654
Media, entertainment, and leisure	$75,327	$21,796
Education and health	$69,264	$17,191

Source: Vanguard, 2015.

2 Managing participant accounts

Participant investment decisions are a critical determinant of long-term retirement savings growth.

2 Managing participant accounts

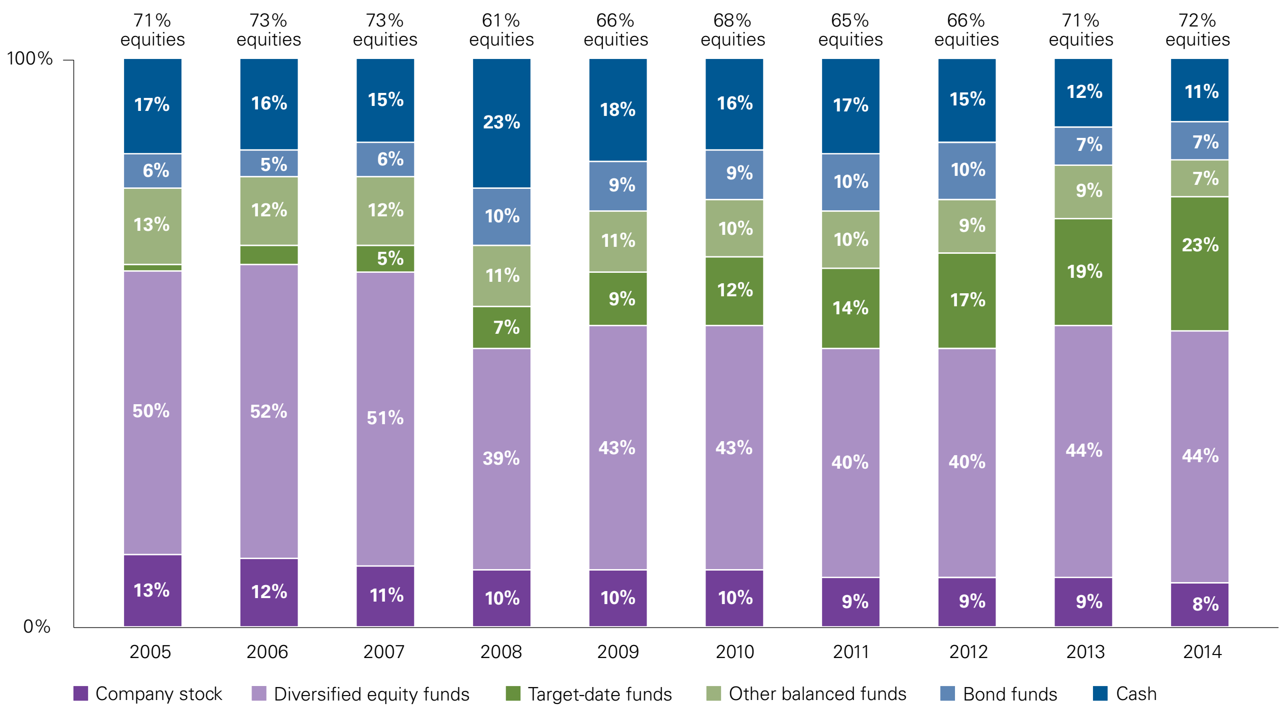
Participant investment decisions are a critical determinant of long-term retirement savings growth.

Asset and contribution allocations

The percentage of plan assets invested in equities stood at 72% in 2014 (Figure 50). The allocation to equities includes the equity component of balanced strategies. The overall equity allocation is up from 61% in 2008, a shift of 11 percentage points, due to the rise in equity markets from the 2008–2009 downturn as well as improved participant portfolio construction. Equity allocations have nearly returned to their pre-recession peak of 73%. In 2014, investment in balanced strategies reached 30%, including 23% in target-date funds and 7% in other balanced options. The growth of target-date funds in particular is dramatically reshaping investment patterns in DC plans, increasing age-appropriate equity allocations and reducing extreme allocations.

Figure 50. Plan asset allocation summary

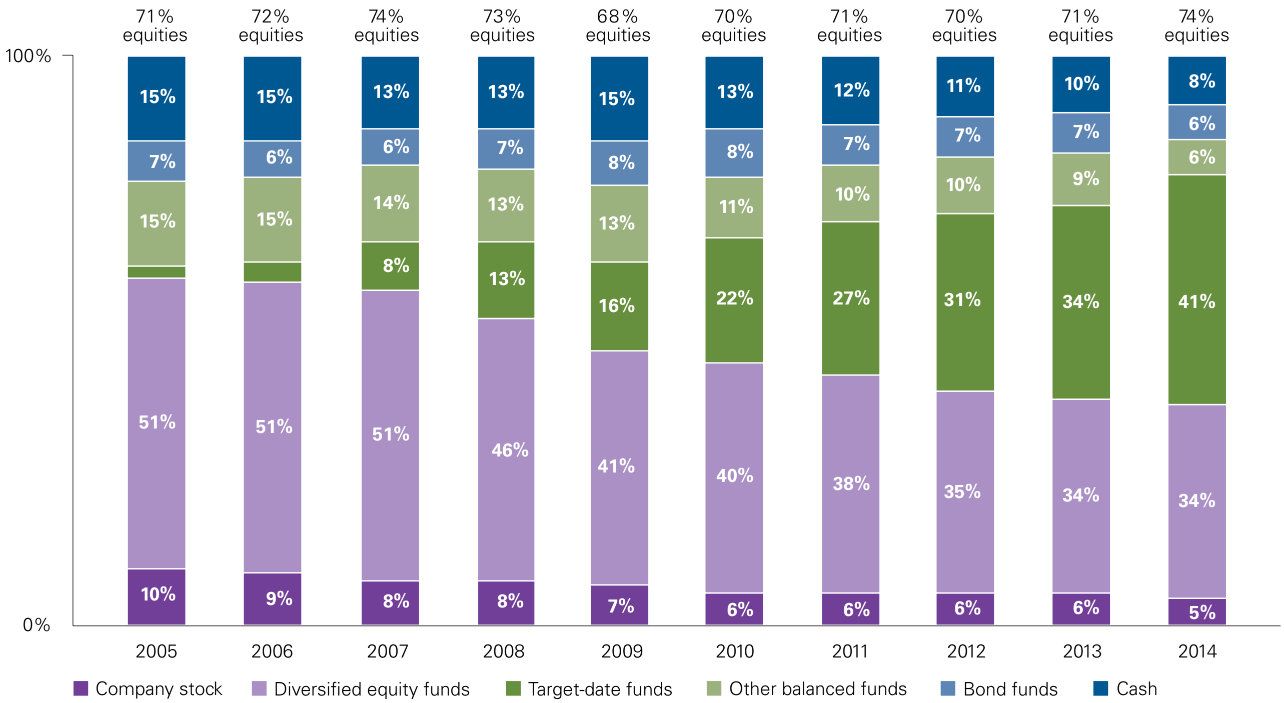
Vanguard defined contribution plans



Source: Vanguard, 2015.

Figure 51. Plan contribution allocation summary

Vanguard defined contribution plans



Year	Company stock	Diversified equity funds	Target-date funds	Other balanced funds	Bond funds	Cash	Equities
2005	10%	51%		15%	7%	15%	71%
2006	9%	51%		15%	6%	15%	72%
2007	8%	51%	8%	14%	6%	13%	74%
2008	8%	46%	13%	13%	7%	13%	73%
2009	7%	41%	16%	13%	8%	15%	68%
2010	6%	40%	22%	11%	8%	13%	70%
2011	6%	38%	27%	10%	7%	12%	71%
2012	6%	35%	31%	10%	7%	11%	70%
2013	6%	34%	34%	9%	7%	10%	71%
2014	5%	34%	41%	6%	6%	8%	74%

Source: Vanguard, 2015.

Three-quarters of plan contribution dollars were invested in equities during 2014 and 4 in 10 plan contribution dollars were invested in target-date funds (**Figure 51**). Participant contribution allocations to equities returned to their pre-recession peak of 74%.

Asset allocation by participant demographics

The average participant-weighted asset allocation to equities was 74% in 2014 and asset allocation decisions vary somewhat by participant demographics (**Figure 52**). In the past, higher-income participants tended to take on somewhat more equity market risk on average than lower-income participants. However, with the rising adoption of target-date funds, the differences are no longer discernible. In 2014, participants with household incomes of less than $30,000 had 71% of their average account balance allocated to equities; for participants with household incomes of more than $100,000, the figure was 72%.

Participants younger than age 45 had the highest equity exposure, with nearly 90% of plan assets, at the median, invested in equities in 2014. Equity allocations were lowest for participants older than age 65, many of whom are currently retired or will soon retire. Participants older than age 65 had a median equity allocation of 51%. The age-related variation in equity exposure has changed markedly due to the rising use of target-date funds (see page 70).

Figure 52. Asset allocation by participant demographics, 2014

Vanguard defined contribution plans

	Company stock	Diversified equity funds	Target-date funds	Other balanced funds	Bond funds	Cash	Average equity participant-weighted	Median equity participant-weighted
All asset-weighted	8%	44%	23%	7%	7%	11%		
Average participant-weighted	4%	26%	50%	6%	5%	9%	74%	83%
Household income								
<$30,000	10%	37%	25%	7%	7%	14%	71%	83%
$30,000–$49,999	8	39	25	8	7	13	72	83
$50,000–$74,999	8	42	24	7	7	12	72	82
$75,000–$99,999	8	44	22	7	8	11	72	80
$100,000+	7	48	19	8	8	10	72	80
Age								
<25	5%	14%	73%	4%	2%	2%	87%	90%
25–34	5	31	52	5	4	3	84	90
35–44	5	47	31	7	5	5	80	88
45–54	7	49	22	7	7	8	72	76
55–64	9	41	19	8	9	14	61	64
65+	9	35	15	8	10	23	49	51
Gender								
Male	9%	44%	22%	7%	7%	11%	74%	83%
Female	6	43	25	8	8	10	73	83
Job tenure (years)								
0–1	4%	32%	50%	4%	4%	6%	81%	90%
2–3	4	32	50	4	5	5	79	90
4–6	5	36	42	5	6	6	76	84
7–9	6	43	32	6	6	7	74	83
10+	9	46	17	7	8	13	67	75
Account balance								
<$10,000	4%	12%	71%	4%	3%	6%	77%	90%
$10,000–$24,999	4	21	57	5	4	9	74	83
$25,000–$49,999	4	28	47	6	5	10	73	83
$50,000–$99,999	5	35	36	7	6	11	72	80
$100,000–$149,999	5	40	29	8	7	11	72	80
$150,000–$199,999	5	44	25	8	7	11	72	80
$200,000–$249,999	5	46	23	8	7	11	72	79
$250,000+	10	48	16	7	8	11	72	78

Source: Vanguard, 2015.

Asset allocation by plan size and industry sector

The average allocation to equities does not vary significantly by plan size (Figure 53). However among larger plans, there is a substitution of company stock holdings for diversified equity funds and a modestly larger allocation to equities overall. Large plans are more likely than small plans to offer company stock and are more likely to make employer-matching or other contributions in stock. As a result, certain large firms have significantly higher exposure to company stock as an asset class.

Company stock accounted for 8% of assets for all DC plans at Vanguard in 2014. Among large plans, 11% of assets were allocated to company stock at year-end 2014, compared with a 1% allocation among small plans. These averages include plans offering—and plans not offering—company stock. The averages for those plans actively offering company stock to participants were higher (see page 76).

Figure 53. Asset allocation by plan size, 2014

Vanguard defined contribution plans

	Plan participants			
	<1,000	1,000–4,999	5,000+	All plans
Total equity asset-weighted	**70%**	**70%**	**73%**	**72%**
Company stock	1%	3%	11%	8%
Diversified equity	47	45	42	44
Target-date funds	23	8	7	23
Other balanced funds	10	25	22	7
Bond funds	8	7	7	7
Cash	11	12	11	11

Source: Vanguard, 2015.

Balanced funds, including target-date funds, accounted for 30% of assets for all DC plans at Vanguard in 2014. Among small plans, one-third of assets were allocated to balanced funds at year-end 2014, compared with 29% among large plans.

Overall asset allocations also vary by industry group (Figure 54). Participants in the manufacturing industry group have the most conservative allocations, while participants in the agriculture, mining, and construction industry group have the most aggressive allocations and the highest allocations to company stock.

Plan investment options

Participant investment decisions in DC plans occur within the context of a set or a menu of choices offered by the employer.

Number of options offered

The average Vanguard plan offered 27.3 investment options in 2014, essentially unchanged from 26.9 investment options in 2013 but up from 18.6 options in 2005—an increase of 47% (Figure 55).

The growth in the number of funds offered has been influenced by the increased use of "all-in-one" funds such as target-date funds, which are offered as a series of options. When each distinct target-date (or target-risk) fund is counted as a single offering, the average number of investment options for 2014 is 27. But when an entire series of such funds is counted as a single offering, the average number of investment options offered falls to 18. By this measure, sponsors have added one series of target-date (or target-risk) funds and one or two other investment options since 2005—not the nine additional options implied by the aggregate number.

Despite the modest expansion of funds offered—the number of funds used by participants has declined.

Figure 54. Asset allocation by industry sector, 2014

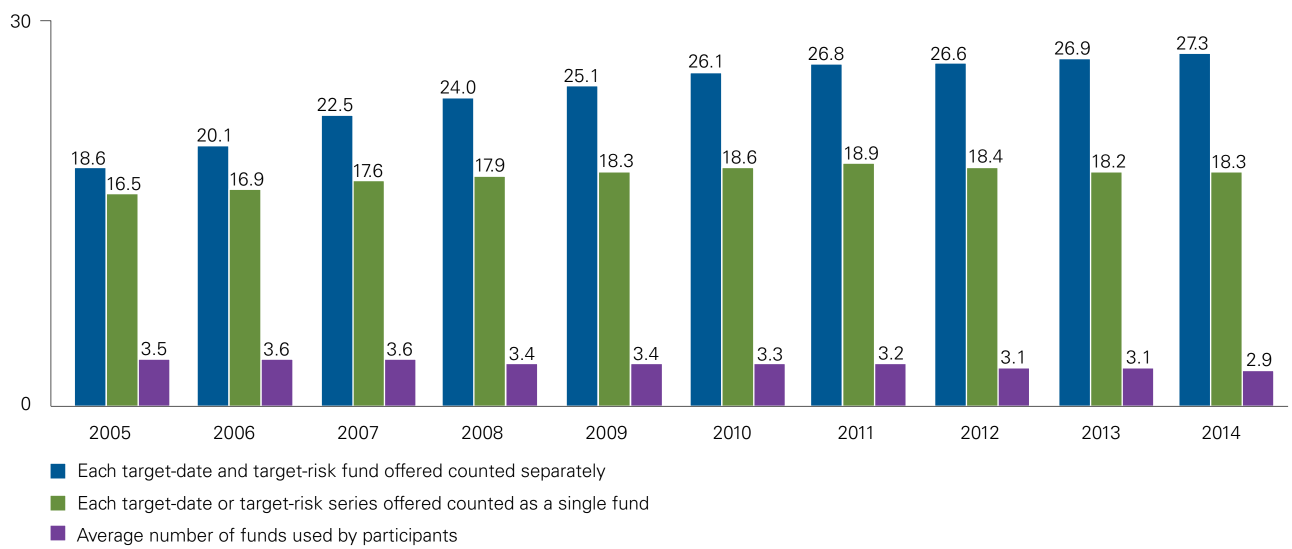
Vanguard defined contribution plans

	Company stock	Diversified equity funds	Target-date funds	Other balanced funds	Bond funds	Cash	Average equity participant-weighted	Median equity participant-weighted
All asset-weighted	8%	44%	23%	7%	7%	11%		
Average participant-weighted	4%	26%	50%	6%	5%	9%	74%	83%
Industry group								
Agriculture, mining, and construction	31%	32%	15%	3%	7%	12%	77%	88%
Business, professional, and nonprofit	5	48	23	7	8	9	75	84
Transportation, utilities, and communications	9	45	18	8	7	13	76	83
Media, entertainment, and leisure	2	46	26	11	7	8	75	83
Finance, insurance, and real estate	3	47	25	5	9	11	73	83
Education and health	0	47	26	9	10	8	73	83
Wholesale and retail trade	2	44	27	6	7	14	72	83
Manufacturing	6	43	25	8	6	12	72	82

Source: Vanguard, 2015.

Figure 55. Average number of investment options offered and used

Vanguard defined contribution plans



Source: Vanguard, 2015.

Counting a target-date or target-risk series as a single fund offering, the median plan sponsor offered 16 investment options in 2014. In 2014, 11% of plans offered more than 25 distinct investment options, while 12% of plans offered 10 or fewer (Figure 56).

Types of options offered

Virtually all Vanguard DC plans offer an array of investment options covering four major investment categories: equities, bonds, balanced (including target-date and target-risk strategies), and money market or stable value options (Figure 57). Given most sponsors' desire to promote equity-oriented portfolios for retirement, diversified equity funds continued to be the most popular type of fund offered. Equity offerings typically included both indexed and actively managed U.S. stock funds, including large-capitalization and mid- or small-capitalization stocks, as well as one or more international funds.

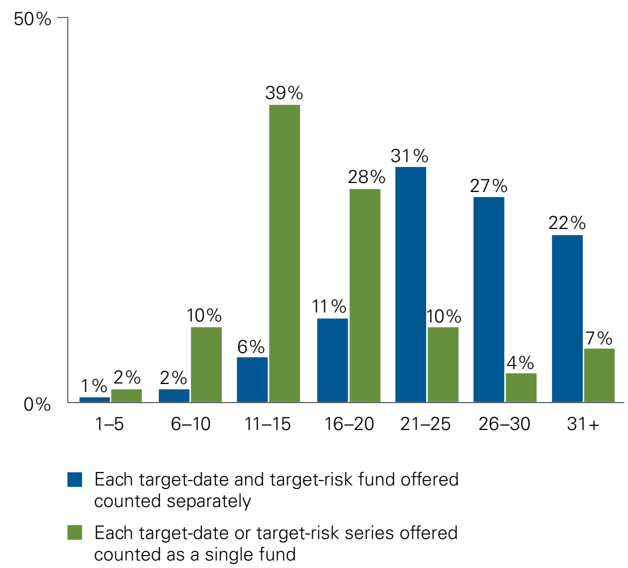
Virtually all plans offered international equity funds, but only 29% offered separate emerging markets funds. Many of the broader international funds include emerging markets exposure already, as do target-date and some balanced strategies. One-third of plans offered sector funds, such as technology or health care funds. One in 7 plans offered a self-directed brokerage feature. Meanwhile, plan sponsor interest in target-date funds continued to grow. At year-end 2014, 88% of plans offered target-date funds.

The types of investment options offered do not vary substantially by plan size. However, large plans are much more likely than small plans to offer company stock, self-directed brokerage accounts, and managed account programs. In addition, larger plans have been quicker than smaller plans to add target-date and inflation-protected securities funds.

Figure 56. Number of options offered, 2014

Vanguard defined contribution plans

Percentage of plans offering



Source: Vanguard, 2015.

Figure 57. Type of investment options offered, 2014

Vanguard defined contribution plans

Percentage of plans offering

		Number of participants		
	All	<1,000	1,000–4,999	5,000+
Cash	**99%**	**98%**	**>99.5%**	**>99.5%**
Money market	71	73	68	73
Stable value/Investment contract	57	55	64	57
Bond funds	**98%**	**98%**	**99%**	**99%**
Active	69	67	74	75
Index	89	89	87	92
Inflation-protected securities	33	32	34	45
High-yield	18	18	19	22
International	13	12	15	13
Balanced funds	**99%**	**99%**	**99%**	**100%**
Traditional balanced	74	75	70	69
Target-risk	21	23	16	17
Target-date	88	85	96	98
Equity funds	**99%**	**99%**	**>99.5%**	**100%**
Domestic equity funds	**99%**	**99%**	**>99.5%**	**100%**
Active domestic	94	94	96	93
Index domestic	98	98	99	99
Large-cap value	92	92	93	86
Large-cap growth	92	91	95	86
Large-cap blend	98	98	99	99
Mid-cap	89	88	91	86
Small-cap	87	87	91	80
Socially responsible	9	8	10	21
International equity funds	**97%**	**97%**	**98%**	**98%**
Active international	85	84	87	86
Index international	62	60	65	75
Emerging markets	29	28	30	37
Sector funds	**33%**	**35%**	**30%**	**27%**
REIT	28	29	27	26
Health care	12	13	9	13
Energy	8	8	6	10
Precious metals	5	4	4	9
Technology	2	2	2	3
Communications	1	1	<0.5	3
Natural resources	1	1	<0.5	2
Utilities	1	1	1	1
Financials	<0.5	1	<0.5	1
Company stock	**10%**	**4%**	**20%**	**35%**
Self-directed brokerage	**16%**	**12%**	**16%**	**27%**
Managed account program	**22%**	**11%**	**45%**	**55%**

Source: Vanguard, 2015.

Index core

A newer development in investment menu design is offering a passive (or index) "core." A passive core is a comprehensive set of low-cost index options that span the global capital markets. At a minimum, a passive core in our definition consists of four options covering U.S. equities, non-U.S. equities, U.S. taxable bonds, and cash. A passive core of these four options offers participants broad diversification, varying levels of risk exposure, and very low investment costs.

In 2014, half of Vanguard plans offered at least four options within a passive core **(Figure 58)**. Because larger plans have been quicker to offer this approach, nearly two-thirds of Vanguard participants were offered a passive core in 2014. In addition, many of these plans also offered a passive target-date fund to further simplify participant portfolio construction. Nearly half of plans offered both a passive core and passive target-date funds, and 6 in 10 participants had access to these fund lineups. In 2005, about 3 in 10 plans offered a passive core and only 1 in 10 offered both a passive core and passive target-date funds **(Figure 59)**. In 2005, one-third of participants were offered a passive core and only 1 in 10 was offered both a passive core and passive target-date funds **(Figure 60)**.

Figure 58. Index core offered, 2014

Vanguard defined contribution plans

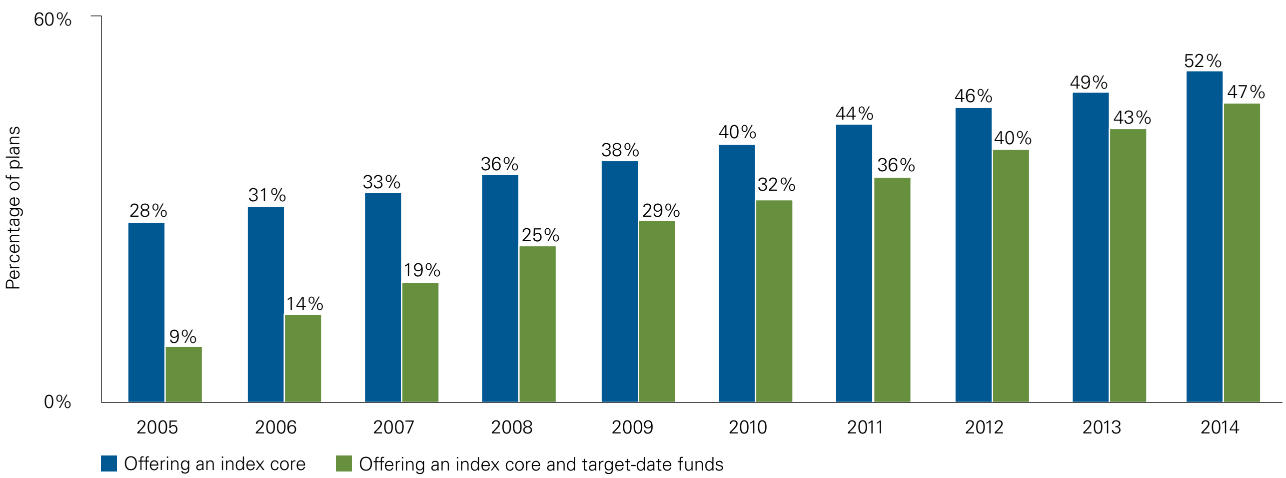
	Number of participants			
	All	<1,000	1,000–4,999	5,000+
Percentage of plans offering an index core	52%	49%	55%	71%
Percentage of plans offering an index core and target-date funds	47	43	53	69
Percentage of participants offered an index core	64	53	55	69
Percentage of participants offered an index core and target-date funds	62	49	53	68

An index core includes broadly diversified index funds for U.S. stocks, U.S. bonds, and international stocks. At a minimum, the definition includes index funds for large-cap U.S. stocks, intermediate or long-term bonds, and developed markets.

Source: Vanguard, 2015.

Figure 59. Index core offered trend, plans

Vanguard defined contribution plans

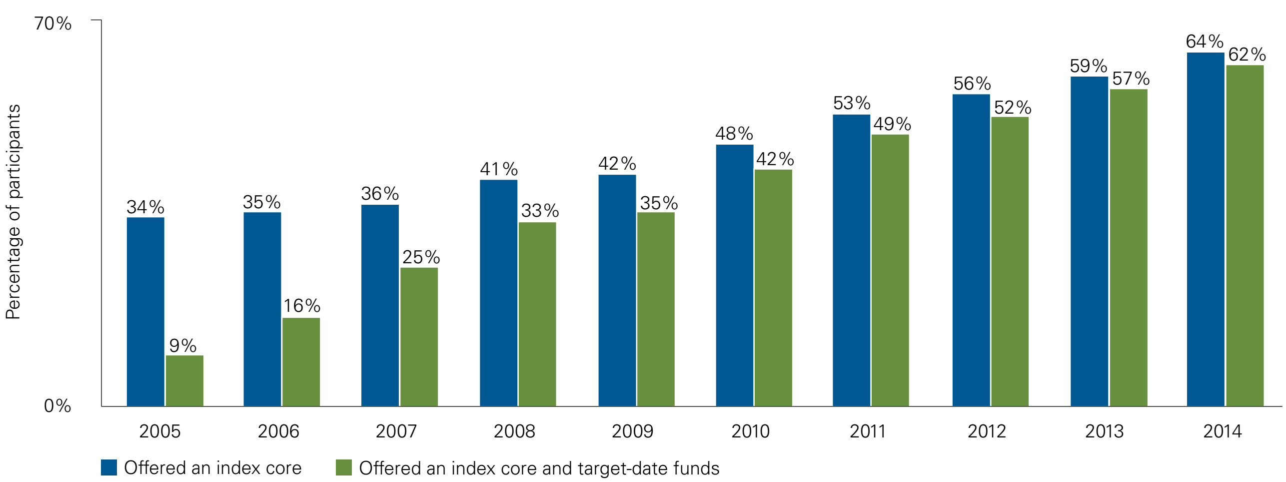


An index core includes broadly diversified index funds for U.S. stocks, U.S. bonds, and international stocks.

Source: Vanguard, 2015.

Figure 60. Index core offered trend, participants

Vanguard defined contribution plans



An index core includes broadly diversified index funds for U.S. stocks, U.S. bonds, and international stocks.

Source: Vanguard, 2015.

Default funds

Increasingly, participants are being directed into default investments selected by the plan sponsor, rather than making active investment choices on their own. Default investing is rising in importance in response to concerns about the lack of investment knowledge among participants, as well as the growing use of automatic enrollment. In response to these developments, the U.S. Department of Labor (DOL), acting under the PPA, authorized three types of default investments as eligible for special fiduciary protection. These options, known as QDIAs, include target-date funds, other balanced funds, and managed account advisory services.

Nearly all Vanguard plans have designated a default fund and 8 in 10 had selected a target-date or balanced fund option as the default option in 2014 (Figure 61). In 2005, 6 in 10 plan sponsors had designated a money market or stable value fund as the default option (Figure 62).

Seventy-one percent of plans in 2014 had specifically designated a QDIA under the DOL's regulations. Typically, these were plans with automatic enrollment or employer contributions other than a match. Among plans choosing a QDIA, 94% of designated QDIAs were target-date funds and 6% were balanced funds. Less than 1% of plans selected a managed account advisory service as a QDIA.

Number of options used

Although sponsors tend to offer a large menu of investment choices, nearly half of participants used only one fund (Figure 63). The average Vanguard participant used 2.9 options in 2014 and the median participant used 2.0 options—fewer than the 3.5 options used on average in 2005 and the median of 3.0 in 2005.

Figure 61. Default fund designations, 2014

Vanguard defined contribution plans

	QDIA plans	Non-QDIA plans	All plans
Among all plans			
Target-date fund	67%	8%	75%
Balanced fund	4	3	7
Money market or stable value		14	14
Total plans designating default	**71%**	**25%**	**96%**

Among plans designating a QDIA	
Target-date fund	94%
Balanced fund	6
Total plans designating a QDIA	**100%**

Source: Vanguard, 2015.

Figure 62. Default fund designation trend

Vanguard defined contribution plans

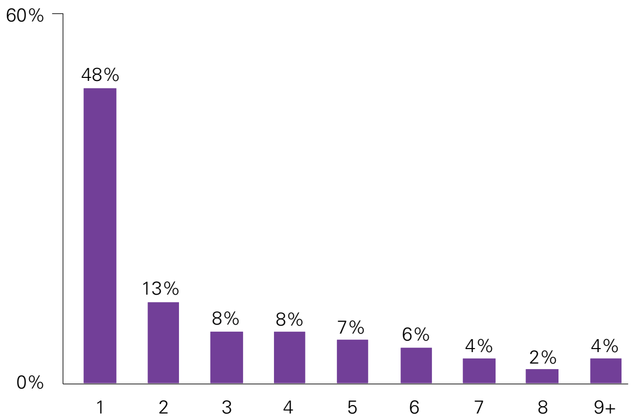
Source: Vanguard, 2015.

One reason for this change is the growing number of single target-date fund investors. In 2014, nearly half of participants held a single-fund option in their account (Figure 64). Eight in 10 of these participants were invested in a single target-date fund and 5% were invested in either traditional balanced funds or target-risk funds. Since 2005, the percentage of single-fund investors holding cash investments has declined from 42% to 8% due to the growth of automatic enrollment, the availability of target-date funds, and a shift in default fund designations by employers.

Figure 63. Number of options used, 2014

Vanguard defined contribution plans

Percentage of participants using

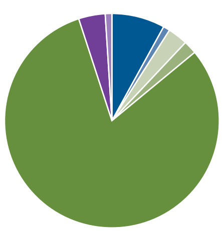


Source: Vanguard, 2015.

Figure 64. Single-fund holders, 2014

Vanguard defined contribution plans

Percentage of single-fund participants using



Vanguard defined contribution plans

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Percentage of participants holding a single fund	**27%**	**28%**	**30%**	**34%**	**35%**	**37%**	**41%**	**43%**	**44%**	**48%**
Percentage of single-fund participants using										
Cash	42%	41%	33%	27%	23%	18%	16%	14%	11%	8%
Bond funds	3	2	2	2	2	1	1	1	1	1
Traditional balanced funds	8	9	8	6	6	5	5	4	3	3
Target-risk funds	15	15	16	14	13	11	10	9	10	2
Target-date funds	6	13	25	39	45	53	59	64	69	81
Diversified equity funds	16	15	12	9	8	7	5	4	4	4
Company stock	10	5	4	3	3	5	4	4	2	1

Source: Vanguard, 2015.

Types of options used

Among the options offered by DC plans, which do participants actually use? In 2014, a balanced fund (including target-date and other balanced funds) was the most common participant holding (76% of participants), followed by a diversified domestic equity fund (41% of participants) (Figure 65). Among the balanced options held, target-date funds were overwhelmingly more likely to be held (two-thirds of participants offered) than traditional balanced funds (21% of participants offered) or target-risk funds (13% of participants offered). Before 2008, participants were most likely to hold a diversified domestic equity fund. This trend shift was first observed in 2009.

Nearly all participants were offered a U.S. equity index fund, yet only one-third used that option. However, participants holding balanced strategies (whether traditional, target-date, or target-risk) are often holding substantial equity index exposure. When participants holding index investments through all balanced options are factored in, 82% of Vanguard participants hold some U.S. equity index exposure.

Only about one-quarter of participants chose to hold a bond fund and about one-quarter also chose a money market or stable value cash investment.

Most Vanguard DC participants were offered a stand-alone international equity fund, but only one-quarter of participants chose to use one. Emerging markets funds were offered and used even less frequently; 3 in 10 participants had access to them and only 7% of those chose to use one. Increasingly, international equity exposure is occurring through packaged investment programs, such as target-date funds.

Sector funds were offered to almost one-quarter of participants in 2014 and were also used infrequently; only 12% of participants who were offered these funds used them.

Three in 10 Vanguard participants were offered a self-directed brokerage feature. Self-directed brokerage accounts allow participants to choose investments from thousands of individual stocks, bonds, and mutual funds. In plans offering a self-directed brokerage feature, only 1% of these participants used the feature in 2014. In these plans, about 1% of plan assets were invested in the self-directed brokerage feature in 2014.

Figure 65. Type of investment options offered and used, 2014

Vanguard defined contribution plans

	Percentage of plans offering	Percentage of participants offered	Percentage of participants offered using	Percentage of all participants using
Cash	**99%**	**>99.5%**	**23%**	**23%**
Money market	71	70	15	11
Stable value/Investment contract	57	63	21	13
Bond funds	**98%**	**99%**	**23%**	**23%**
Active	69	75	12	9
Index	89	91	18	16
Inflation-protected securities	33	41	4	2
High-yield	18	17	6	1
International	13	12	3	<0.5
Balanced funds	**99%**	**>99.5%**	**76%**	**76%**
Traditional balanced	74	72	21	15
Target-risk	21	15	13	2
Target-date	88	97	66	64
Equity funds	**99%**	**>99.5%**	**43%**	**43%**
Domestic equity funds	**99%**	**>99.5%**	**41%**	**41%**
Active domestic	94	95	29	27
Index domestic	98	98	33	32
Large-cap value	92	91	16	15
Large-cap growth	92	91	19	18
Large-cap blend	98	98	28	27
Mid-cap	89	82	19	16
Small-cap	87	80	15	12
Socially responsible	9	19	3	<0.5
International equity funds	**97%**	**98%**	**24%**	**24%**
Active international	85	87	18	16
Index international	62	69	15	11
Emerging markets	29	30	7	2
Sector funds	**33%**	**24%**	**12%**	**3%**
REIT	28	23	8	2
Health care	12	9	9	1
Energy	8	7	7	1
Precious metals	5	5	2	<0.5
Technology	2	3	9	<0.5
Communications	1	2	5	<0.5
Natural resources	1	2	3	<0.5
Utilities	1	1	5	<0.5
Financials	<0.5	2	3	<0.5
Company stock	**10%**	**27%**	**52%**	**14%**
Self-directed brokerage	**16%**	**28%**	**1%**	**<0.5%**
Managed account program	**22%**	**55%**	**7%**	**4%**

Source: Vanguard, 2015.

Professionally managed allocations

The most notable effect of plan investment menus on participant choices is the expanded offering and use of professionally managed allocations. Participants with professionally managed allocations have their entire account balance invested solely in a single target-date, target-risk, or traditional balanced fund, or a managed account advisory service.

In 2014, 45% of Vanguard participants were invested in a professionally managed allocation (Figure 66). Driving this development is the growing use of target-date funds. A total of 39% of participants were invested in a single target-date fund in 2014. Among new plan entrants (those entering the plan for the first time), three-quarters of participants were invested in a single target-date fund (Figure 67).

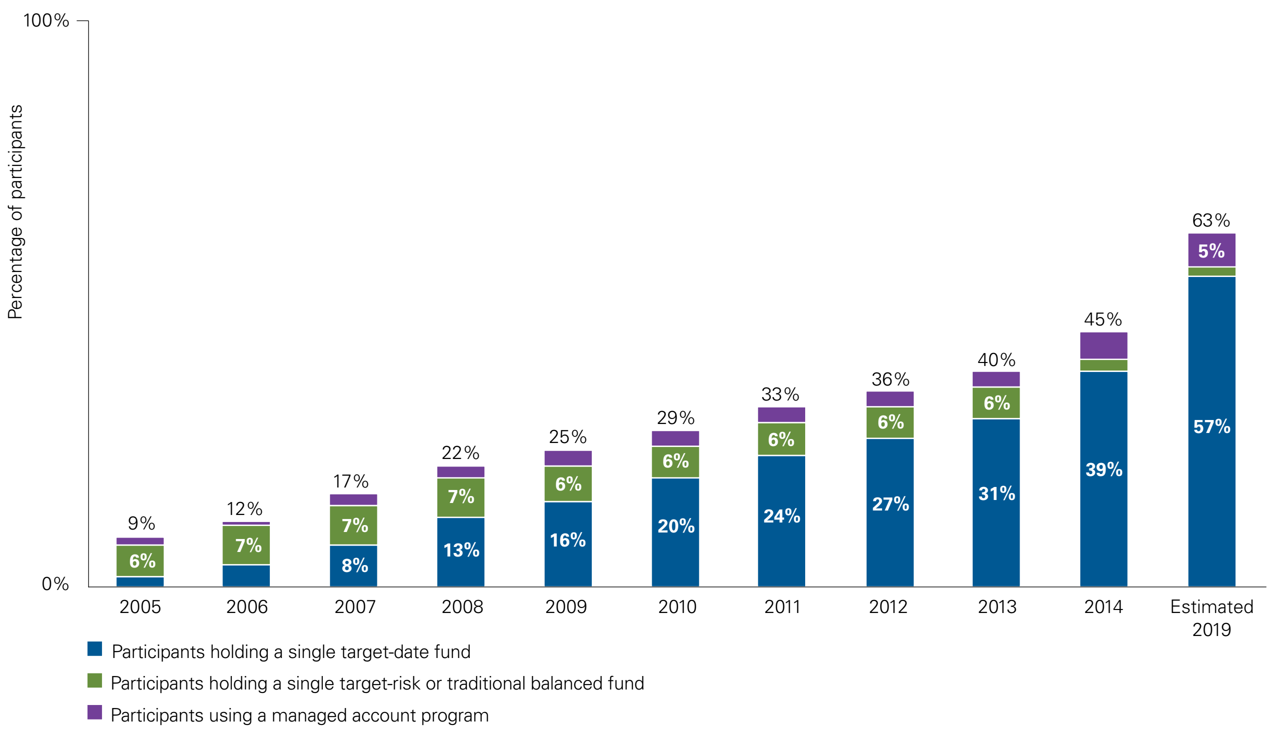
Due to the growing use of the target-date option, we anticipate that 63% of all participants will be solely invested in a professionally managed option by 2019. These professionally managed investment options signal a shift in responsibility for investment decision-making away from the participant and toward employer-selected investment and advice programs.

Target-date funds

Target-date funds base portfolio allocations on an expected retirement date; allocations grow more conservative as the participant approaches the fund's target year. Target-date fund use has accelerated from 28% of plans in 2005 to 88% of plans in 2014 (Figure 68). At year-end 2014, nearly all participants were in plans offering target-date funds. Sixty-four percent of all participants had all or part of their account invested in target-date funds in 2014. Four in 10 contribution dollars were directed to target-date funds in 2014.

Figure 66. Participants with professionally managed allocations

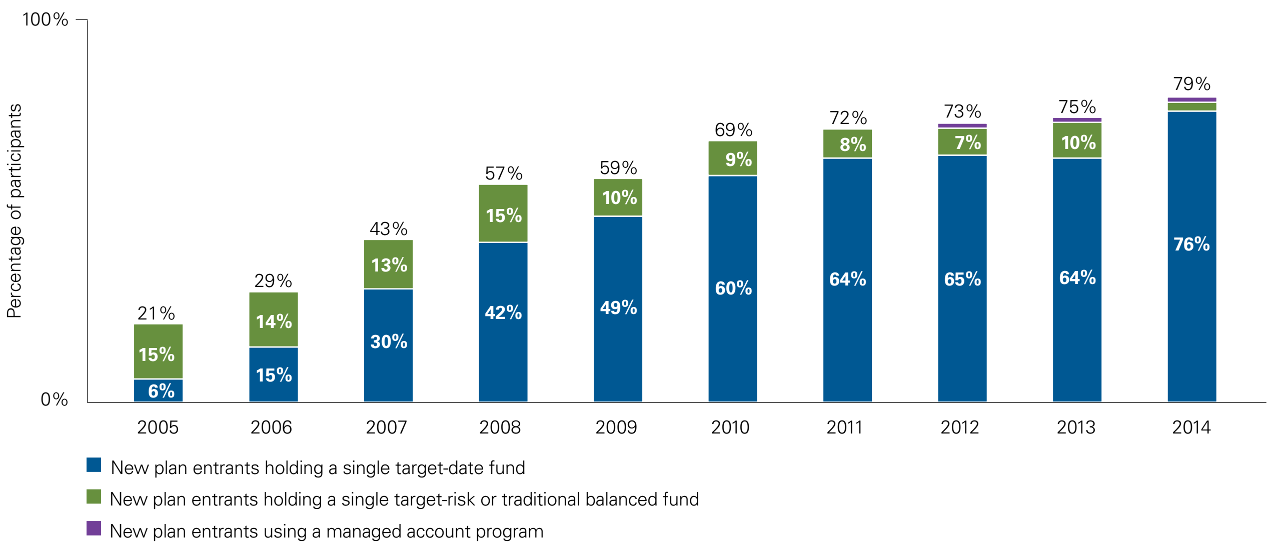
Vanguard defined contribution plans



Source: Vanguard, 2015.

Figure 67. Participants with professionally managed allocations, new plan entrants during the year

Vanguard defined contribution plans



Source: Vanguard, 2015.

Figure 68. Use of target-date funds

Vanguard defined contribution plans

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Percentage of all plans offering target-date funds	28%	43%	58%	68%	75%	79%	82%	84%	86%	88%
Percentage of recordkeeping assets in target-date funds	1	3	5	7	9	12	14	17	19	23
Percentage of all contributions directed to target-date funds	2	4	8	13	16	22	27	31	34	41
Percentage of all participants offered target-date funds	29	46	67	76	81	86	87	88	90	97
Percentage of all participants using target-date funds	5	10	18	28	34	42	47	51	55	64

Source: Vanguard, 2015.

Note: Investments in target-date funds are subject to the risks of their underlying funds. The year in the fund name refers to the approximate year (the target date) when an investor in the fund would retire and leave the workforce. The fund will gradually shift its emphasis from more aggressive investments to more conservative ones based on its target date. An investment in target-date funds is not guaranteed at any time, including on or after the target date.

Among plans offering the strategy, target-date options accounted for one-quarter of plan assets in 2014 (Figure 69). In these plans, 42% of all contributions in 2014 were directed to target-date funds.

Target-date funds are replacing target-risk funds, which maintain a static risk allocation (Figure 70). Since 2005, the fraction of plans offering target-risk funds as an investment option has fallen by more than half, from 45% of plans to 21% of plans. However, 15% of plans maintain both target-risk and target-date funds, although for some of these plans, new contributions into the target-risk funds may be restricted.

Figure 69. Plan use of target-date funds

Vanguard defined contribution plans offering target-date funds

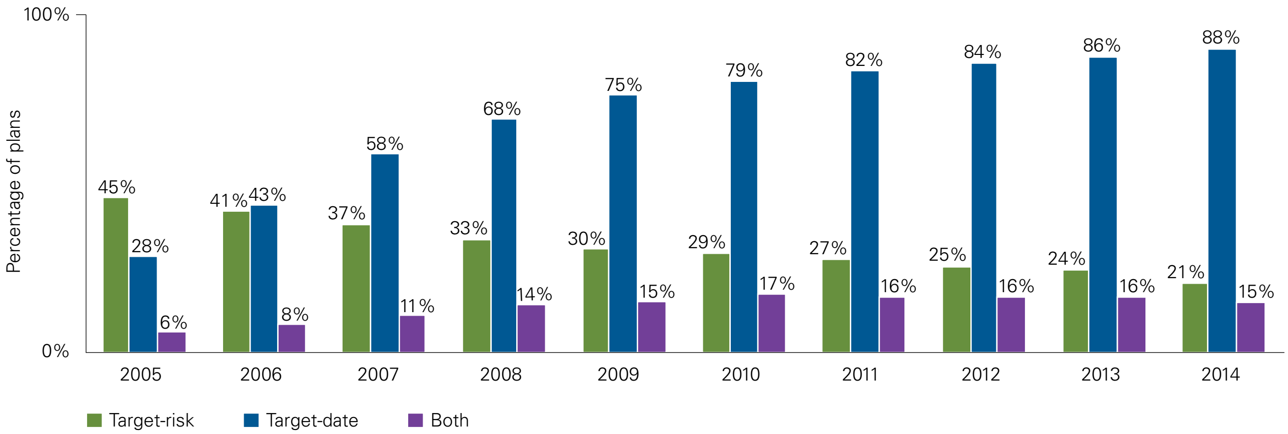
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Percentage of plan assets invested in target-date funds	5%	6%	7%	9%	12%	15%	17%	19%	20%	24%
Percentage of plan contributions invested in target-date funds	6%	9%	12%	17%	21%	26%	31%	35%	38%	42%
Distribution of percentage of plan assets in target-date funds										
<10%	75%	71%	63%	55%	48%	38%	31%	25%	21%	16%
10%–19%	13	14	20	25	27	32	34	34	31	28
20%–29%	5	6	8	10	11	14	17	20	23	25
30%–39%	2	3	3	3	5	6	7	8	10	11
40%–49%	1	2	2	2	3	3	4	4	5	7
50%+	4	4	4	5	6	7	7	9	10	13
Distribution of percentage of plan contributions to target-date funds										
<10%	66%	54%	41%	27%	23%	17%	13%	9%	7%	6%
10%–19%	18	24	29	32	29	25	20	17	14	10
20%–29%	7	10	14	19	23	25	25	23	21	17
30%–39%	4	5	6	10	11	16	19	21	22	22
40%–49%	1	2	4	5	5	7	10	13	16	17
50%+	4	5	6	7	9	10	13	17	20	28

Source: Vanguard, 2015.

Figure 70. Trend in plan adoption of target-date and target-risk funds

Vanguard defined contribution plans

Percentage of plans offering



Source: Vanguard, 2015.

Participant use of target-date funds

Among participants using target-date funds, half of account balances were invested in these funds (Figure 71). These target-date participants directed three-quarters of their 2014 total contributions to target-date funds. Participants invest in target-date funds in one of two ways. "Pure" investors hold a single target-date fund. They accounted for 60% of all target-date investors in 2014. The remaining target-date investors are "mixed" investors. They hold a target-date fund in combination with other investments (or, less commonly, multiple target-date funds and/or other options).

Pure target-date investors are more likely to be younger, lower-wage, shorter-tenured participants with lower 401(k) account balances than other investors. Meanwhile, mixed investors appear very much like non-target-date investors in terms of their demographic and portfolio characteristics. Sixty-three percent of single target-date fund investors were younger than 45, compared with only 45% of mixed investors (Figure 72). More than 60% of plan participants younger than 35 hold a single target-date fund.

Figure 71. Participant use of target-date funds

Vanguard defined contribution plan participants using target-date funds

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Percentage of all participants offered target-date funds	29%	46%	67%	76%	81%	86%	87%	88%	90%	97%
Percentage of participants using target-date funds when offered	19%	22%	27%	37%	42%	48%	54%	58%	61%	66%
Percentage of participant account balances in target-date funds	36%	36%	38%	37%	38%	41%	43%	46%	48%	50%
Percentage of total participant and employer contributions in target-date funds	37%	48%	52%	57%	63%	67%	71%	72%	74%	75%
Distribution of percentage of participant assets in target-date funds										
1%–24%	38%	32%	28%	26%	26%	24%	21%	19%	17%	15%
25%–49%	17	15	13	12	12	11	10	10	10	9
50%–74%	7	8	8	7	8	8	8	8	8	7
75%–99%	5	7	7	6	7	8	8	7	7	7
100%	33	38	44	49	47	49	53	56	58	62
Distribution of percentage of total participant and employer contributions in target-date funds										
1%–24%	41%	28%	24%	19%	16%	14%	11%	11%	9%	9%
25%–49%	18	16	14	13	11	11	9	9	8	8
50%–74%	8	7	7	7	7	6	7	7	7	6
75%–99%	5	4	4	5	4	5	4	4	5	8
100%	28	45	51	56	62	64	69	69	71	69
Percentage of participants owning										
One target-date fund only	32%	37%	43%	46%	46%	48%	52%	54%	56%	60%
One target-date fund plus other funds	58	54	48	46	46	44	41	38	36	33
Two or more target-date funds only	1	1	1	2	2	2	1	2	2	2
Two or more target-date funds plus other funds	9	8	8	6	6	6	6	6	6	5

Source: Vanguard, 2015.

Figure 72. Participant use of target-date funds by age

Vanguard defined contribution plan participants using target-date funds

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Distribution of pure target-date fund holders by age										
<25	8%	11%	11%	11%	9%	8%	8%	7%	7%	6%
25–34	28	30	30	31	31	31	32	32	32	31
35–44	28	26	26	25	26	26	26	26	26	26
45–54	23	21	21	21	21	22	21	21	21	21
55–64	11	10	10	10	11	11	11	12	12	13
65+	2	2	2	2	2	2	2	2	2	3
Distribution of mixed target-date fund holders by age										
<25	3%	3%	3%	3%	2%	2%	1%	2%	2%	2%
25–34	26	24	24	22	21	20	19	18	18	17
35–44	31	30	28	28	27	27	27	26	26	26
45–54	26	28	28	29	30	30	30	30	29	29
55–64	13	14	15	16	17	18	20	20	21	22
65+	1	1	2	2	3	3	3	4	4	4
Percentage of participants holding a single target-date fund by age										
<25	6%	15%	27%	42%	50%	62%	69%	69%	71%	76%
25–34	3	6	12	21	25	33	40	46	51	60
35–44	2	3	7	12	15	20	24	28	31	41
45–54	1	3	5	9	11	15	18	21	23	31
55–64	1	2	5	7	9	12	14	16	19	25
65+	1	2	3	6	7	9	11	13	15	20
Percentage of mixed target-date fund participants by age										
<25	5%	8%	11%	14%	14%	14%	12%	14%	14%	14%
25–34	5	9	13	18	20	23	22	22	22	22
35–44	4	7	11	16	19	23	24	24	25	27
45–54	3	6	10	15	19	22	24	25	26	28
55–64	3	5	9	14	17	21	22	24	25	28
65+	2	3	5	10	12	15	17	18	20	22

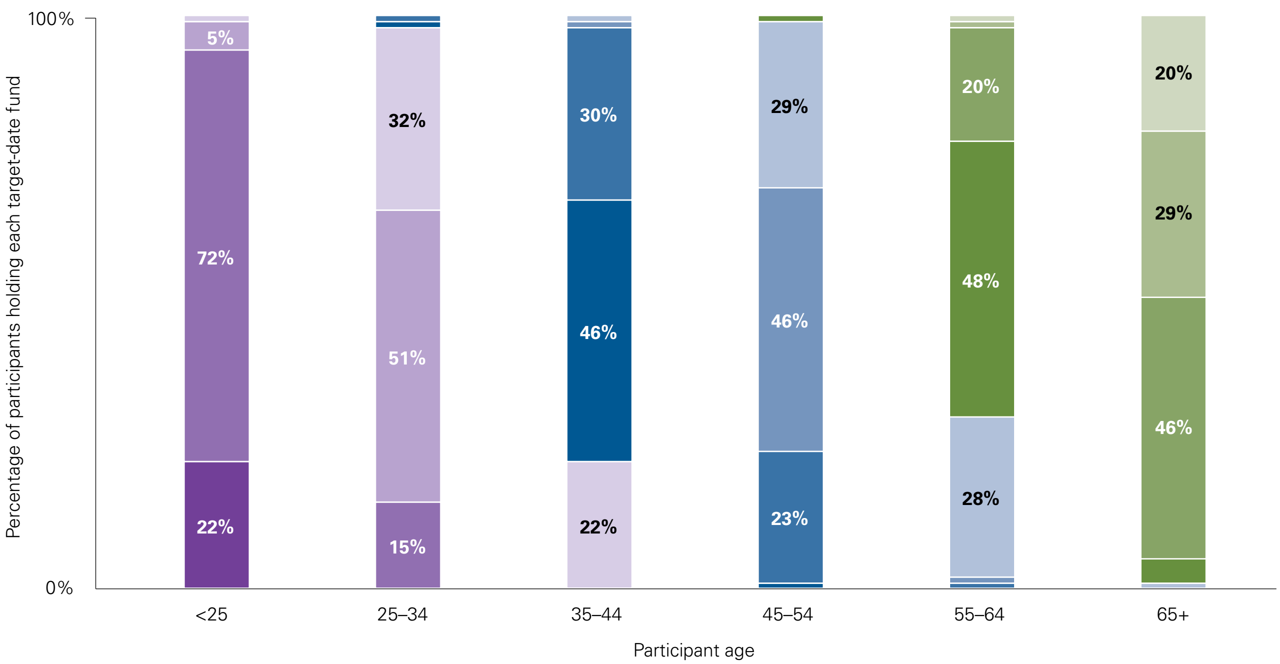
Source: Vanguard, 2015.

Half of all mixed target-date investors arise through sponsor action and the other half through participant choice. Sponsor actions leading to mixed investors include employer contributions in company stock; nonelective contributions to the plan's default fund; recordkeeping corrections applied to the plan's default fund; or mapping of assets from an existing investment option to the default fund because of a plan menu change. Mixed investors who choose to combine a target-date fund with other plan options appear to pursue a range of reasonable diversification strategies, although they do not fit within the "all-in-one" portfolio approach of the target-date concept.

Single target-date fund investors appear to select, or are defaulted into, a target-date fund with an appropriate target date (Figure 73). Half of participants age 25 to 34 are invested in a 2050 target-date fund, with most of the other participants using either a 2045 or 2055 target-date fund. Similarly, about half of participants age 55 to 64 are invested in a 2020 target-date fund, with most of the other participants using either a 2015 or 2025 target-date fund.

Figure 73. Target-date fund utilization by age, 2014

Vanguard defined contribution plan participants holding a single target-date fund (39% of all participants)



Distribution of single target-date fund holders

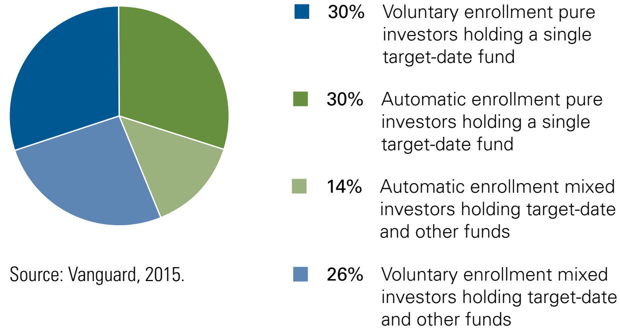
<25	25–34	35–44	45–54	55–64	65+
6%	31%	26%	21%	13%	3%

Source: Vanguard, 2015.

Automatic enrollment into a target-date fund default is one important factor explaining the increase in the fraction of pure target-date investors. However, a large fraction of pure investors select target-date options voluntarily. Of the 60% of participants who were pure investors in 2014, a large portion of participants were in plans not offering automatic enrollment. Half of pure investors were in plans where participants made the choice to select the fund (Figure 74).

Figure 74. Plan design and target-date funds, 2014

Vanguard defined contribution plan participants holding target-date funds



Source: Vanguard, 2015.

Note: In prior editions of How America Saves, *we categorized plans and participants based on whether or not the plan had adopted automatic enrollment at the end of the year. As noted previously, about half of plans have implemented automatic enrollment for all eligible employees by either "sweeping" these nonparticipants when automatic enrollment was initially adopted or at a later date. In 2015, we have refined our analysis for this figure to segregate individuals hired under voluntary enrollment design from those individuals subjected to an automatic enrollment design. Participants in plans with automatic enrollment that were not subjected to automatic enrollment are included in the voluntary enrollment category.*

Participant equity allocations

Equities are the dominant asset class holding of many plan participants. From an investment perspective, an asset allocation to equities of 80% or more may appear appropriate in light of the long-term retirement objectives of most DC plan participants.

The growing use of professionally managed allocations within DC plans, including target-date funds, is reshaping equity allocations by age and reducing extreme allocations.

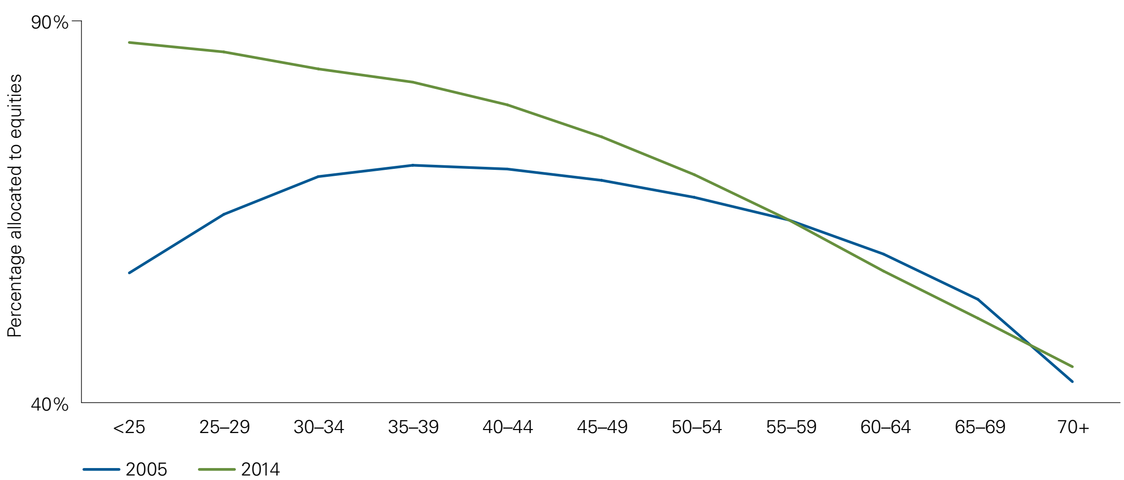
Equity allocations by age

In prior reports we have noted that participants' age-based equity allocation was hump-shaped, with younger participants adopting more conservative allocations, middle-aged participants holding the highest equity exposure, and then older participants having equity exposure on par with younger participants (Figure 75). In 2014, the equity allocation among Vanguard DC participants is downward sloping by age. This phenomenon is tied directly to the growing use of target-date funds, along with managed account advice, both of which provide for a declining equity exposure with age.

Figure 75. Trend in asset allocation by participant age

Vanguard defined contribution plans

Average equity allocation participant-weighted



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Equity allocation by age										
<25	57%	61%	67%	73%	77%	82%	84%	85%	85%	87%
25–29	64	66	69	70	73	77	79	81	83	86
30–34	69	70	72	70	72	75	76	78	80	84
35–39	71	72	73	71	72	75	75	76	79	82
40–44	70	71	72	69	71	73	73	74	76	79
45–49	69	70	70	66	68	70	69	70	73	75
50–54	67	67	68	62	64	66	64	65	68	70
55–59	64	64	63	57	58	60	59	59	63	64
60–64	59	59	59	52	53	54	52	53	56	57
65–69	53	54	54	47	48	49	48	48	51	51
70+	43	44	44	39	40	41	40	41	44	45

Source: Vanguard, 2015.

One development influencing this change is the growth in default funds under automatic enrollment and the designation of target-date funds as the most common type of default investment. However, participants choosing target-date funds on a voluntary basis are also contributing in a meaningful way to this change.

A transition is under way in the factors influencing age-related equity exposure in DC plans. On the one hand, existing participants make few changes in their allocations as they age because of inertia in financial decision-making. On the other hand, the growing use of professionally managed allocations, particularly among new entrants to plans, is contributing to a sharper delineation of equity risk-taking by age.

Extreme equity allocations

The rising use of professionally managed allocations is also influencing extreme portfolio allocations (Figure 76). The fraction of participants with no allocation to equities has fallen by more than half, from 13% in 2005 to 5% in 2014. At the other extreme, the fraction of participants investing exclusively in equities has fallen from 21% to 8% over the same period.

Figure 76. Distribution of equity exposure

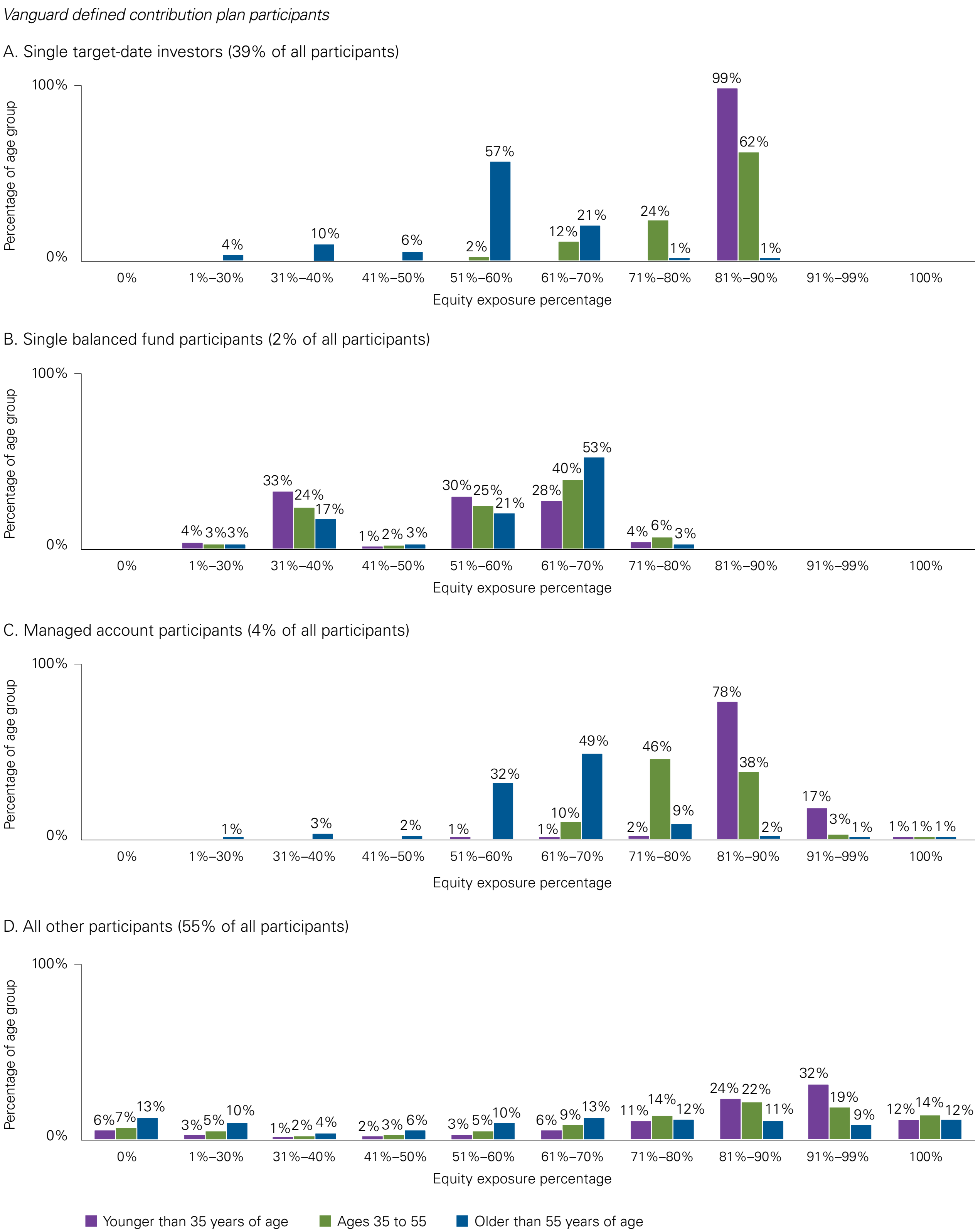
Vanguard defined contribution plan participants

Percentage of participants

Percentage of account balances in equities	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Percentage of contributions to equities, 2014
0%	13%	13%	11%	11%	11%	9%	8%	7%	6%	5%	5%
1%–10%	2	2	1	2	2	2	2	2	2	1	0
11%–20%	2	2	2	2	2	2	3	2	1	1	1
21%–30%	2	2	2	3	2	2	2	2	2	2	1
31%–40%	3	3	2	4	3	3	5	5	6	3	2
41%–50%	6	5	6	4	6	6	4	4	2	2	3
51%–60%	6	5	5	9	7	6	7	7	6	8	9
61%–70%	10	10	11	12	11	10	10	10	12	10	11
71%–80%	9	11	11	11	11	12	14	15	12	13	13
81%–90%	14	16	19	18	22	26	26	28	33	37	40
91%–99%	12	12	13	8	9	9	9	9	10	10	7
100%	21	19	17	16	14	13	10	9	8	8	8
Average equity participant-weighted	**67%**	**68%**	**68%**	**65%**	**66%**	**68%**	**68%**	**69%**	**72%**	**74%**	**75%**
Median equity participant-weighted	**78%**	**79%**	**80%**	**74%**	**76%**	**79%**	**79%**	**79%**	**82%**	**83%**	**83%**

Source: Vanguard, 2015.

Figure 77. Distribution of equity exposure by investor type, 2014



Source: Vanguard, 2015.

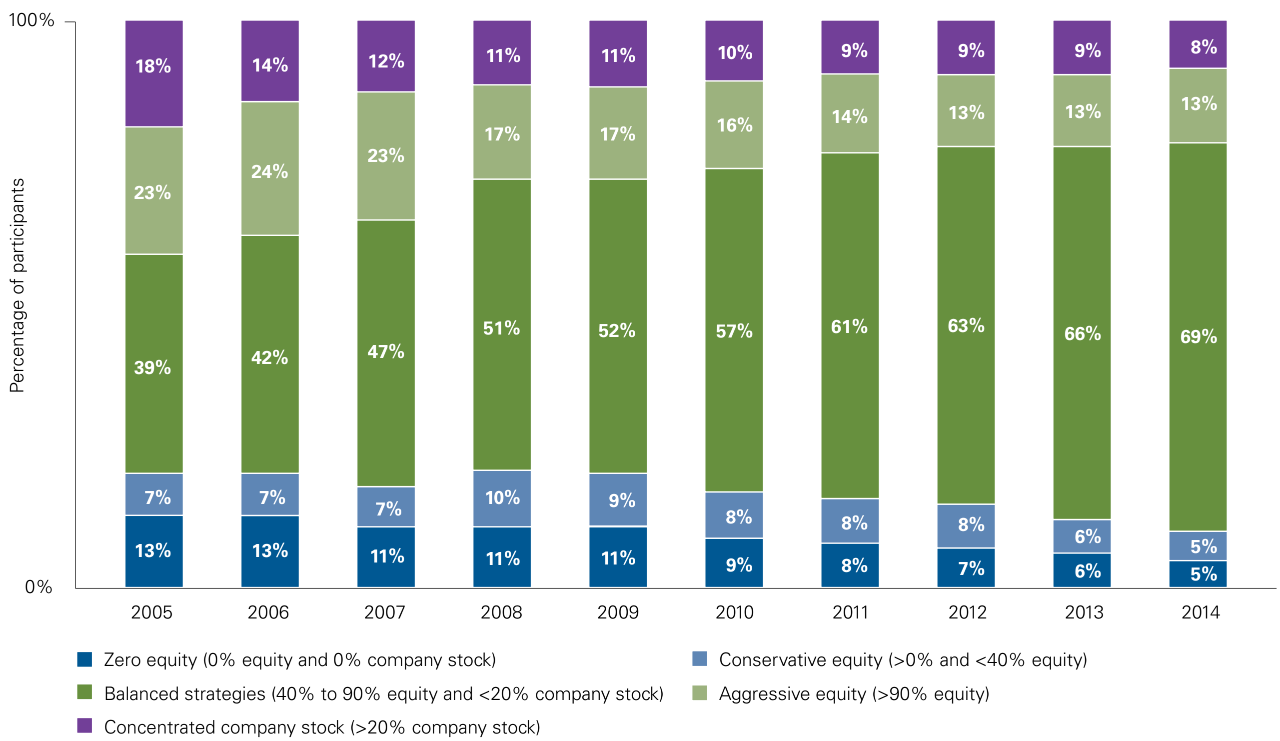
One of the benefits of target-date funds is that they eliminate extreme equity allocations. Non-target-date participants tend to hold greater extremes in equity exposure (**Figure 77, Panel D**). Twenty-two percent of "do-it-yourself" investors hold extreme portfolios (9% with no equities, 13% with only equities). Professionally managed investors cannot hold extreme positions because professionally managed options include both equity and fixed income assets.

Among pure target-date investors, virtually all have equity allocations ranging from 51% to 90% of their portfolios. A large group of pure target-date investors has equity allocations in the 81%-to-90% range. This phenomenon reflects two facts: (1) automatic enrollment into target-date funds typically applies to new hires who are disproportionately younger than 40; and (2) in voluntary enrollment plans, a single target-date fund is a popular strategy among new hires. Among pure target-date investors, there is also age-appropriate variation in the equity allocation.

This rising use of professionally managed allocations is also contributing to a reduction in portfolio construction errors (**Figure 78**). The fraction of participants holding broadly diversified portfolios rose from 39% in 2005 to 69% in 2014. Participants holding concentrated stock positions fell by more than half, along with reductions in extreme portfolio positions.

Figure 78. Participant portfolio construction

Vanguard defined contribution plans



Source: Vanguard, 2015.

Initial equity allocations

We analyzed how participants are currently allocating their contributions, based on the year they entered their employer's retirement plan. Participants who enrolled during 2008–2009 were allocating 74% of contributions to equities, only slightly below those enrolling during 2007 **(Figure 79)**.[6] Participants who enrolled during 2013–2014 were allocating about 80% of their contributions to equities. New plan entrants in 2014 allocated three-quarters of their total contributions to target-date funds.

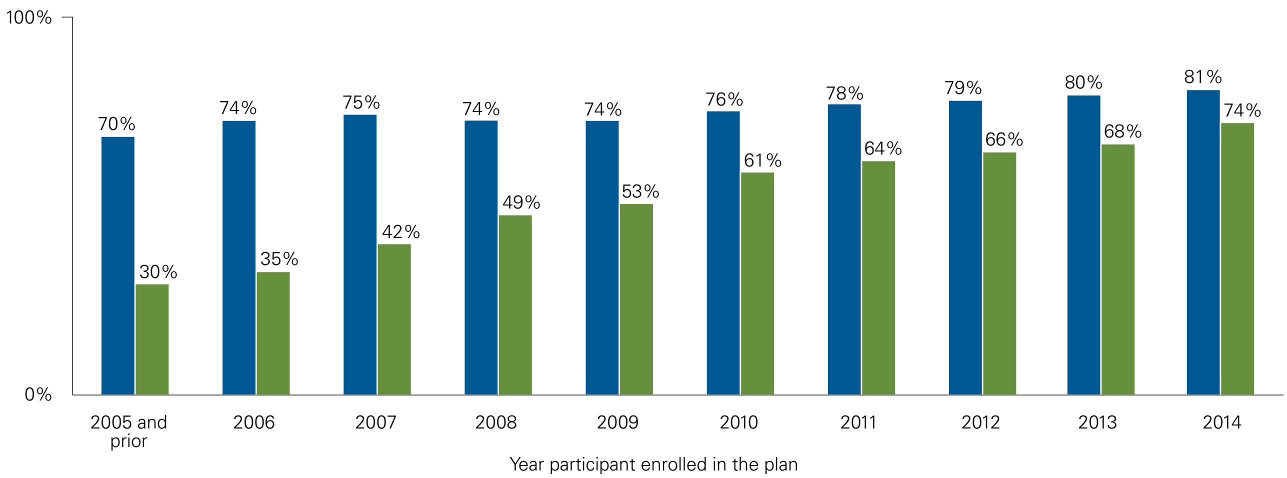
Advice

Many participants in DC plans may lack the financial planning skills, time, or interest to make appropriate investment decisions. To address participants' need for assistance with investment decisions, plan sponsors using Vanguard as recordkeeper offer a range of advice programs, including an online advice service, Personal Online Advisor; a managed account advisory service, Vanguard Managed Account Program; and Vanguard Financial Planning Services.

Figure 79. Current contribution allocation by plan entry date, 2014

Vanguard defined contribution plans

Contributions from January 1, 2014, through December 31, 2014



Distribution of all participants with contributions in 2014 by year of plan entry

2005 and prior	2006	2007	2008	2009	2010	2011	2012	2013	2014
34%	4%	5%	6%	4%	5%	7%	8%	12%	15%

■ Percentage of total 2014 contributions allocated to equity ■ Percentage of total 2014 contributions allocated to target-date funds

Source: Vanguard, 2015.

6 We do not have ready access to contribution allocations over time and so instead focus on current contribution allocations by date of plan entry.

The online advice service and managed account program are provided by Financial Engines, a third-party advisor; the financial planning services are provided by Vanguard Advisers, Inc. Each of these programs allows participants to include information about assets they have outside the plan, which may affect the selection of in-plan investments.

Online advice is targeted toward participants who want to manage their investments themselves. Thirty-seven percent of plans offer online advice, which assists participants in developing and managing optimal portfolios and continues to recommend portfolio changes over time (Figure 80). Participants need to take action to implement online advice. Because large plans are more likely to offer advice, 7 in 10 participants have access to the online advice service.

Managed account advice is targeted toward participants who prefer professional investment management. The managed account program includes development of customized portfolios using the funds offered in the plan, and ongoing monitoring and rebalancing. It also offers customized retirement savings projections. Participants may also further personalize the advice according to risk tolerance or other holdings. Twenty-two percent of plans offer managed account advice—and again, because larger plans are more likely to offer advice, slightly more than half of participants have access to the service.

Financial planning services are offered to all participants with plan sponsor authorization, but a fee may apply. However, the service is available at no charge to participants age 55 and older who are in or nearing retirement if their plan sponsor authorizes the offer. Sixty-nine percent of plans offer this service to their participants, and three-quarters of participants in this age group have access to the program.

Overall, 17% of participants offered one of these advice programs have used one of the programs. Participants were most likely to adopt the online advice program or the managed account service.

Figure 80. Advice offered, 2014

Vanguard defined contribution plans

		Number of participants		
	All	<1,000	1,000–4,999	5,000+
Online advice				
Percentage of plans offering online advice	37%	25%	63%	69%
Percentage of participants offered online advice	70	35	66	76
Percentage of participants offered online advice accessing	7	10	7	7
Managed account advice				
Percentage of plans offering managed account advice	22%	11%	45%	55%
Percentage of participants offered managed account advice	55	17	49	63
Percentage of participants offered managed account advice accessing	7	6	7	7
Financial planning services				
Percentage of plans offering financial plans	69%	66%	78%	75%
Percentage of participants offered financial plans	75	73	80	73
Percentage of participants offered financial plans accessing	3	3	3	3

Source: Vanguard, 2015.

Company stock

Company stock is more likely to be offered as an investment option by a large plan—35% of Vanguard plans with 5,000 or more participants offered company stock, compared with only 4% of plans with fewer than 1,000 participants. In most plans that offer company stock, participants can choose whether or not to invest their own contributions in this option.

Employer contributions—which may be 401(k) matching, profit-sharing, or ESOP contributions—are either directed to company stock by the employer, invested at the participant's discretion, or a combination of the two.

As of 2014, only 10% of Vanguard recordkeeping plans offered company stock as an investment option. However, because large plans are more likely to offer company stock, 27% of Vanguard recordkeeping participants had access to company stock in their employer's plan. Among all Vanguard participants:

- 86% had no company stock investments in 2014—either because their employer did not offer company stock (73%) or because they chose not to invest in it (13%).
- 6% had company stock holdings of 1% to 20% of their account balances in 2014.
- 8% had concentrated positions exceeding 20% of their account balances as of 2014.

Among Vanguard plans actively offering company stock, 79% had 20% or less of plan assets invested in company stock (Figure 81). The remaining 21% had concentration levels of more than 20%. This is an improvement from 2005, when nearly one-third of these plans had concentration levels of more than 20%.

Figure 81. Company stock exposure for plans and participants

Vanguard defined contribution plans actively offering company stock

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Balance of plan in company stock—percentage of plans										
1%–20%	68%	73%	77%	82%	79%	80%	75%	77%	78%	79%
21%–40%	21	19	17	10	15	13	17	16	16	15
41%–60%	7	5	4	6	5	6	7	6	6	6
61%–80%	1	1	1	1	0	0	0	0	0	0
>80%	3	2	1	1	1	1	1	1	0	0
Balance in company stock—percentage of participants										
0%	35%	37%	42%	44%	45%	43%	45%	45%	47%	50%
1%–20%	23	25	26	26	25	26	25	24	22	22
21%–40%	15	15	13	12	12	12	12	13	14	14
41%–60%	8	9	7	6	6	6	5	5	7	6
61%–80%	4	5	4	3	3	3	3	3	4	3
>80%	15	9	8	9	9	10	10	10	6	5

Source: Vanguard, 2015.

In 2014, half of Vanguard participants who were offered company stock in their plan chose not to invest their contributions—or their employer's contributions—in company stock. If they received employer stock contributions, they diversified these assets. At the other extreme, 3 in 10 participants in plans actively offering company stock had more than 20% of their account balance invested in company stock, and 5% had more than 80% of their account balance in company stock.

During 2014, the modest shift away from participant company stock holdings persisted. The number of participants in plans with company stock and holding a concentrated position of more than 80% of their account balance in company stock fell from 15% in 2005 to 5% in 2014, and fewer plans are offering company stock.[7]

Despite this shift, why do 3 in 10 participants in plans offering company stock continue to hold a concentrated position in their employer's stock? One reason is that most participants view company stock as a safer investment than a diversified equity fund. Another factor encouraging concentrated stock holdings is the plan sponsor's decision to make an employer contribution in company stock. This implied endorsement often leads participants to invest more of their own savings in the stock as well.

The effect is evident in the average company stock allocation for plans making employer contributions in cash compared with those making employer contributions in stock. In 2014, plans offering company stock as an investment option but making employer contributions in cash had an average of 13% of plan assets invested in company stock (Figure 82). Meanwhile, plans offering company stock as an investment option and making employer contributions in stock had an average of 36% of plan assets in company stock.

Figure 82. **Impact of company stock employer contributions on asset allocation, 2014**

Vanguard defined contribution plans

		All Vanguard 401(k) plans with an employer contribution		
	Vanguard defined contribution plans	**Plans making employer contributions in cash**	**Plans offering company stock making employer contributions in cash**	**Plans offering company stock making employer contributions in company stock**
Company stock	8%	1%	13%	36%
Diversified equity funds	44	47	39	34
Balanced funds	30	33	30	15
Bond funds	7	8	6	8
Cash	11	11	12	7

Source: Vanguard, 2015.

7 For an in-depth analysis of the factors driving company stock concentration, see Stephen P. Utkus and Jean A. Young, 2014, *The evolution of company stock in defined contribution plans*, Vanguard Center for Retirement Research, institutional.vanguard.com; and John A. Lamancusa and Jean A. Young, 2014, *Company stock in defined contribution plans: An update*, Vanguard Center for Retirement Research, institutional.vanguard.com.

Investment returns

There are two categories of investment returns: total returns and personalized returns. Total rates of return reflect time-weighted investment performance and allow comparison of results to benchmark indexes. Personal rates of return are dollar-weighted returns, reflecting account investment performance, adjusted for each participant's unique pattern of contributions, exchanges, and withdrawals. They are not directly comparable to time-weighted performance data for market indexes or mutual funds. Both return measures are influenced by market conditions; however, only total rates of return can be compared with published benchmark indexes.

Participant returns

Due to rising U.S. equity markets in 2014, average total and personal returns for DC participants were 7.0% and 6.8% for the 1-year period ended December 31, 2014 (Figure 83). Reflecting the market recovery in 2010, a flat market in 2011, and strong markets in 2012, 2013, and 2014, average total and personal returns for DC participants were more than 12% across the 3-year period and around 10% for the 5-year period ended December 31, 2014.

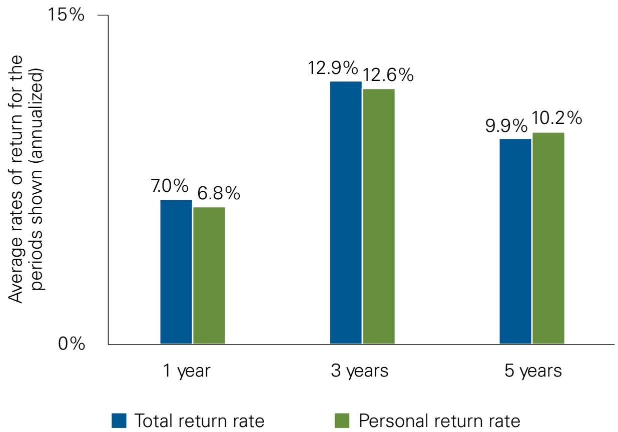
Five-year participant total returns averaged 9.9% per year or 61% cumulatively (personalized total returns rose 10.2% per year or 63% cumulatively).

Distribution of returns

As of December 2014, 5-year personalized annual returns were positive for nearly all Vanguard DC plan participants. There was wide variation in returns among participants (Figure 84). Participants at the fifth percentile had 5-year personalized returns of 2.4% per year in 2014. At the other extreme, participants above the 95th percentile had 5-year personalized returns greater than 15.9% per year. The variation in returns is largely due to the variation in participant asset allocations and their individual account holdings.

Figure 83. Participant rates of return, December 2014

Vanguard defined contribution plans



Market returns ended December 31, 2014	1 year	3 years	5 years
60/40 Balanced*	10.6%	13.1%	11.2%
70/30 Balanced*	11.4	14.9	12.3
S&P 500	13.7	20.4	15.5
Barclays US Aggregate	6.0	2.7	4.4
FTSE Global All Cap ex US	(3.4)	9.5	4.9

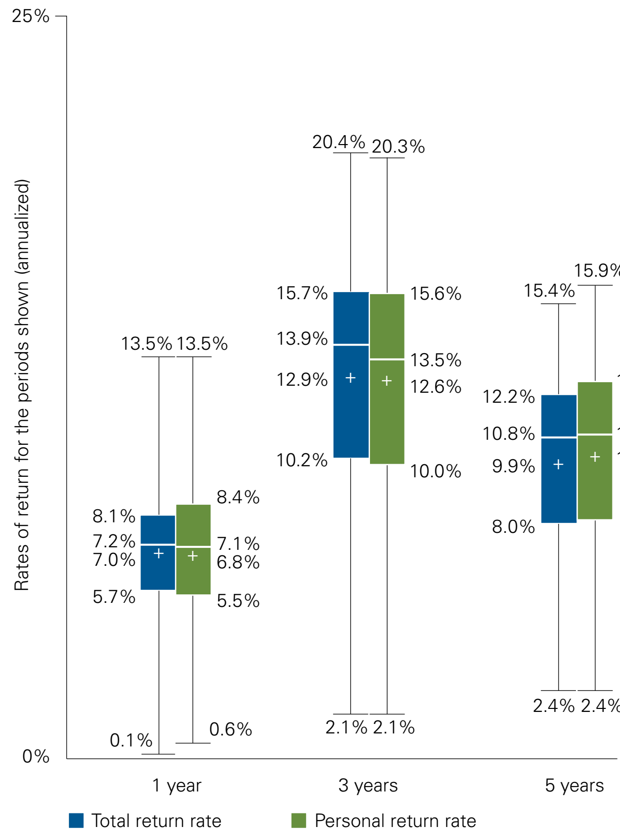
Past performance is no guarantee of future returns. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.

*Balanced composites based on S&P 500 and Barclays US Aggregate Indexes for periods and percentages shown; rebalanced monthly.

Source: Vanguard, 2015.

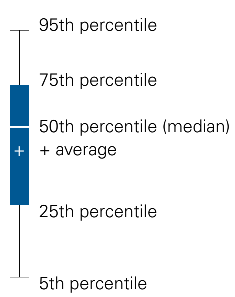
Figure 84. Variation in participant total and personal return rates, 2014

Vanguard defined contribution plans



Note: Based on 3.0 million observations for 1 year; 2.4 million for 3 years; and 1.9 million for 5 years.

Source: Vanguard, 2015.



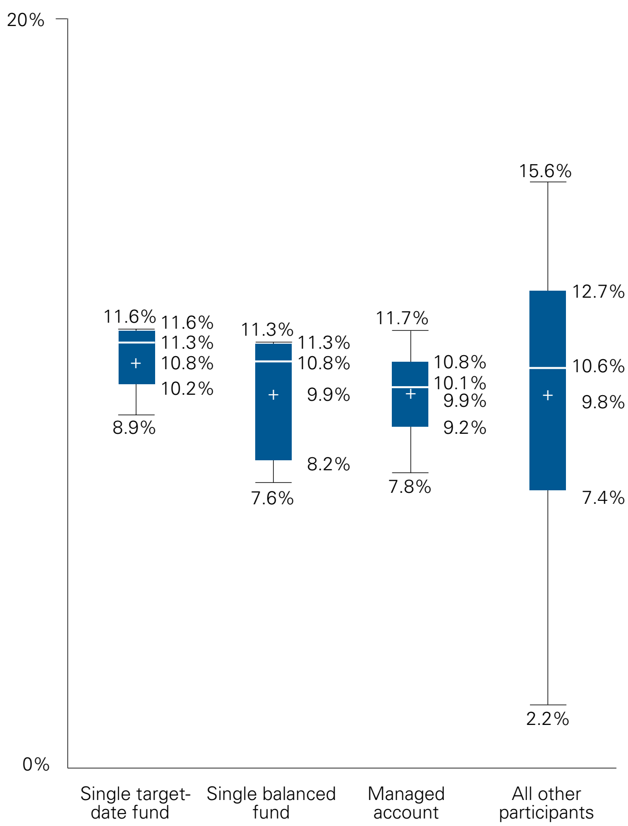
How to read a box and whisker chart:

This box and whisker chart shows the range of outcomes. Plot values represent the 95th, 75th, 50th, 25th, and 5th percentile values. The average value is represented by a white + and the median value by a white line. An example of how to interpret the data in **Figure 84** is: For the 1-year period, 5% of participants had total return rates (TRR) greater than 13.5%; 25% had TRRs greater than 8.1%; half had TRRs greater than 7.2%; 75% had TRRs greater than 5.7%; 95% had TRRs greater than 0.1%; and 5% had TRRs less than 0.1%. The average 1-year TRR was 7.0%.

Participants with managed allocations—notably target-date funds and managed account advisory services—had less dispersion in outcomes. Total 5-year returns for single target-date investors ranged from 8.9% per year for the 5th percentile to 11.6% for the 95th percentile, a difference of approximately 3 percentage points (**Figure 85**). For the single balanced fund and managed account participants, the 5th-to-95th percentile differences were approximately 4 percentage points. The managed account is a customized portfolio approach and so results are accordingly more dispersed than with target-date funds.

Figure 85. Distribution of 5-year total returns by strategy, 2014

Vanguard defined contribution plans



Note: Based on 238,000 observations for single target-date fund investors; 38,000 for balanced fund investors; 52,000 for managed account investors; and 1.5 million for all other participants.

Source: Vanguard, 2015.

By comparison, among all other participants, realized returns for those making their own choices ranged from 2.2% per year for the 5th percentile to 15.6% for the 95th percentile, a difference of more than 13 percentage points.

Dispersion of outcomes

These differences are also apparent when examining both return and risk outcomes in scatter plots. For ease in presentation, we created a random sample of 1,000 participants for each group of investors.

During the 5-year period ended 2014, outcomes for single target-date investors were distributed among major market indexes (**Figure 86, Panel A**), and upward sloping reflecting a positive equity risk premium. These results are consistent with the fact that most of the target-date portfolios in our sample are a specific combination of indexed U.S. equities, international equities, and U.S. bonds. In the target-date scatter plot (in Panel A), younger participants (represented by blue dots and in long-dated portfolios) are to the right of the chart; older participants (represented by purple dots and in near-dated portfolios) are to the left.

The figure includes about 1,000 observations, although there appear to be far fewer. The reason is that while there are many observations in our sample, they are all invested in a limited set of target-date portfolios, which means that portfolio outcomes are also limited. For example, if a plan offered 12 target-date options, then 1,000 participants invested solely in a single target-date fund would have 12 outcomes, not 1,000.

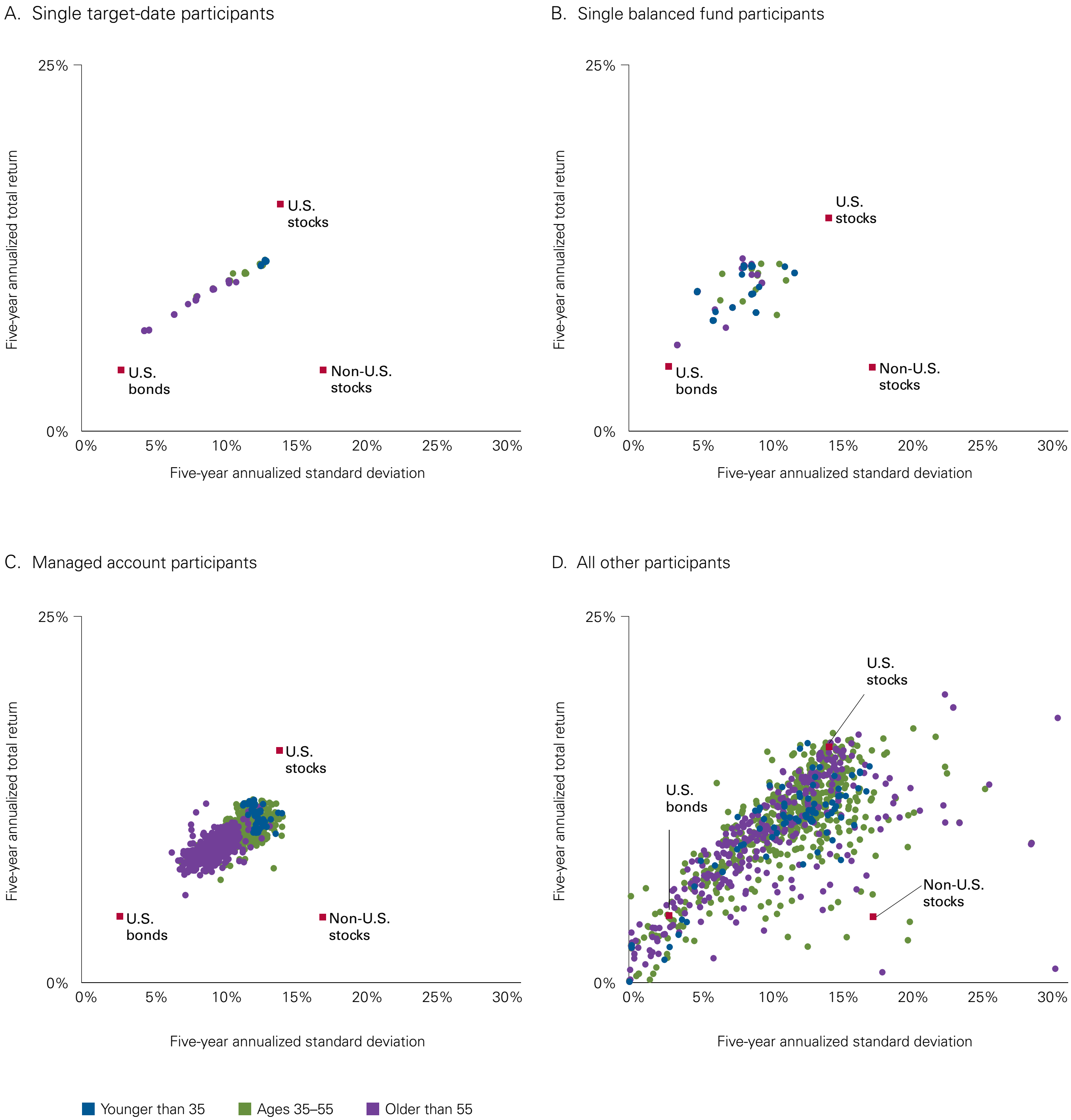
The results for single balanced fund investors reflect the fact that most balanced funds have similar equity allocations, typically around 35% to 65% of assets (**Figure 86, Panel B**). Managed account investors are more dispersed, reflecting the customized nature of managed account advice (**Figure 86, Panel C**).[8]

The greatest dispersion of risk/return outcomes is among participants making their own investment choices (**Figure 86, Panel D**). Over time, due to the growing use of professionally managed allocations in DC plans, this population is expected to decline.

8 For an in-depth analysis of portfolio outcomes, see John A. Lamancusa, Stephen P. Utkus, and Jean A. Young, 2013, *Professionally managed allocations and the dispersion of participant portfolios*, Vanguard research, institutional.vanguard.com.

Figure 86. Risk and return characteristics, 2010–2014

Vanguard defined contribution plan participants for the five-year period ended December 31, 2014



Note: Includes 1,000 random samples of participant accounts drawn from respective samples.
Excludes 0.05% top and 0.05% bottom outliers for both risk and return, for a net sample of 980 observations.

Source: Vanguard, 2015.

Trading activity

Participant trading or exchange activity is the movement of existing account assets from one plan investment option to another. This transaction is distinct from a contribution allocation decision, in which participants decide how future contributions to the plan should be invested. Exchange activity is a proxy for a participant's holding period for investments, as well as a measure of the participant's willingness to change their portfolio in response to short-term market volatility.

Exchange provisions

Daily trading is nearly universal for Vanguard DC plans, with virtually all plan sponsors allowing it. While assets can be traded daily, Vanguard and other investment companies serving DC plans typically have "round-trip" restrictions designed to thwart the minority of individual participants who seek to engage in active market-timing or day-trading.

Volume of exchanges

Despite the ongoing market volatility of 2014, only 13% of participants made one or more portfolio trades or exchanges during the year, down from 16% in 2008 (Figure 87).[9] When participants using the managed account program are excluded, only 10% of participants initiated an exchange. As in prior years, most participants did not trade. Not only did participant trading activity remain low during 2014, trading activity between 2009 and 2013 was lower than the trading activity during 2005, when markets were more benign.

Another measure of trading is the volume of dollars traded. We measure dollar volume movements as a fraction of total recordkeeping assets in order to scale them to growth in assets and growth in the underlying recordkeeping business. In effect, the fraction of assets traded is a measure of portfolio turnover.

In 2014, traders exchanged the dollar equivalent of 11.6% of average DC recordkeeping assets at Vanguard. On a net basis, 0.6% of assets were shifted from equities to fixed income in 2014, compared with a 0.2% shift from fixed income to equities in 2013.

Since 2005, dollar-trading levels have generally remained stable, with the exception of periods of high market volatility (Figure 88). The most notable spikes in dollars traded occurred in months of high market volatility: January, September, and October 2008; March 2009; and August 2011.

9 Our trading statistics are generally adjusted for sponsor-initiated trading—e.g., replacement of one plan option with another. On the date the option is eliminated and the balances are moved to a different fund, we are able to capture and adjust for the fund replacement effect. However, some participants initiate exchanges either before or after the fund is eliminated. We are not able to isolate this participant activity but estimate that it could account for up to one-third of the trading activity.

Figure 87. Participant trading summary

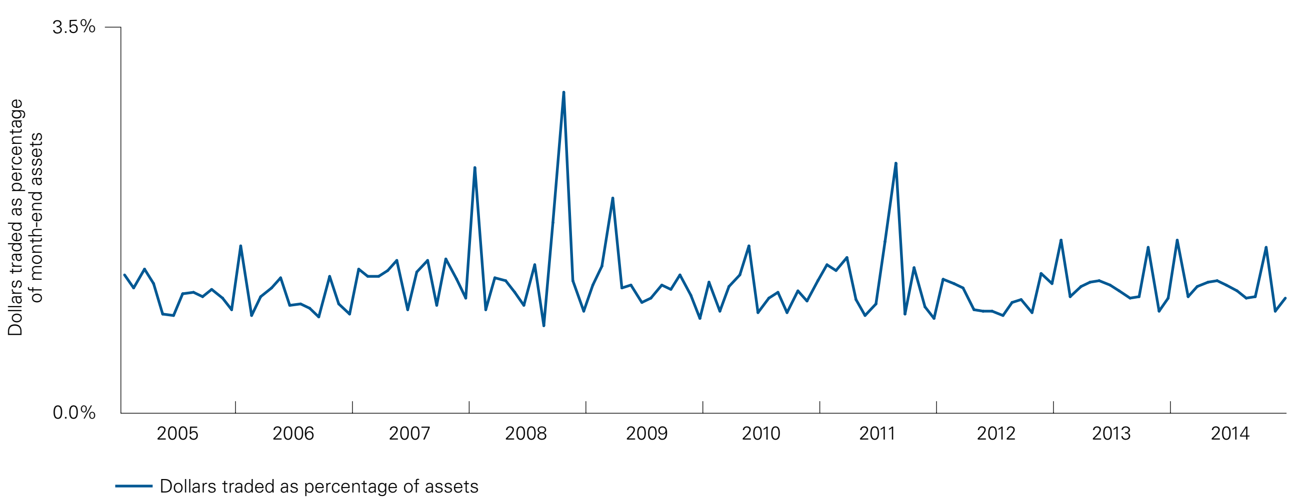
Vanguard defined contribution plans

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Percentage of participants										
Percentage trading including managed account investors	19%	14%	15%	16%	13%	12%	11%	12%	13%	13%
Percentage with participant-directed exchanges	18	13	14	14	11	10	10	9	10	10
Percentage of average recordkeeping assets										
Percentage traded	13.0%	12.7%	14.7%	16.6%	14.1%	13.4%	14.8%	12.6%	14.0%	11.6%
Percentage moved to equities (fixed income)	(0.7)	(0.6)	(1.5)	(3.9)	(0.6)	(1.1)	(2.5)	(1.7)	0.2	(0.6)
Dollar flows (in billions)										
Dollars traded	$23.6	$27.0	$36.2	$39.7	$29.0	$32.5	$40.6	$36.2	$44.8	$41.8
Dollars moved to equities (fixed income)	(1.3)	(1.3)	(3.7)	(9.3)	(1.2)	(2.8)	(6.9)	(4.9)	0.5	(2.3)
S&P 500 Index volatility										
Percentage of days up or down 3% or more	0.0%	0.0%	0.4%	16.8%	8.7%	3.2%	4.8%	0.0%	0.0%	0.0%
Percentage of days up or down 1% or more	12	12	26	54	46	30	37	20	15	31

Source: Vanguard, 2015.

Figure 88. Trading activity, January 2005–December 2014

Vanguard defined contribution participants



Source: Vanguard, 2015.

Direction of money movement

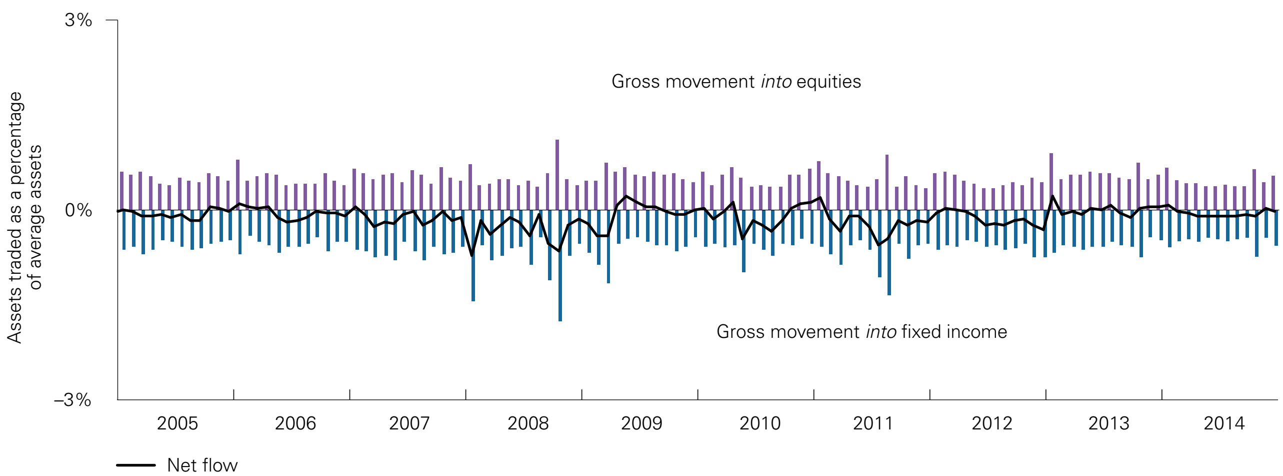
Summary statistics may sometimes give the impression that all participant trading is in one particular direction. However, in any given month, participants who trade are trading meaningful dollar amounts both into and out of equities **(Figure 89)**. Even in volatile markets, as some traders shift their portfolios toward fixed income assets, there are others who shift toward equities.

During the past decade, which includes the 2008–2009 bear market, the net movement of money among participants trading in their accounts has been generally toward fixed income investments. Nonetheless, even at the height of the recent market volatility, there were significant gross flows toward equities among some participants.

Figure 89. Direction of money movement, January 2005–December 2014

Vanguard defined contribution participants

Money movement as a percentage of average assets



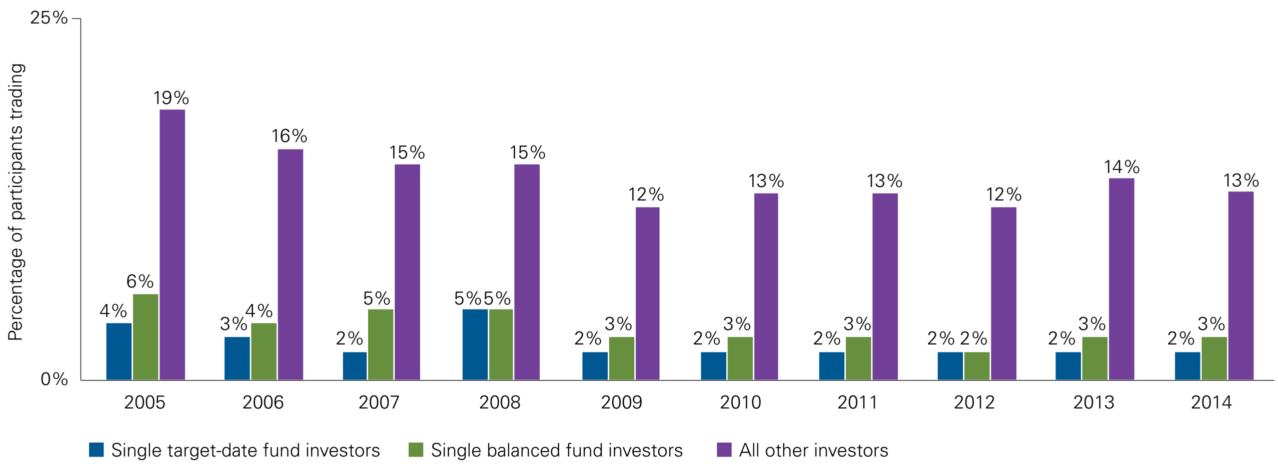
Source: Vanguard, 2015.

The growing reliance on single-fund investment programs, such as target-date funds, has likely contributed to lower trading levels by participants. Pure target-date and single balanced fund investors trade much less frequently than all other participants, although their portfolios are rebalanced daily by the fund managers **(Figure 90)**.

Men are more likely to trade than women **(Figure 91)**. However, participants enrolled in the managed account program trade much more frequently than all other participants as their investments are rebalanced periodically to the target asset allocation.

Figure 90. Participant trading by investor type

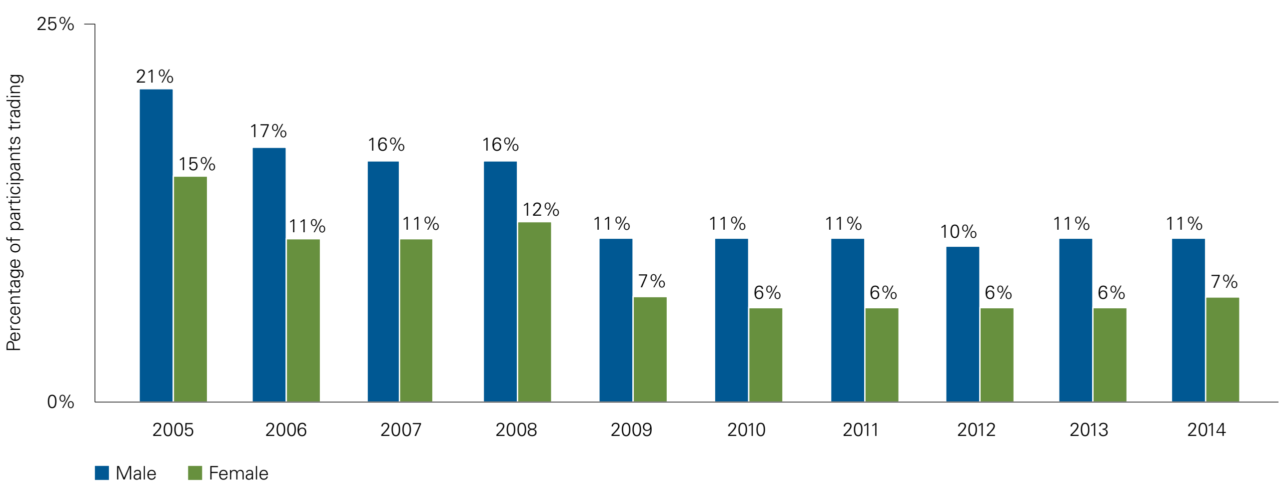
Vanguard defined contribution plan participants



Source: Vanguard, 2015.

Figure 91. Participant trading by gender

Vanguard defined contribution plan participants



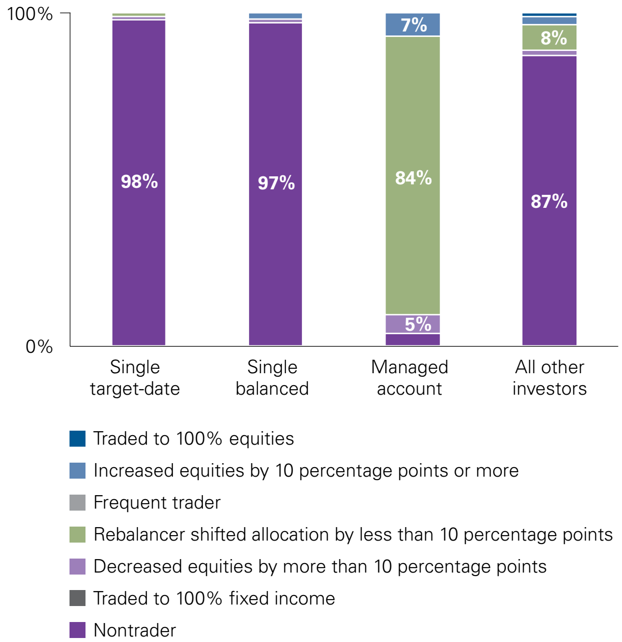
Source: Vanguard, 2015.

Types of trading activity

Among participants who trade in their accounts, the types of changes made by participants are varied. In 2014, 98% of single target-date investors and 97% of single balanced fund investors did not trade to other fund options and instead retained their single holding (Figure 92).

Figure 92. Participant trading decisions, 2014

Vanguard defined contribution plan participants



Source: Vanguard, 2015.

However, the fund managers for these strategies rebalanced the underlying assets of the funds daily.

On the other hand, nearly all participants using a managed account had exchanges. In a managed account, the advisor oversees multiple fund holdings in a typical participant's account. The trading activity reflects the advisor rebalancing the participant's portfolio (or, with those initially signing up for the service, portfolio changes needed to arrive at the target portfolio strategy).

Among "do-it-yourself" investors, most participants do not trade—not even to rebalance their account. In 2014, less than 1% of all other participants abandoned equities.[10] Even among all other investors, most participants trading were rebalancing their portfolios.

Over a longer time frame, 2010–2014, 29% of participants initiated trades. Seven in 10 participants (excluding managed account investors) made no trades in their workplace retirement plan account, not even to rebalance to a target asset allocation. Again, single target-date and balanced fund investor portfolios are rebalanced by the fund managers. However, 55% of participants were making their own investment decisions in 2014.

10 A participant who abandoned equities is one who shifted his or her entire portfolio into fixed income investments during the year. Only participants with some equity exposure in their portfolio who shifted to all fixed income assets during 2014 are included in this category.

3 Accessing plan assets

Participants can access their plan assets by taking a loan or a withdrawal while they are working, or through a withdrawal or rollover when they change jobs or retire.

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Participants can access their plan assets by taking a loan or a withdrawal while they are working, or through a withdrawal or rollover when they change jobs or retire.

Plan loans

If permitted by the plan, participants can borrow up to 50% of their balance (up to a maximum of $50,000) from their DC plan account. Plan loans allow DC participants to access their plan savings before retirement without incurring income taxes or tax penalties. Loans are more common for plans accepting employee contributions and less common for employer-funded DC plans, such as money purchase or profit-sharing plans.

Offering loans appears to have a beneficial effect on retirement savings, raising contribution rates above what they would otherwise be. Yet they also come with risks. Cash that has been borrowed earns fixed income rather than equity market returns. Also, participants who leave their employer must typically repay any loan balance immediately—or risk paying taxes and a penalty and incurring a reduction in retirement savings by the amount of the loan outstanding.[11]

Loan availability

Loans are widely offered by employee-contributory DC plans. In 2014, 77% of Vanguard 401(k) plans permitted participants to borrow from their plan and 88% of active participants had access to a loan feature. The availability of loans tends to depend on plan size. Large plans tend to offer loans; small plans often do not. Loans are expensive to administer, and loan origination and maintenance fees are increasing. With loan fees, sponsors can allocate costs directly to those participants incurring loan-related expenses.

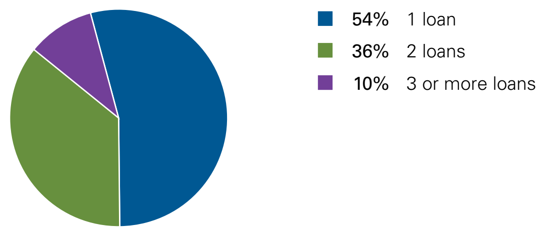
Most plans allow participants to have only one loan outstanding. In 2014, 54% of Vanguard 401(k) plans offering loans permitted only one loan at a time (Figure 93). Thirty-six percent of plans allowed two, and 10% of plans allowed three or more.

Loan use by participant demographics

Less than 1 in 5 participants had a loan outstanding at year-end 2014 (Figure 94).[12]

Figure 93. Number of loans allowed, 2014

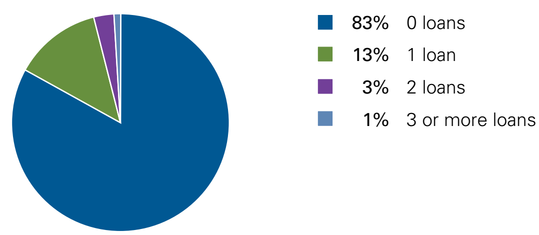
Vanguard defined contribution plans offering loans



Source: Vanguard, 2015.

Figure 94. Participant loan use, 2014

Vanguard defined contribution plans offering loans



Source: Vanguard, 2015.

11 For a comprehensive analysis of loans, see Timothy (Jun) Lu, Olivia S. Mitchell, Stephen P. Utkus, and Jean A. Young, *Borrowing from the Future: 401(k) Plan Loans and Loan Defaults.* www.pensionresearchcouncil.org/publications

12 Our analysis of the percentage of participants with loans considers all participants with an account balance in plans offering loans. Some of these participants no longer work for the plan sponsor and are not eligible for a new loan. Some participants with loans also no longer work for the plan sponsor but are repaying loans. Loan use would likely be about five percentage points higher if based solely on active employees.

Figure 95. Participant loan demographics, 2014

Vanguard defined contribution plans offering loans

	Participants with loans					Participants with no loans
	Percentage of participants with loans	Percentage of account balance in loans	Average loan amount	Average account balance	Total average account balance including loans	Average account balance
All	17%	10%	$9,737	$89,869	$99,606	$110,088
Household income						
<$30,000	24%	12%	$7,317	$55,112	$62,429	$69,427
$30,000–$49,999	24	11	$8,089	$62,994	$71,083	$75,970
$50,000–$74,999	21	10	$9,640	$82,880	$92,520	$99,452
$75,000–$99,999	17	9	$11,517	$116,496	$128,013	$139,771
>$100,000	12	7	$13,592	$168,588	$182,180	$204,421
Age						
<25	4%	21%	$2,386	$9,157	$11,543	$3,966
25–34	13	18	$6,296	$28,893	$35,189	$25,114
35–44	21	14	$9,555	$61,170	$70,725	$71,664
45–54	21	9	$10,992	$109,714	$120,706	$135,949
55–64	16	7	$11,033	$152,651	$163,684	$202,662
>65	5	6	$9,882	$151,385	$161,267	$214,817
Gender						
Male	18%	9%	$10,457	$104,549	$115,006	$132,432
Female	17	11	$8,717	$70,393	$79,110	$85,574
Job tenure (years)						
0–1	3%	19%	$5,582	$23,416	$28,998	$12,359
2–3	11	18	$5,040	$22,334	$27,374	$31,780
4–6	16	16	$7,325	$37,590	$44,915	$63,120
7–9	23	14	$9,094	$54,751	$63,845	$100,737
>10	25	8	$11,632	$130,271	$141,903	$238,333
Account balance						
<$10,000	10%	31%	$2,464	$5,380	$7,844	$3,105
$10,000–$24,999	22	25	$5,534	$16,890	$22,424	$16,659
$25,000–$49,999	24	21	$9,328	$36,136	$45,464	$36,130
$50,000–$99,999	23	15	$12,677	$71,666	$84,343	$72,114
$100,000–$249,999	19	9	$15,301	$156,940	$172,241	$160,926
>$250,000	12	4	$17,709	$452,155	$469,864	$539,137

Source: Vanguard, 2015.

On average, the outstanding loan account balance equaled 10% of the participant's account balance, including the loan, and the average participant had borrowed about $9,700 (Figure 95). Outstanding loans are typically excluded from measures of plan and participant assets because these assets have, in effect, been withdrawn from the plan and are not currently available as a retirement resource. However, more than 90% of loans are repaid and outstanding loans represent participant and plan assets. Only about 2% of aggregate plan assets were borrowed by participants.

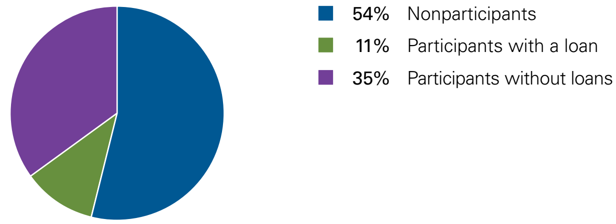
Loans are sometimes criticized as a form of revolving credit for younger, lower-income workers. While that may be partly true, loan use by age follows a hump-shaped profile, with loan use highest among participants in their prime working years. Among workers age 35–54, loan use averaged slightly more than 20% in 2014. Men and women used loans at the same rate.

Income appears to have a larger influence on loan use than age does. In 2014, 24% of participants with household incomes of less than $30,000 had a loan, while only 12% of participants with household incomes of more than $100,000 did. This difference reflects liquidity constraints among those with low wealth and income—i.e., higher-income households have less need for borrowing because of their higher income or other savings.

In 2014, loans were most common among participants with a balance between $10,000 and $100,000. Participants with account balances of less than $10,000 were actually somewhat less likely to have a loan, yet they borrowed the largest percentage of their account balances. Only 10% of participants in this group had a loan, but the loan accounted for 31% of their account balance on average.

Figure 96. **Participation and loans, 2014**

All employees earning less than $30,000



Source: Vanguard, 2015.

Across many demographic groups, participants with no loans outstanding in 2014 appear to have accumulated more in retirement savings than participants with loans. However, among participants younger than 35, participants with outstanding loans appear to have greater retirement savings accumulations. These differences in part reflect the interplay of demographic differences in terms of age, income, and tenure between borrowers and nonborrowers.

Loan use is highest among participants who earn less than $30,000—almost 1 in 4 of these participants has a loan outstanding. However, earlier in this report, we noted that participation rates are lowest among this group, with only 46% of these workers joining their plan. Arguably, participants who earn less than $30,000 but have borrowed from their retirement savings (11% of these workers) are better off than those employees who earn less than $30,000 and do not participate in their employer plan (Figure 96).

Loan use by industry group

Loan use varies significantly by industry group (Figure 97). Participants in the media, entertainment, and leisure fields, as well as those in the business, professional, and nonprofit industries, use loans at a lower rate than other participants, suggesting that more highly educated participants might use loans less frequently.

Trends in new loan issuance

Among Vanguard plans, the fraction of participants taking loans from their DC plans fell between 2005 and 2008 (Figure 98). However, in 2009, the rate of new borrowing rose by 19%, approaching 2006 levels. In 2010, the fraction of participants taking loans rose again by 14%, returning to 2005 levels. In 2011, loan-taking was on par with the level in 2010, and it declined modestly in 2012. Loan-taking grew again in 2013, and then declined modestly in 2014.

There is a pronounced seasonality to loan-taking, with borrowing typically peaking in the summer months. The reasons for this pattern, as well as the reasons for the decline and then rise in loan use in recent years, are not well understood. We speculate that loan use first fell with the overall decline in consumer spending in the economic downturn, along with the decline in housing transactions (loans are often used for housing-related expenses). Loan use may have jumped sharply in 2009 and 2010 as the effects of the recession wore on. Recent loan use also may partly reflect improving economic conditions and a resumption in consumer spending.

Figure 97. Participant loans by industry sector, 2014

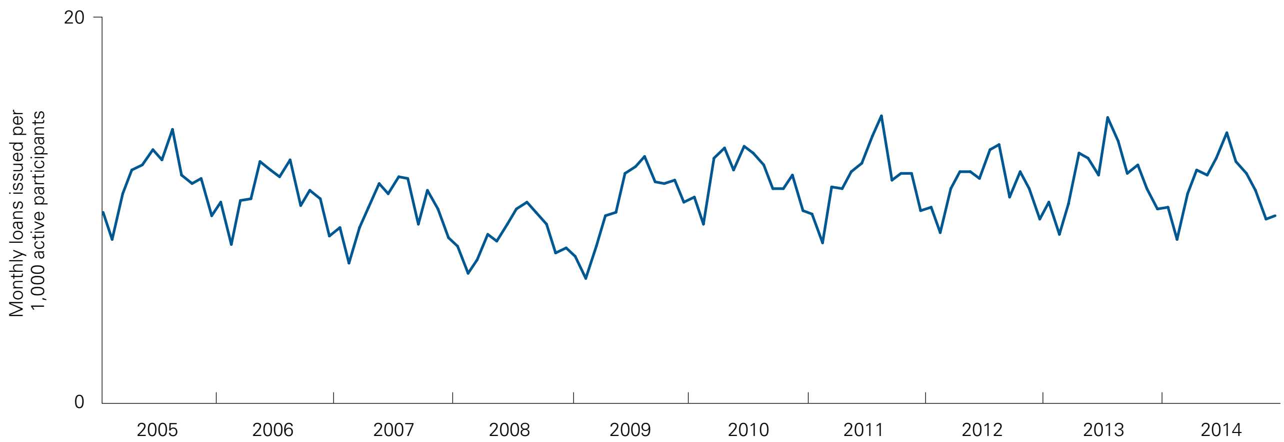
Vanguard defined contribution plans offering loans

	Participants with loans					Participants with no loans
	Percentage of participants with loans	Percentage of account balance in loans	Average loan amount	Average account balance	Total average account balance including loans	Average account balance
All	17%	10%	$9,737	$89,869	$99,606	$110,088
Industry group						
Transportation, utilities, and communications	23%	10%	$8,632	$74,281	$82,913	$95,797
Finance, insurance, and real estate	20	12	10,511	80,389	90,900	105,112
Agriculture, mining, and construction	20	7	14,121	177,887	192,008	253,111
Manufacturing	19	9	9,100	87,540	96,640	113,395
Wholesale and retail trade	18	9	8,527	82,557	91,084	87,134
Education and health	15	13	8,561	56,261	64,822	65,151
Media, entertainment, and leisure	12	11	9,539	79,384	88,923	75,166
Business, professional, and nonprofit	10	9	11,157	117,471	128,628	126,555

Source: Vanguard, 2015.

Figure 98. Loan origination trend

Vanguard defined contribution active participants in plans offering loans



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Monthly average (per 1,000 participants)	11.3	10.6	9.8	8.5	10.1	11.5	11.4	11.1	11.5	11.0
Annual increase (decrease) in loans issued per 1,000 participants	(6%)	(7%)	(7%)	(14%)	19%	14%	(1%)	(3%)	4%	(4%)

Source: Vanguard, 2015.

Plan withdrawals

Plan withdrawals allow participants to access their plan savings before a job change or retirement. Withdrawals are optional plan provisions and availability varies from plan to plan. They can be broadly classified into two categories—hardship and nonhardship withdrawals.

Hardship withdrawals allow participants to access a portion of their savings when they have a demonstrated financial hardship, such as receipt of an eviction or home foreclosure notice, but may also be used for such purposes as college education and purchase of a first home.

Nonhardship withdrawals include both post-age-59½ withdrawals and other withdrawals. Post-age-59½ withdrawals allow participants age 59½ and older to access their savings while they are working and are exempt from the 10% penalty on premature distributions. Some plans may also allow participants to withdraw employer profit-sharing contributions, after-tax contributions, or rollover assets while they are working.

Among all Vanguard DC plans in 2014, 83% allowed hardship withdrawals and 84% allowed plan withdrawals for those who have reached age 59½ (Figure 99). In 2014, less than 4% of Vanguard participants in plans offering any type of withdrawal used the feature, and the average portion of account balance withdrawn was about one-third (Figure 100). About one-fifth were for hardship and four-fifths for nonhardship reasons. Assets withdrawn totaled 1% of Vanguard recordkeeping assets.

Of the participants who took withdrawals, 92% took the money in cash, withdrawing on average about one-sixth of account savings. They had a median age of 51. Meanwhile, 8% of participants taking withdrawals rolled over their assets from the plan to an IRA. A major contributor to this is likely participants older than 59½ rolling over their plan savings even as they continue to work and participate in the plan. Participants choosing a rollover had a median age of 62 and on average they rolled over 75% of their account balances. These participants rolling over assets account for more than half of the assets being withdrawn.

In the aftermath of the recent recession, the rate of new nonhardship withdrawals, such as post-age-59½ in-service or other withdrawals, has more than doubled from 2005 to 2014 (Figure 101). Nonhardship withdrawals also have a seasonal pattern and often spike in the first quarter of the year. This spike in activity is likely due to the withdrawal of employer profit-sharing contributions, which are frequently made early in the calendar year.

Over the same 2005-to-2014 period, the rate of new hardship withdrawals was also up about one-third, while remaining at a low absolute level of 2% of participants. One of the reasons a participant can take a hardship withdrawal is to avoid foreclosure or eviction from a home. We believe that the surge in foreclosures in recent years is, in part, driving this increase. Hardship withdrawals have fluctuated within a relatively narrow range from 2008 to 2014.

Plan withdrawals are used infrequently in the aggregate. However, about 4 in 10 participants taking a withdrawal in 2014 had also taken plan withdrawals in 2013, and 1 in 10 in this group had taken a plan withdrawal in each of the past five years. Certain participants could, over time, jeopardize their retirement program if they continue to rely on this feature throughout their working careers.

Figure 99. Plan withdrawals

Vanguard defined contribution plans

Percentage of plans offering	2014
Hardship withdrawals	83%
Withdrawals after age 59½	84

Source: Vanguard, 2015.

Figure 100. Use of plan withdrawals, 2014

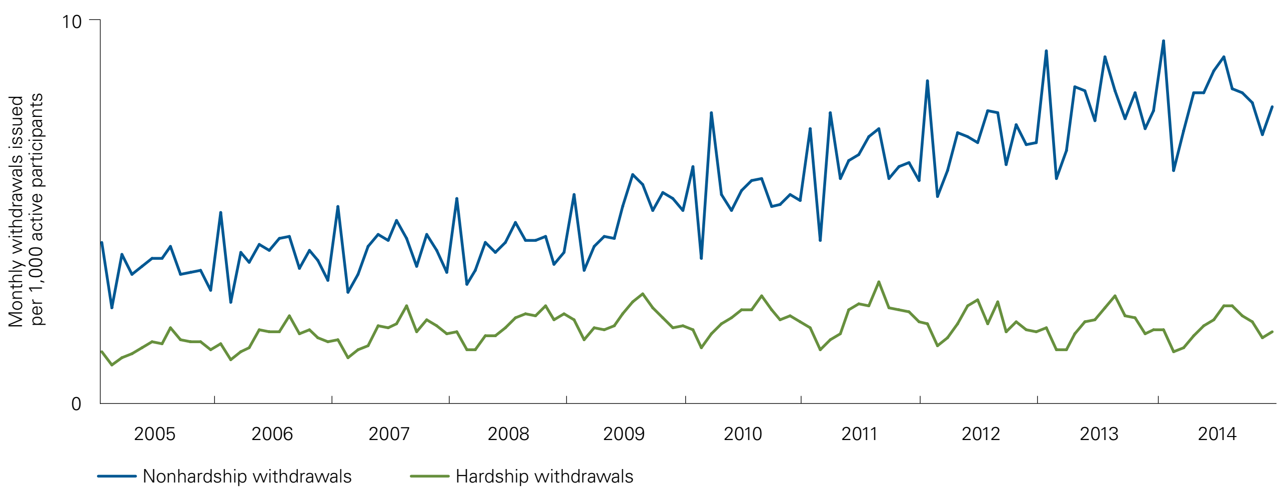
Vanguard defined contribution plans

	All	Cash	Rollover
Percentage of participants using	3.6%	3.3%	0.3%
Percentage of assets withdrawn	0.9	0.4	0.5
Percentage of participant account assets withdrawn	31.4	17.2	75.1
Median age	51	51	62

Source: Vanguard, 2015.

Figure 101. In-service withdrawal trend

Vanguard defined contribution active participants in plans offering in-service withdrawals



Average per 1,000 active participants	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Nonhardship withdrawals	3.6	3.9	4.1	4.2	5.0	5.6	6.4	7.0	7.8	8.0
Hardship withdrawals	1.5	1.7	1.8	2.0	2.2	2.2	2.2	2.1	2.0	2.0

Annual increase (decrease) per 1,000 active participants										
Nonhardship withdrawals	3%	8%	3%	2%	19%	12%	15%	9%	11%	3%
Hardship withdrawals	7	13	6	11	10	0	0	(5)	(5)	0

Source: Vanguard, 2015.

Plan distributions and rollovers

When changing jobs or retiring, DC plan participants have the choice of preserving their savings for retirement (by retaining them in the plan or rolling them over to an IRA or another DC plan) or taking a cash lump sum (and spending or investing it). If they choose to roll over their savings to an IRA or another qualified retirement plan, participants avoid paying taxes on the accumulated balance. If participants spend the lump-sum distribution or invest it in a taxable account, they incur a possible income tax liability (and a 10% penalty if they are younger than 59½).

The problem of leakage from the retirement system—the spending of plan savings before retirement—is a concern for the future retirement security of plan participants. In the short run, participants incur taxes and possibly penalties on any amounts they spend. In the long run, because of the lost opportunity for compound earnings, they significantly increase the amount they need to save during the remainder of their working years.

Policymakers have attempted to discourage leakage in several ways. Generally, participants may keep their plan savings in their employer's plan if their account balance is more than $5,000. Also, plan distributions between $1,000 and $5,000 are generally rolled over automatically to an IRA, unless the participant elects otherwise. Balances less than $1,000 may be distributed to the terminated participant. Most plans have adopted these provisions—only 5% of plans permit deferral within the plan when balances are less than $1,000 (Figure 102). In some cases, the sponsor may allow participants to retain a balance of $1,000 or more in the plan—17% of plans permit these balances to remain in the plan.

Figure 102. Frequency of automatic distributions, 2014

Vanguard defined contribution plans

	Number of participants			
	All	<1,000	1,000–4,999	>5,000
Percentage of plans				
Remain in plan (no automatic distribution)	5%	4%	5%	6%
Automatic cash out if balance is <$1,000, remain in plan if balance is higher	17	16	17	27
Automatic cash out if balance is <$1,000, roll over if balance is $1,000+ or <$5,000	78	80	78	67
Percentage of participants offered				
Remain in plan (no automatic distribution)	5%	4%	6%	4%
Automatic cash out if balance is <$1,000, remain in plan if balance is higher	30	18	16	38
Automatic cash out if balance is <$1,000, roll over if balance is $1,000+ or <$5,000	65	78	78	58

Note: This analysis excludes approximately 100 403(b) plans and approximately 360,000 participants in those plans. Most 403(b) plan sponsors retain the right to execute these automatic distributions within their plan documents. However, due to the multiprovider environment many 403(b) plans operate within and the coordination required to process these distributions, most 403(b) plan sponsors do not process these distributions.

Source: Vanguard, 2015.

Most sponsors permit indefinite deferral of savings, meaning that participant balances can remain in the employer plan as long as they are above the $5,000 (or $1,000) threshold. However, 4% of sponsors require terminated participants to leave the plan by age 65 or age 70 **(Figure 103)**.

Six in 10 sponsors allow participants to establish installment payments and about one-quarter offer an annuity option for at least a portion of the plan assets. Eight percent of plans offered an annuity for a grandfathered source only and these annuity features are mostly associated with plan assets relating to a prior money purchase plan. Fifteen percent of plans offered an annuity as a general distribution option and one-third of these plans offered the annuity for statutory reasons or as a general market practice such as with 403(b) plans. Finally, 13% of sponsors permit terminated participants to take partial ad hoc cash distributions. These plans allowing ad hoc distributions cover 3 in 10 participants. If a plan does not offer ad hoc distributions, it requires any terminated participant seeking to use any part of retirement savings to withdraw or roll over the entire account balance.

When it offers an ad hoc distribution feature, a plan can be used directly as a flexible source of income and withdrawals.

Figure 103. Distribution options, 2014

Vanguard defined contribution plans

		Number of participants		
	All	<1,000	1,000–4,999	>5,000
Percentage of plans				
Deferral	99%	99%	100%	98%
Deferral only to age 65	3	3	4	5
Deferral only to age 70	1	0	1	1
Installments other than RMDs	58	59	55	66
Annuity	15	16	11	18
Annuity grandfathered source only	8	9	8	5
Ad hoc partial distributions	13	7	22	36
Percentage of participants offered				
Deferral	99%	99%	100%	99%
Deferral only to age 65	3	3	3	3
Deferral only to age 70	6	1	1	9
Installments other than RMDs	59	60	55	60
Annuity	17	15	12	19
Annuity grandfathered source only	1	3	2	1
Ad hoc partial distributions	30	11	24	35

Source: Vanguard, 2015.

Participant and asset flows

Plan distributions can occur somewhat frequently as participants change jobs or retire, and they represent a large portion of total plan and participant assets. In 2014, 9% of participants left their employer and were eligible for a distribution. Their assets totaled 6% of Vanguard recordkeeping assets.

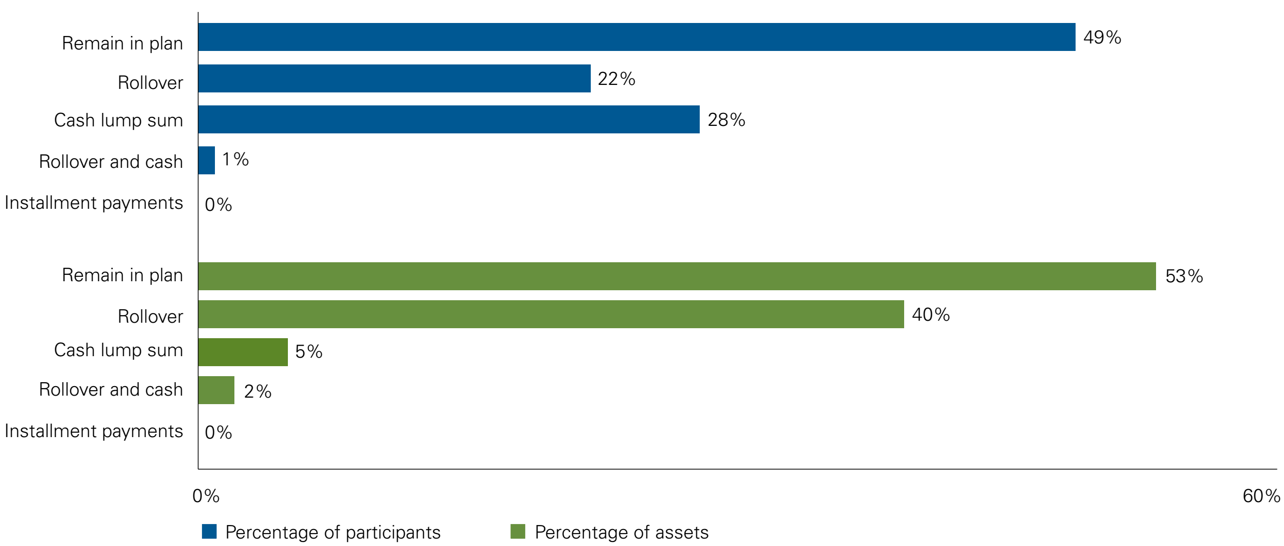
In 2014, 71% of participants terminating employment preserved their assets and 29% took a cash distribution **(Figure 104)**. More than 90% of the assets available for distribution were preserved for retirement because they were either retained in the prior employer's plan, were rolled over to an IRA, or rolled over to a new employer's plan. The percentage of participants choosing to take cash and presumably spending their savings has returned to prerecession levels **(Figure 105)**.

These figures differ from other reported statistics on plan distributions because they include participants who chose to retain their assets in their prior employer's plan when they change jobs or retire. Among only those participants who took a distribution from their plan, more took cash distributions (29%) than rolled over their assets to another plan or IRA (22%). But in our view, a full assessment of plan distribution behavior must include participants who kept their assets within their prior employer's plan at the time of a job change or retirement.

Figure 104. Plan distributions, 2014

Vanguard defined contribution plans

Participants with termination dates in 2014



Source: Vanguard, 2015.

Figure 105. Trends in distribution of plan assets

Vanguard defined contribution plans

Participants with termination dates in the given year

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Percentage of participants choosing										
Remain in plan	47%	47%	47%	48%	48%	48%	49%	48%	49%	49%
Rollover	24	24	24	21	21	22	21	21	22	22
Installment payments	0	0	0	0	0	0	0	0	0	0
Participants preserving assets	**71%**	**71%**	**71%**	**69%**	**69%**	**70%**	**70%**	**69%**	**71%**	**71%**
Cash lump sum	27%	27%	28%	30%	30%	28%	28%	29%	28%	28%
Rollover and cash	2	2	1	1	1	2	2	2	1	1
Percentage of assets available for distribution										
Remain in plan	52%	53%	51%	50%	59%	55%	54%	53%	54%	53%
Rollover	39	39	42	42	33	37	38	39	39	40
Installment payments	0	0	0	0	0	0	0	0	0	0
Assets preserved for retirement	**91%**	**92%**	**93%**	**92%**	**92%**	**92%**	**92%**	**92%**	**93%**	**93%**
Cash lump sum	7%	6%	5%	6%	6%	6%	5%	5%	5%	5%
Rollover and cash	2	2	2	2	2	2	3	3	2	2

Source: Vanguard, 2015.

Determinants of distribution behavior

Age has a significant impact on distribution behavior. Younger participants are more likely than older participants to cash out, rather than save, their plan distributions. Yet most of the assets available for distribution are still preserved for retirement, even by younger individuals. In 2014, 35% of participants in their 20s chose to cash out their plan assets, compared with 19% of participants in their 60s (**Figure 106**). In terms of assets, 85% of assets owned by participants in their 20s and 96% of assets owned by participants in their 60s were preserved.

Account balances also have a significant impact on distribution behavior. Participants with smaller account balances are less likely to preserve their assets for retirement. Only 47% of participants with balances of less than $1,000 kept their balance in a tax-deferred account (**Figure 107**). However, once balances reach $100,000, more than 90% of participants chose to preserve their assets.

A more nuanced view emerges when you consider both age and account balance. At most asset levels, younger participants are more likely to preserve their assets (**Figure 108**). While participants in their 40s did overwhelmingly preserve their assets for retirement, at most asset levels they are slightly more likely than any other age group to cash out their DC plan when changing jobs.

Our analysis thus far reflects the behavior of individuals who terminated employment in a given year, either by changing jobs or retiring. But it is also true that participants who terminated in previous years retain the right to withdraw their plan assets from their prior employer's plan at any time and roll over or spend the money.

Figure 106. Plan distribution behavior by age, 2014

Vanguard defined contribution plans

Participants with termination dates in 2014

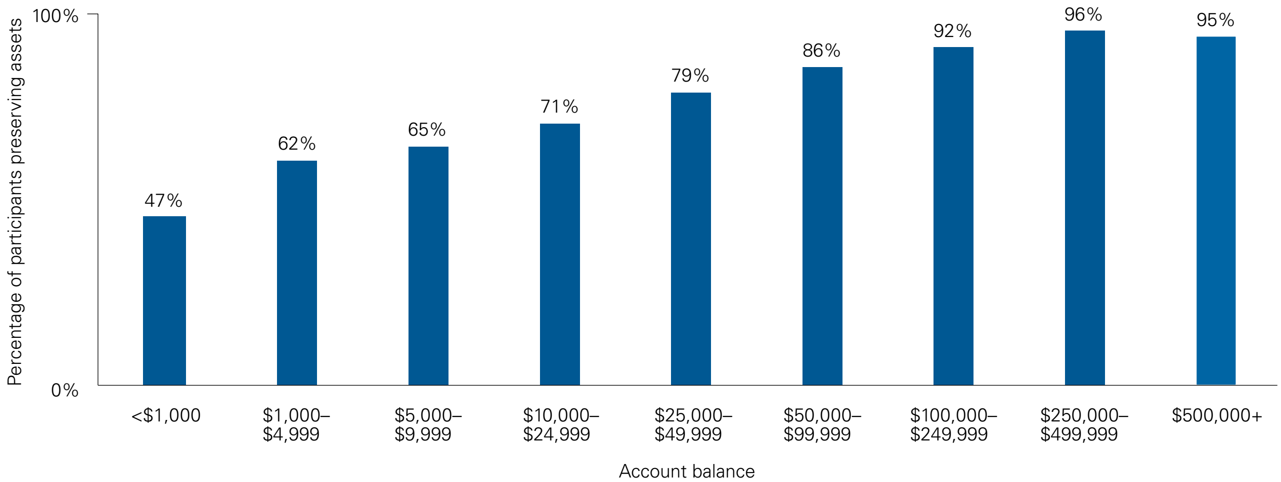
	20s	30s	40s	50s	60s	70s	All ages
Percentage of participants choosing							
Remain in plan	51%	51%	49%	49%	41%	18%	49%
Rollover	14	18	20	26	39	42	22
Installment payments	0	0	0	0	1	14	0
Participants preserving assets	**65%**	**69%**	**69%**	**75%**	**81%**	**74%**	**71%**
Cash lump sum	35%	30%	30%	23%	17%	24%	28%
Rollover and cash	0	1	1	2	2	2	1
Percentage of assets available for distribution							
Remain in plan	63%	64%	61%	56%	46%	24%	53%
Rollover	22	26	30	38	50	69	40
Installment payments	0	0	0	0	0	1	0
Assets preserved for retirement	**85%**	**90%**	**91%**	**94%**	**96%**	**94%**	**93%**
Cash lump sum	14%	9%	7%	4%	2%	3%	5%
Rollover and cash	1	1	2	2	2	3	2

Source: Vanguard, 2015.

Figure 107. Plan distribution behavior by account balance, 2014

Vanguard defined contribution plans

Participants with termination dates in 2014



Source: Vanguard, 2015.

Figure 108. Plan distribution behavior by age and account balance, 2014

Vanguard defined contribution plans

Participants with termination dates in 2014

Note: Cells with less than 100 data points are omitted.

Source: Vanguard, 2015.

A more optimistic picture of plan distribution behavior emerges if we analyze the total plan assets available for distribution at any given time. During 2014, 30% of all Vanguard qualified plan participants could have taken their plan account as a cash distribution because they had separated from service in the current year or prior years. However, just 15% of participants eligible for a cash distribution took one, while the vast majority (85%) continued to preserve their plan assets for retirement (**Figure 109**). In terms of assets, 97% of all plan assets available for distribution were preserved—either rolled over to an IRA or other qualified plan, or left in the former employer's plan. Only 3% of assets were distributed in cash.

Access methods and the internet

Within DC plans, a variety of services have evolved to foster participant control over plan savings and to facilitate savings, investment, and withdrawal decisions—including phone associates, voice-response systems, and internet and mobile access.

Participant access to retirement accounts is quite varied, ranging from those who do not contact their provider using one of these services at all in a given year to those who do so multiple times a month.

Frequency of account access

In 2014, 37% of plan participants never contacted Vanguard regarding their plan account (**Figure 110**). However, 63% did contact Vanguard—a ratio that has improved from 2005, when 53% of participants contacted Vanguard (**Figure 111**). One reason for this may be the dissemination of internet and mobile access; another may be the strong equity markets in 2013 and 2014, which led to higher levels of investor attention to their accounts. For participants who did not contact Vanguard, their sole method for reviewing plan balances was quarterly account statements. These participants also received Vanguard's participant electronic newsletter, fee and other regulatory disclosures, and education or communication programs in print or via electronic means.

Figure 109. Alternative view of distribution of plan assets

Vanguard defined contribution plans

All terminated participants with access to plan savings in the given year

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Percentage of participants choosing										
Remain in plan	65%	66%	65%	66%	67%	65%	68%	67%	68%	68%
Rollover	16	16	16	14	13	14	13	13	14	14
Installment payments	2	2	2	2	2	2	2	2	3	3
Participants preserving assets	**83%**	**84%**	**83%**	**82%**	**82%**	**81%**	**83%**	**82%**	**85%**	**85%**
Cash lump sum	16%	15%	16%	17%	17%	18%	16%	16%	14%	14%
Rollover and cash	1	1	1	1	1	1	1	2	1	1
Percentage of assets available for distribution										
Remain in plan	76%	75%	74%	72%	78%	75%	75%	75%	76%	76%
Rollover	20	21	22	23	17	20	20	20	20	20
Installment payments	1	1	1	1	1	1	1	1	1	1
Assets preserved for retirement	**97%**	**97%**	**97%**	**96%**	**96%**	**96%**	**96%**	**96%**	**97%**	**97%**
Cash lump sum	2%	2%	2%	3%	3%	3%	3%	3%	2%	2%
Rollover and cash	1	1	1	1	1	1	1	1	1	1

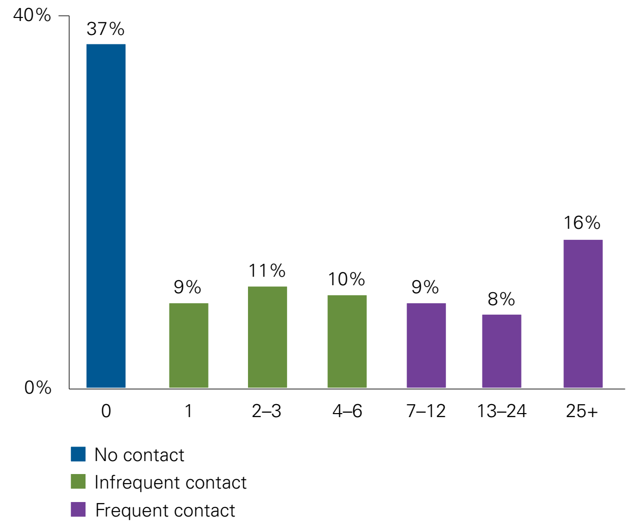
Source: Vanguard, 2015.

Three in ten participants contacted Vanguard intermittently. This group interacted with Vanguard between one and six times per year through a phone associate, an automated voice-response system, mobile application, or the internet. One-third of participants contacted Vanguard frequently. This group, using all channels, contacted Vanguard at least monthly, if not two or three times a month or more. This level of contact may seem high, but keep in mind, for those using a mobile application or the internet, a brief logon to examine account balances constitutes a unique contact event.

Account balances are a strong influence on contact behavior. The larger a participant's balance, the more likely they are to be proactive in obtaining information about their Vanguard plan account. Participants with account balances of more than $100,000—about 25% of all Vanguard participants—contacted Vanguard at least monthly, if not more, compared with a median level of two contacts per year for the entire participant population.

Figure 110. Participant contact frequency, 2014

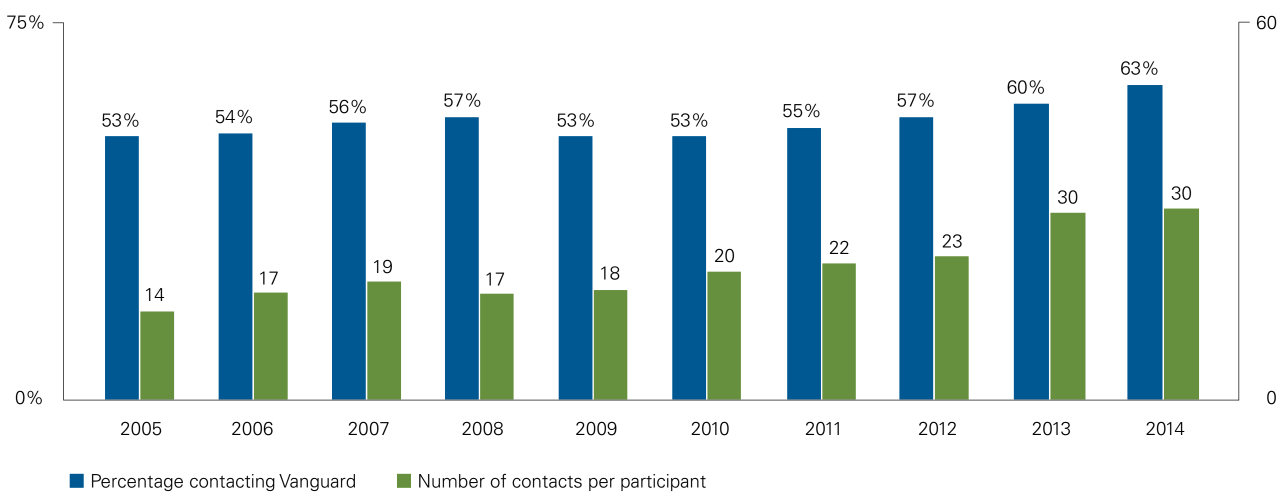
Vanguard defined contribution plans



Source: Vanguard, 2015.

Figure 111. Participant contact trend

Vanguard defined contribution plans



Source: Vanguard, 2015.

Types of account access

Participants have four access channels at their disposal: toll-free phone calls to telephone associates, toll-free phone calls to an automated voice-response system, a mobile application, and the internet. When measured in terms of total participant use, the internet remained the most widely used channel in 2014—56% used the internet, compared with 19% who used telephone associates (**Figure 112**). Introduced between 2009 and 2011, mobile applications were used by 8% of participants.

In terms of total contacts, the internet clearly dominates. Web interactions accounted for 88% of all participant contacts in 2014. Participants using this contact method averaged about 48 web interactions per year. Each distinct logon is counted as a unique contact event. Mobile access, though relatively new, was the second most common channel, accounting for 9% of all contacts—or nine times the number of phone contacts.

The portion of participants selecting the internet as an access channel has grown by about 50% since 2005 (**Figure 113**). During this interval, the portion of participants selecting a phone associate as an access channel has declined by nearly 40%, and the portion choosing the voice-response system has stayed about the same. Given current trends, the dominance of the internet as a contact channel is likely to continue. We expect adoption of the mobile applications will grow dramatically over the next few years.

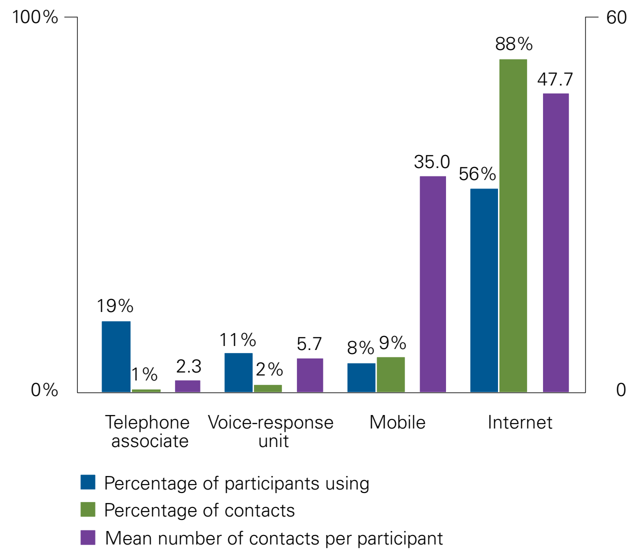
Participant registration for internet access to their DC plan account has fueled this growth. Seventy-one percent of participants were registered for the internet in 2014, about 60% higher than in 2005 (**Figure 114**).

Increasingly, participants are choosing the internet as the preferred access channel for transactions, as 78% of all transactions were processed via the internet during 2014, and another 7% were processed via mobile devices (**Figure 115**). Moreover, 90% of all exchanges, payroll deferral, and contribution allocation changes occurred on the internet or mobile devices.

Figure 112. Account access methods, 2014

Vanguard defined contribution plans

Participant account access



Source: Vanguard, 2015.

Figure 113. Account access trend

Vanguard defined contribution plans

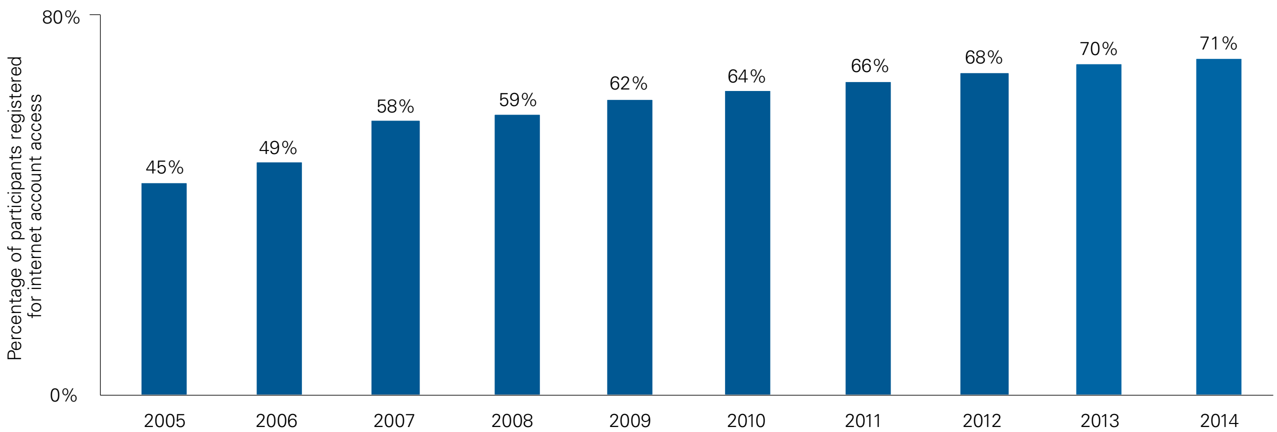
Percentage of participants contacting Vanguard via . . .

	2005	2014	Change
Voice, telephone associate, or internet	53%	63%	19%
Telephone associate	30	19	(37)
Voice-response unit	10	11	10
Mobile		8	
Internet	37	56	51
Participants registered for internet access	45	71	58

Source: Vanguard, 2015.

Figure 114. Internet access trend

Vanguard defined contribution plans

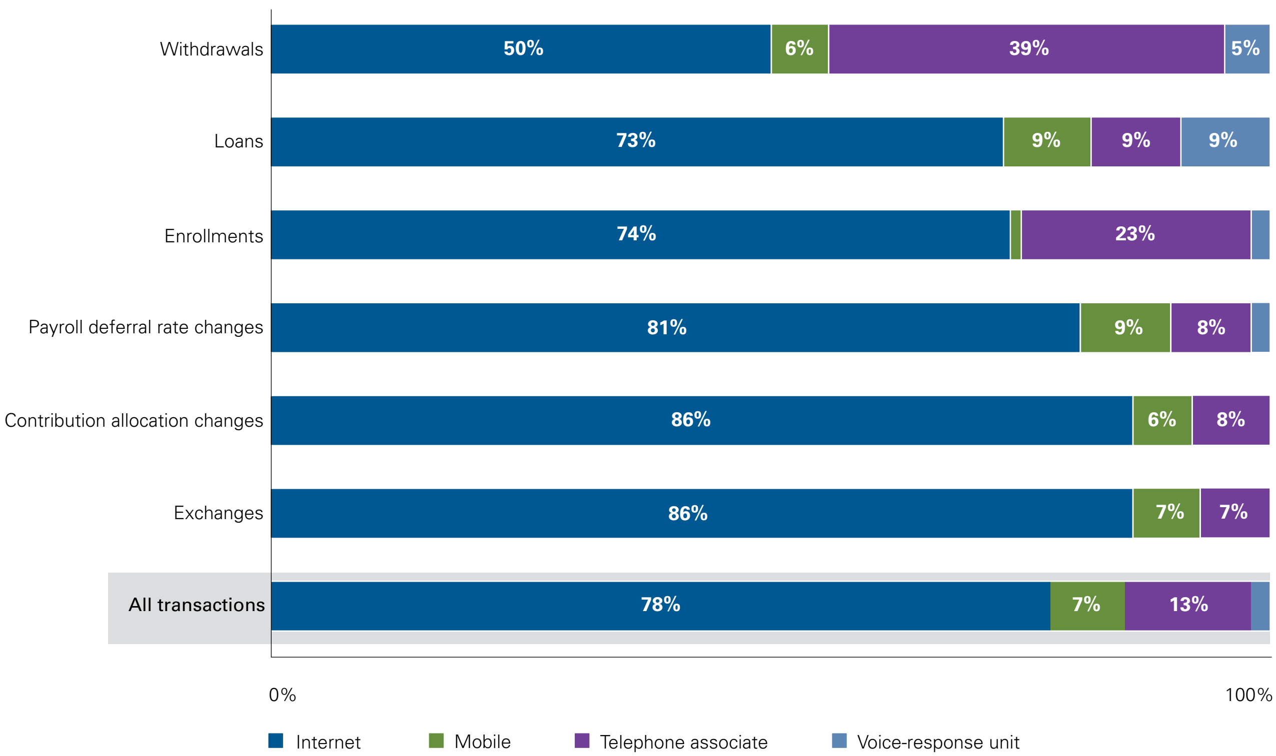


Source: Vanguard, 2015.

Figure 115. Participant channel utilization, 2014

Vanguard defined contribution plans

Percentage of transactions processed by channel



Source: Vanguard, 2015.

Methodology

The Vanguard data included in this report is drawn from several sources.

All defined contribution clients. This universe consists of about 1,900 qualified plans, 1,500 clients, and more than 3.6 million participants for which Vanguard directly provides recordkeeping services. About 9 in 10 of these plans have a 401(k) or 403(b) employee contributory feature; the other 1 in 10 is an employer contributory DC plan, such as a profit-sharing or money purchase plan, in which investments are directed by participants. Unless otherwise noted, all references to "Vanguard" are to this universe, and all data is as of December 31, 2014.

Vanguard participation and deferral rates. Data on participation and deferral rates is drawn from a subset of Vanguard recordkeeping clients for whom we perform nondiscrimination testing. For the 2014 analysis, the subset is composed of plans that complete their testing by March and represents approximately half of the clients for whom we perform testing.

For the 2014 analysis presented in this edition of *How America Saves*, this subset includes approximately 400 plans and 800,000 participants and eligible nonparticipants. Almost all of these plans are 401(k) or paired 401(k)/profit-sharing plans. Income data used in participation and deferral rate analyses also comes from this subset of plans.

When compliance testing has been completed for all plans, the analysis is performed again and the data is restated for prior years. The restated data for 2013 now includes 900 plans and 1.8 million participants and eligible nonparticipants. Plans that complete their testing by March generally have lower participation rates and generally include plans with concerns related to passing testing. Hence, the restated numbers generally show an improvement over the numbers initially reported.

Household income data. Household income data for asset allocation, account balance, and loan demographics is from an external source overlaid onto Vanguard participant data. This external household income data covers approximately 80% of the Vanguard participant universe and is the most recent data available.

Vanguard Retirement Plan Access to *How America Saves*

Launched in 2011, Vanguard Retirement Plan Access™ (VRPA) is a comprehensive service for retirement plans with up to $20-plus million in assets. Ascensus, Inc.—a nationally recognized recordkeeping firm—provides the administration of these plans on Vanguard's behalf. Through Vanguard Retirement Plan Access we served an additional 2,700 plan sponsors with more than 125,000 participants as of year-end 2014.

Industry benchmark data supplements to *How America Saves*

Industry benchmark data supplements to *How America Saves* are available for the following sectors:

- Ambulatory health care services
- Construction
- Engineering
- Finance
- Information
- Insurance
- Legal services
- Manufacturing
- Mining, oil, and gas extraction
- Retail
- Small business
- Technology
- Transportation and warehousing
- Union plans
- Utility
- Wholesale trade

If the sector you are interested in is not available at this time, please contact your sales executive or relationship manager.

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