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Women versus men in DC plans

Vanguard Research

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- Women are 14% more likely to participate than men in their workplace savings plan and once enrolled save at higher rates than men at all income levels.
- Women and men take similar levels of portfolio risk, in part due to the growing use of target-date funds as defaults. Men at the margin are more likely to hold aggressive equity allocations and to trade.
- In the aggregate, men have account balances that are more than 50% larger than women. This difference reflects men's average wages, not superior retirement savings behavior. Controlling for income, women save more in DC plans and have higher balances.
- The rising adoption of automatic enrollment is mitigating the differences in participation and saving rates between men and women. At first glance it appears that men are benefitting more from automatic enrollment than women. However, lower-wage individuals see the largest improvements from automatic enrollment and a higher proportion of women have lower wages than men.

1 The author would like to thank Jeffrey W. Clark and John A. Lamancusa for their support of the data analysis.

Introduction

A topical question today is whether men and women save and invest differently in retirement saving plans. Are women and men really different when it comes to retirement plan savings? What drives the sizable difference in 401(k) wealth accumulations between men and women? These are the questions we will explore in this paper.

The data for this analysis is drawn from Vanguard's recordkeeping systems.[2] Sixty percent of participants in Vanguard-recordkept plans are men. Men and women have identical job tenure, both at the average (11 years) and median (8 years). Both, on average, are 44 years old.

Participation rates

Women demonstrate a higher inclination toward plan participation than men—they are 11% more likely to enroll in their workplace saving plan (**Figure 1**). In plans with voluntary enrollment designs, women are 14% more likely to join the plan than men. In plans with automatic enrollment, both women and men have higher participation rates than women and men in voluntary enrollment plans, and both women and men participate at the same rate.

Figure 1. Participation, 2014

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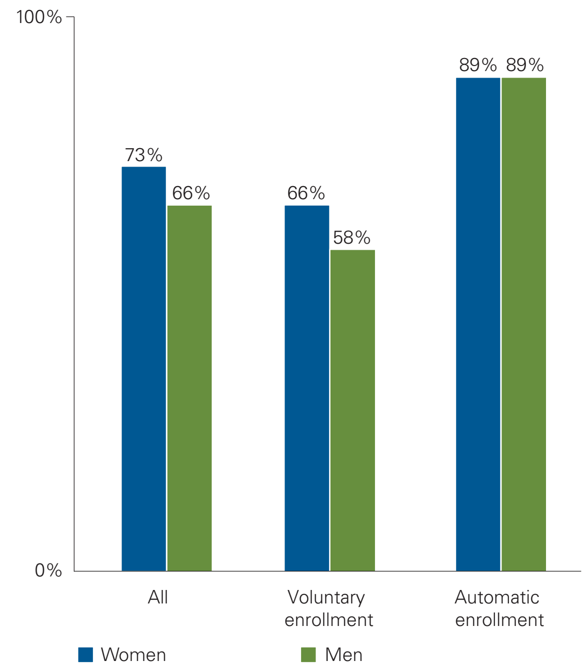

Note: Based on 720,000 eligible employees in 380 plans that had completed compliance testing by March 2015.

Source: Vanguard, 2015.

2 The participation and deferral data is drawn from a subset of Vanguard recordkeeping clients for whom we perform nondiscrimination testing. This subset is composed of plans that completed their testing by March 2015 and represents approximately half of the clients for whom we perform testing. The subset includes 380 plans and 720,000 participants and eligible nonparticipants. The remainder of the analysis is based on about 1,900 plans and more than 3.6 million participants for which Vanguard directly provides recordkeeping services.

A different picture emerges when income is considered. Women earning less than $100,000 have participation rates that are about 20% higher than men (Figure 2). Even at incomes of $100,000 or more, women are more likely to be participants.

The rising adoption of automatic enrollment is mitigating the differences in participation and saving rates between men and women. At first glance it appears that men are benefitting more from automatic enrollment than women. However, lower-wage individuals see the largest improvements from automatic enrollment and a higher proportion of women than men have lower wages. Forty-five percent of the female population has wages of less than $50,000 compared with 28% of the male population—about 60% more women fall into the lower-income groups than men.

Figure 2. Participation by income, 2014

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	Women	Men	Women vs. men
Participation rate			
<$30,000	50%	41%	+22%
$30,000–$49,999	70	61	+15
$50,000–$74,999	81	62	+31
$75,000–$99,999	86	70	+23
$100,000+	91	87	+5
All	73%	66%	+11%
Distribution of population			
<$30,000	19%	12%	+59%
$30,000–$49,999	26	16	+63
$50,000–$74,999	25	26	–4
$75,000–$99,999	11	20	–45
$100,000+	19	26	–27
All	100%	100%	

Note: Based on 720,000 eligible employees in 380 plans that had completed compliance testing by March 2015.
Source: Vanguard, 2015.

Deferral rates

Once enrolled, women across all income levels save at rates that are anywhere from 7% to 16% higher than those of their male counterparts (Figure 3). Many factors affect deferral rates. We modeled the relationship between deferral rates and several factors using a multivariate regression.[3] These factors included wages, age, tenure, plan design, and gender. Each of these factors was significant. Deferral rates rise with wages, age, and tenure. Participants in plans with automatic enrollment have lower deferral rates because of the default, which is generally 3%. When controlling for all of these factors, women do have predicted deferral rates that are 3% higher than men.

Figure 3. Participant saving rates, 2014

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	Women	Men	Women vs. men
<$30,000	4.7%	4.4%	+7%
$30,000–$49,999	5.9	5.5	+7
$50,000–$74,999	7.2	6.7	+7
$75,000–$99,999	8.6	7.4	+16
$100,000+	9.0	7.9	+14
All	7.0%	6.8%	+3

Note: Based on 585,000 participants in 380 plans that had completed compliance testing by March 2015.
Source: Vanguard, 2015.

3 Complete regression results, including coefficients, standard errors, and predicted marginal effects, are available from the author.

In plans with voluntary enrollment designs, women have deferral rates 6% higher than men (Figure 4). In plans with automatic enrollment designs, men have deferral rates 5% higher than women. Our research shows that plan design defaults have a strong impact on participant behavior. However, higher-income participants are more likely to override the default.[4] The men in our population have average wages 25% higher than the women and median wages 33% higher (Figure 5), which accounts for the higher contribution rates by men in automatic enrollment plans. We modeled the relationship between deferral rates and wages, age, tenure, and gender for participants in automatic enrollment designs. Each of these factors was significant. Again, deferral rates rise with wages, age, and tenure. In plans with automatic enrollment, men have predicted deferral rates that are 7% higher than women.

Figure 4. Participant saving rates by plan design, 2014

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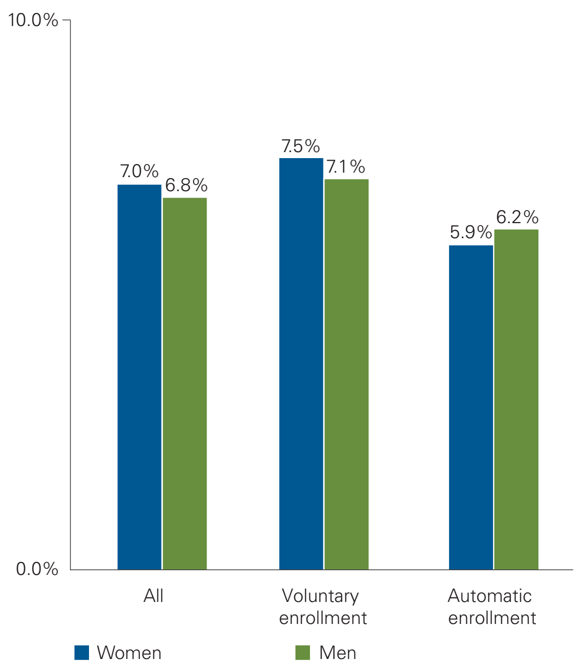

Note: Based on 585,000 participants in 380 plans that had completed compliance testing by March 2015.

Source: Vanguard, 2015.

Figure 5. Income, 2014

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	Women	Men	Men vs. women
Average	$68,895	$85,983	+25%
Median	$56,264	$74,590	+33

Note: Based on 585,000 participants in 380 plans that had completed compliance testing by March 2015.

Source: Vanguard, 2015.

4 See Jeffrey W. Clark, Stephen P. Utkus, and Jean A. Young, 2015, *Automatic enrollment: The power of the default*, Vanguard research, institutional.vanguard.com. Also see Jeffrey W. Clark, Stephen P. Utkus, and Jean A. Young, 2015, *Maximizing the match in DC plans*, Vanguard research, institutional.vanguard.com.

Investments

Despite a commonly held view that women are more risk-averse than men, equity allocations for women and men are similar in their DC plan accounts (Figure 6). Women and men hold average equity allocations of 73% and 74%, respectively. Men are somewhat more likely to hold employer stock than women. Women are more likely to hold any target-date fund exposure. Both men and women hold about the same exposure to equity funds and index assets.

Target-date funds are the main type of professionally managed allocations used within DC plans. Participants with professionally managed allocations have their entire account balance invested in a single target-date fund, a single target-risk or traditional balanced fund, or a managed account advisory service.

Our research shows that the changing composition of DC plans is due to the behavioral effects arising from target-date fund use. There is a strong default effect due to the funds being chosen as an automatic enrollment default. Moreover, target-date funds introduce a simplified portfolio choice heuristic (rule of thumb) in plans offering voluntary enrollment—namely choice of portfolio based on retirement age.[5]

Figure 6. Average asset-class exposure by gender, 2014

Vanguard defined contribution plans
Average percentage of account balance

	Women	Men
Equity	73%	74%
Index assets	62	64
Target-date funds	52	47
Company stock assets	3%	5%

Note: Based on 3.6 million participants in 1,900 plans.
Source: Vanguard, 2015.

Nearly half of women have adopted professionally managed allocations (Figure 7). In other words, women were more likely than men to have turned the portfolio construction task over to an investment professional vetted by the plan sponsor fiduciary. Seventeen percent more women than men held a single target-date fund in their retirement plan account. Importantly, our research shows that participants using professionally managed allocations have better portfolio outcomes than those participants constructing portfolios from the menu of plan options.[6]

Figure 7. Participants with professionally managed allocations by gender, 2014

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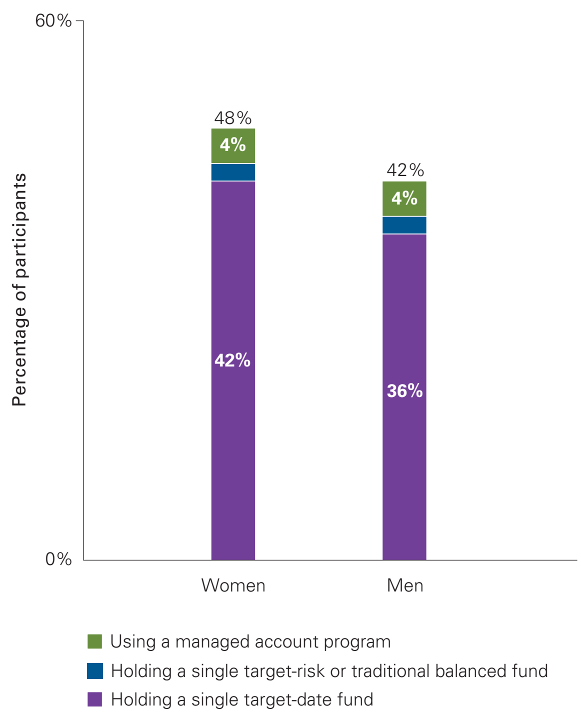

Note: Based on 3.6 million participants in 1,900 plans.

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 the target-date fund is not guaranteed at any time, including on or after the target date.

5 See Cynthia A. Pagliaro and Stephen P. Utkus, 2014, *Behavioral effects and indexing in DC participant accounts 2004–2012*, Vanguard research, institutional.vanguard.com.

6 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.

Reflecting the similar equity holdings of women and men, annualized five-year investment returns were similar for both women and men, with men slightly edging out women (Figure 8). Returns for men at the 75th percentile were 12.4%, compared with 11.9% for women. On average, men had total returns of 10.1% compared with 9.7% for women. At the margin, men are more likely to hold higher equity exposure—particularly active equity funds. During this particular period that strategy worked well.

Daily trading, or exchange activity, is nearly universal for Vanguard DC plans, with virtually all plan sponsors allowing it. Few participants traded in 2014, and women traded about one-third less frequently than men (Figure 9). We know that participants holding only target-date funds trade very infrequently, and women are more likely than men to hold a single target-date fund.[7]

Figure 8. Distribution of 5-year total returns by gender, 2014

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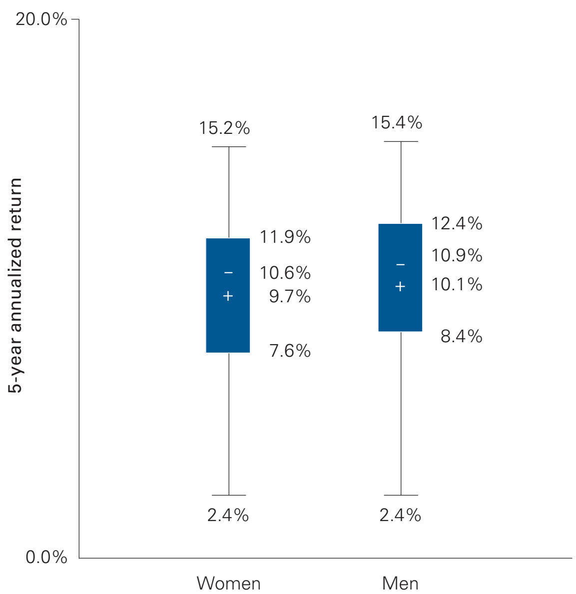

Note: Based on 720,000 observations for female investors and 1,049,000 for male investors. Past performance is no guarantee of future returns.

Source: Vanguard, 2015.

Figure 9. Participant-directed trading by gender, 2014

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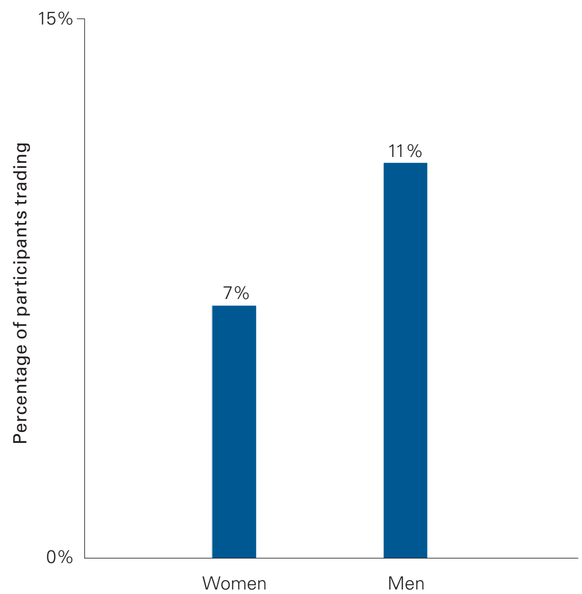
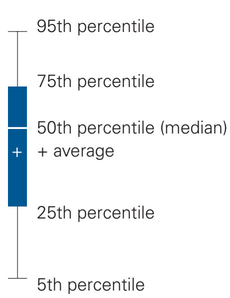


Note: Based on 3.6 million participants in 1,900 plans.

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 8 is: For the 5-year period, 5% of women had total return rates (TRR) greater than 15.2%; 25% had TRRs greater than 11.9%; half had TRRs greater than 10.6%; 75% had TRRs greater than 7.6%; 95% had TRRs greater than 2.4%; and 5% had TRRs less than 2.4%. The average 5-year TRR was 10.6%.

7 Our finding is consistent with the seminal work in this area by Brad Barber and Terrance Odean, 2001, "Boys Will Be Boys: Gender, Overconfidence, and Common Stock Investment," *Quarterly Journal of Economics* 116 (2001): 261–292.

Account balances

While women are more likely to save in DC plans, men still have larger account balances (Figure 10). The average account balance of our male participants was $123,262, while the average account balance for our female participants was $79,572. The median account balance of our male participants was $36,875, while the median account balance for our female participants was $24,446. Male participants have average and median account balances that are more than 50% higher than female participants.

Why is this? The difference is not due to savings behavior but the higher wages of men. As noted previously, in these plans, men have wages that are about 25% to 33% higher than women. A more nuanced picture emerges when you compare account balances for women and men by income bands (Figure 11). Controlling for income differences, we find that the account balances of men and women tend to converge. However, at the highest income band, men still have higher account balances than women. This is due to higher wages as well as somewhat longer tenure among men at this wage level.

Figure 10. Account balances, 2014

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	Women	Men	Men vs. women
Average	$79,572	$123,262	+55%
Median	$24,446	$36,875	+51

Note: Based on 585,000 participants in 380 plans that had completed compliance testing by March 2015.

Source: Vanguard, 2015.

Figure 11. Account balances by income, 2014

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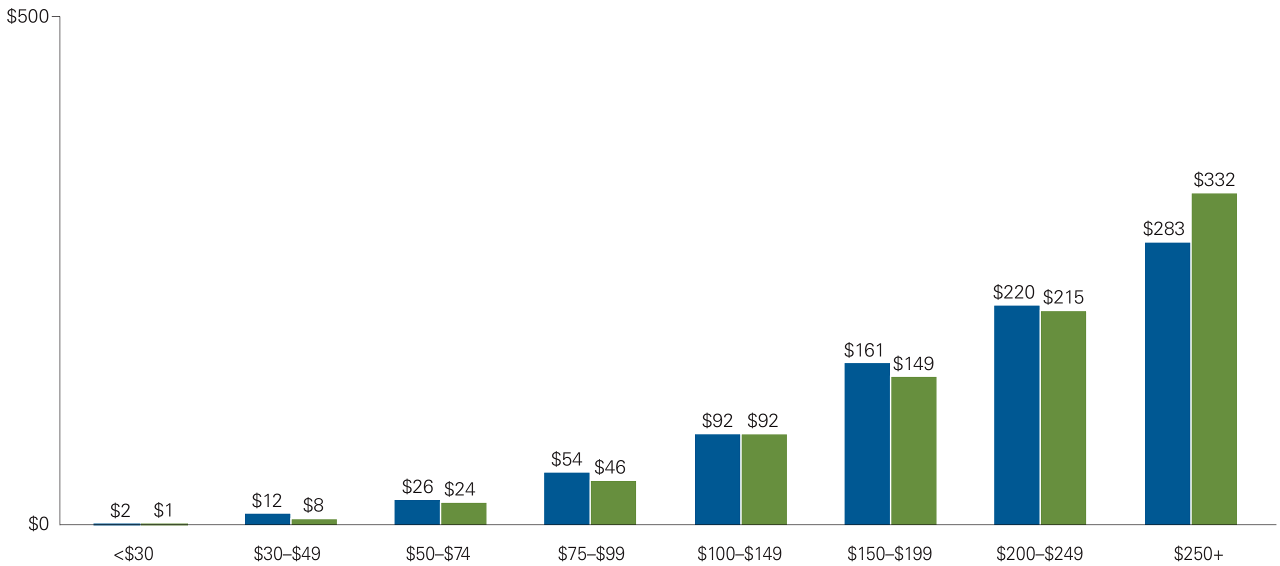
Panel A: Median participant account balances (in thousands)



Panel B: Average participant account balances (in thousands)

Panel C: Account balance distribution by income (in thousands)

<$30		$30–$49		$50–$74		$75–$99		$100–$149		$150–$199		$200–$249		$250+	
Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men
6%	5%	10%	10%	11%	16%	4%	12%	5%	11%	2%	3%	1%	1%	1%	2%

Note: Based on 585,000 participants in 380 plans that had completed compliance testing by March 2015.
Source: Vanguard, 2015.

Implications

Our data suggests that women and men may behave differently when it comes to retirement plan savings behavior. Women are more likely to participate in these plans, and when they participate they save more as well. Women are also more likely to use professionally managed allocations than men, although on average men and women take very similar risk levels and hold similar types of portfolios. However, men do have higher wealth accumulation overall than women because of their higher wages.

The rising adoption of automatic enrollment is mitigating the differences in participation and saving rates between men and women. At first glance it might appear that men are benefitting more from automatic enrollment than women. However, lower-wage individuals see the largest improvements in retirement savings from automatic enrollment and a higher proportion of women than men have lower wages.

It is important to acknowledge that within both genders, some participants are doing better than others. Rather than focus on differences between men and women, it is probably more important to focus on behavioral differences regardless of gender. Those who save at low rates need to boost plan contributions, ideally through stronger automatic enrollment plan design or through behavioral nudges to higher savings. Similarly those with poorly diversified portfolios need to be encouraged to move to a professionally managed portfolio, again whether by default or by choice.

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