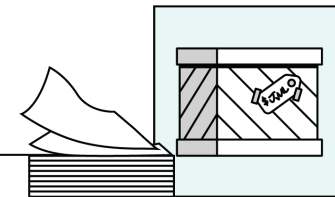


Custom DC plan benchmarks

Wholesale trade



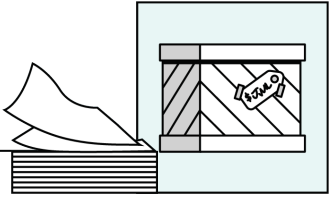


Benchmark population

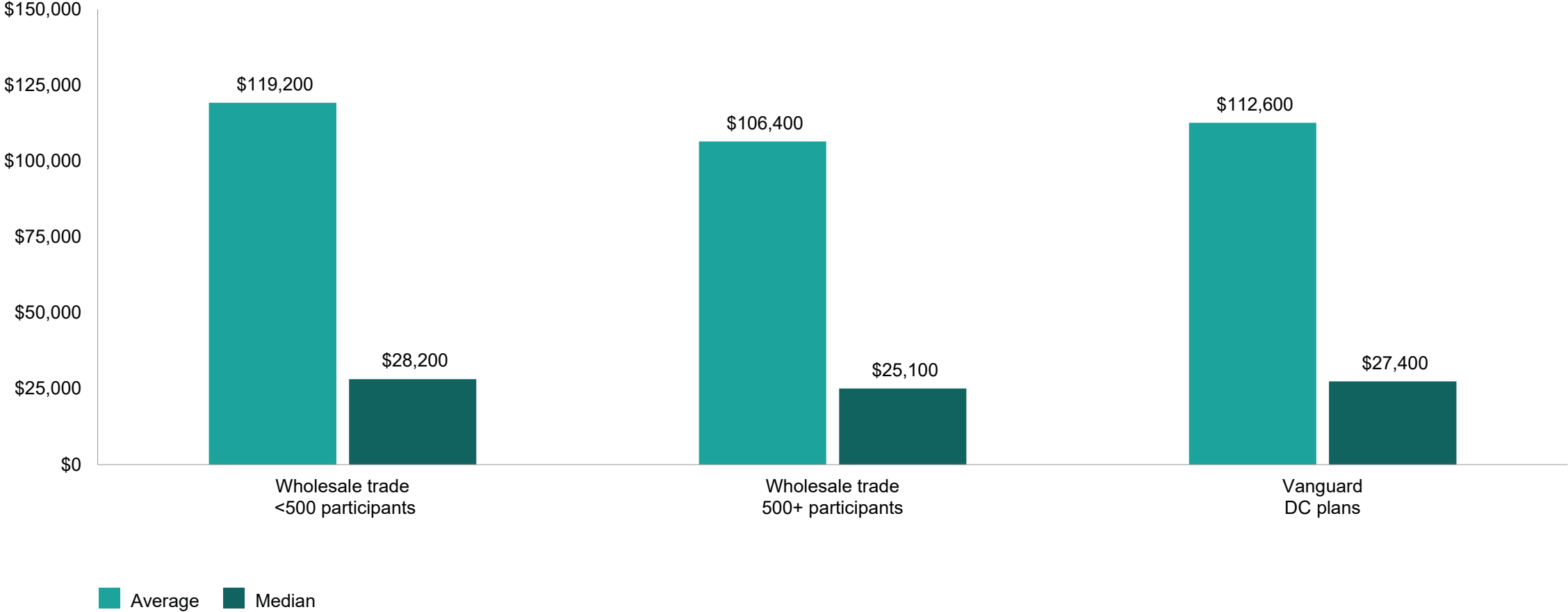
	Wholesale trade <500 participants	Wholesale trade 500+ participants	Vanguard DC plans
Number of plans	31	22	1,650
Number of participants	8,175	85,224	4.9 million
Average number of participants	264	3,874	2,950
Median number of participants	278	2,047	565
Amount of assets	\$974.3 million	\$9.1 billion	\$550.2 billion
Average assets	\$31.4 million	\$412 million	\$333.9 million
Median assets	\$27.9 million	\$151.6 million	\$65.5 million

Wholesale trade is defined by NAICS (North American Industry Classification System) sector 42.

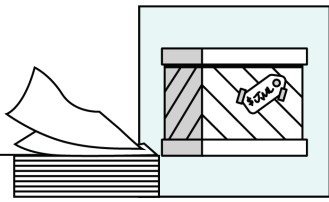
Source: Vanguard, as of December 31, 2022.



Participant balances

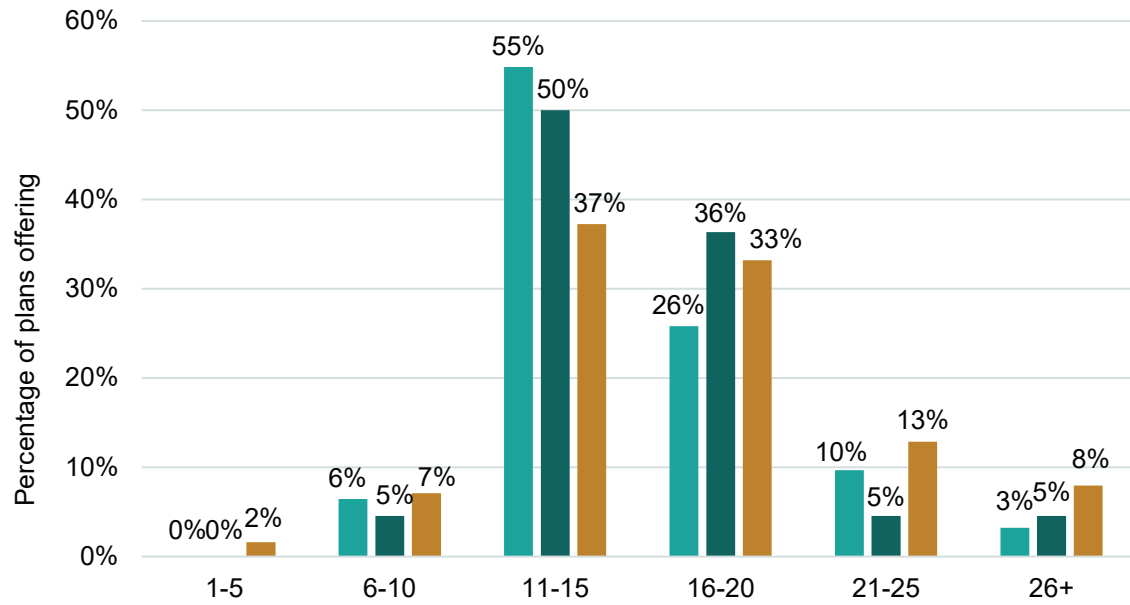


Source: Vanguard, as of December 31, 2022.
Bar chart may not align precisely with percentages due to rounding.

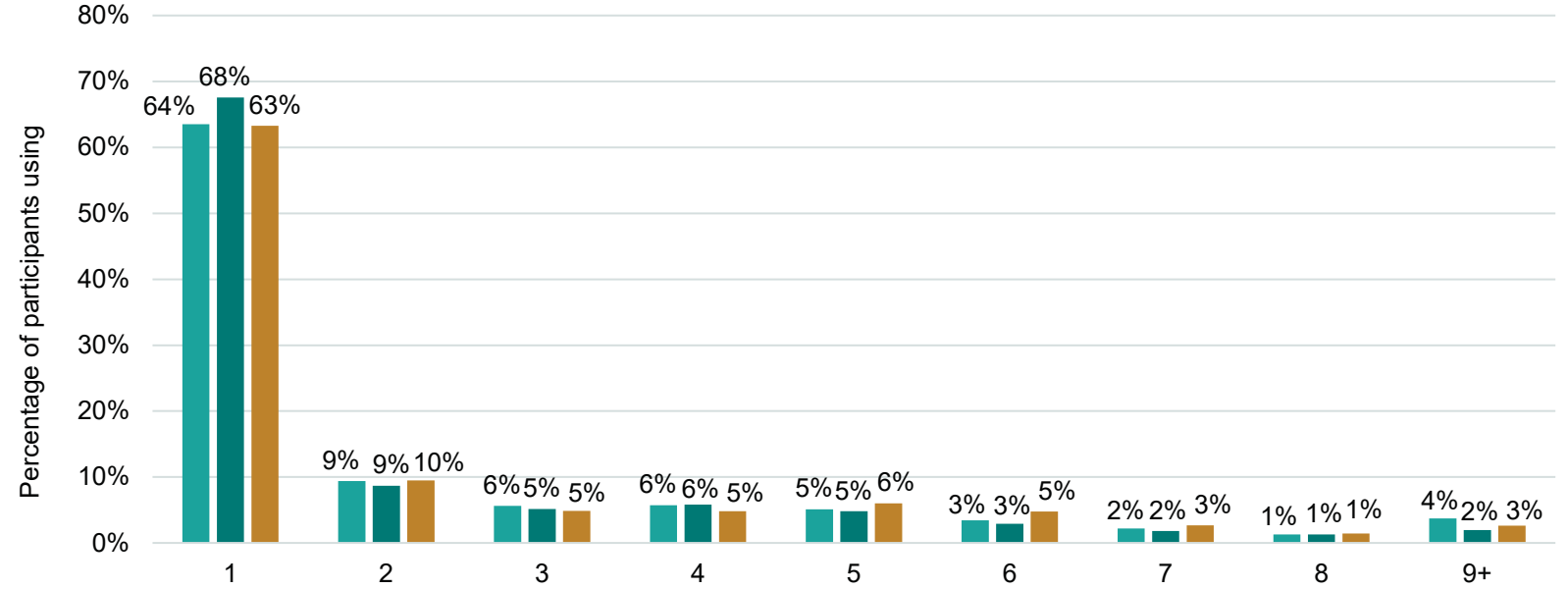


Number of fund options offered and used

Funds offered per plan (all life-cycle funds counted as one)

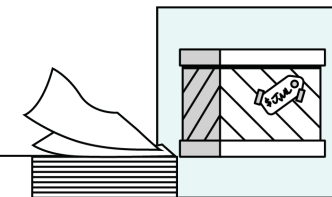


Funds used per participant



	Average funds offered	Median funds offered	Average funds used	Median funds used
Wholesale trade <500 participants	15.7	15	2.4	1
Wholesale trade 500+ participants	15.6	15	2.1	1
Vanguard DC plans	17.4	16	2.4	1

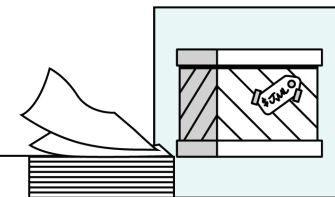
Source: Vanguard, as of December 31, 2022.
Bar chart may not align precisely with percentages due to rounding.



Types of investment options offered and used*

	Wholesale trade <500 participants		Wholesale trade 500+ participants		Vanguard DC plans	
	Percentage of plans offering	Percentage of participants using*	Percentage of plans offering	Percentage of participants using*	Percentage of plans offering	Percentage of participants using*
Cash	100%	17%	100%	14%	99%	12%
Money market	68	9	73	8	70	6
Stable value / GIC	74	16	55	13	68	10
Bond	100%	16%	100%	15%	98%	17%
Active	61	9	82	6	80	7
Index	90	13	86	12	89	14
Inflation-protected securities	23	8	27	3	35	3
Multisector	6	8	14	4	8	2
High-yield	10	8	5	1	17	3
International	23	4	14	2	19	3
Emerging markets	0	0	0	0	1	2
Balanced funds	100%	80%	100%	87%	99%	87%
Traditional balanced	74	21	68	7	62	12
Target-risk	10	34	9	1	13	10
Target-date	97	71	100	84	96	83
Company stock	0%	0%	5%	100%	8%	36%
Self-directed brokerage	10%	25%	32%	1%	20%	1%

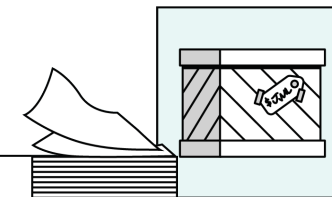
*Among participants offered the option.
Source: Vanguard, as of December 31, 2022.



Types of investment options offered and used* (continued)

	Wholesale trade <500 participants		Wholesale trade 500+ participants		Vanguard DC plans	
	Percentage of plans offering	Percentage of participants using*	Percentage of plans offering	Percentage of participants using*	Percentage of plans offering	Percentage of participants using*
Equity funds	100%	32%	100%	28%	99%	30%
Domestic equity funds	100%	31%	100%	27%	99%	29%
Large-cap index	100	22	100	19	98	23
Large-cap active	87	21	95	15	90	16
Large-cap value	90	11	95	9	87	9
Large-cap growth	94	16	95	14	91	13
Large-cap blend	100	22	100	19	98	23
Mid-cap index	58	9	73	12	83	14
Mid-cap active	65	12	50	8	52	7
Small-cap index	61	8	41	10	63	11
Small-cap active	74	10	55	5	63	7
Socially responsible	6	1	9	1	15	5
International equity funds	100%	15%	100%	15%	97%	19%
Index international	65	9	100	11	79	14
Active international	74	13	68	7	83	10
Emerging markets	16	3	14	4	35	8
Global equity funds	10%	12%	5%	1%	17%	3%

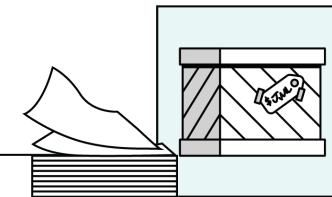
*Among participants offered the option.
Source: Vanguard, as of December 31, 2022.



Types of investment options offered and used* (continued)

	Wholesale trade <500 participants		Wholesale trade 500+ participants		Vanguard DC plans	
	Percentage of plans offering	Percentage of participants using*	Percentage of plans offering	Percentage of participants using*	Percentage of plans offering	Percentage of participants using*
Sector funds	19%	12%	27%	3%	38%	6%
REIT	10	4	27	3	32	5
Health care	6	13	5	6	8	7
Energy	3	9	0	0	5	5
Precious metals	0	0	0	0	2	2
Technology	0	0	5	8	3	5
Utilities	3	25	5	4	1	2
Natural resources	0	0	0	0	1	4
Financials	0	0	0	0	<0.5	1
Communications	0	0	0	0	<0.5	1
Consumer	0	0	0	0	<0.5	2
Industrials	0	0	0	0	<0.5	1

*Among participants offered the option.
Source: Vanguard, as of December 31, 2022.



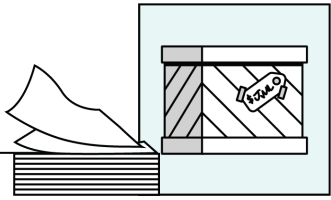
Target-date funds availability and use

	Wholesale trade <500 participants	Wholesale trade 500+ participants	Vanguard DC plans
Percentage of plans offering	97%	100%	96%
Plan assets invested*	34%	37%	40%
Percentage of plan assets*			
<10%	7%	0%	5%
10–19%	20%	5%	10%
20–29%	27%	9%	17%
30–39%	13%	32%	21%
40–49%	10%	14%	17%
50%+	23%	41%	30%
Percentage of participants using *	71%	84%	83%
Percentage of participant assets**	64%	59%	61%
Percentage of participant assets in target-date funds**			
1–24%	8%	9%	10%
25–49%	7%	5%	8%
50–74%	4%	3%	4%
75–99%	4%	5%	6%
100%	76%	78%	72%
Percentage of participants owning**			
One target-date fund only	74%	76%	71%
One target-date fund plus other funds	21%	19%	23%
Two or more target-date funds only	2%	2%	2%
Two or more target-date funds plus other funds	3%	3%	4%

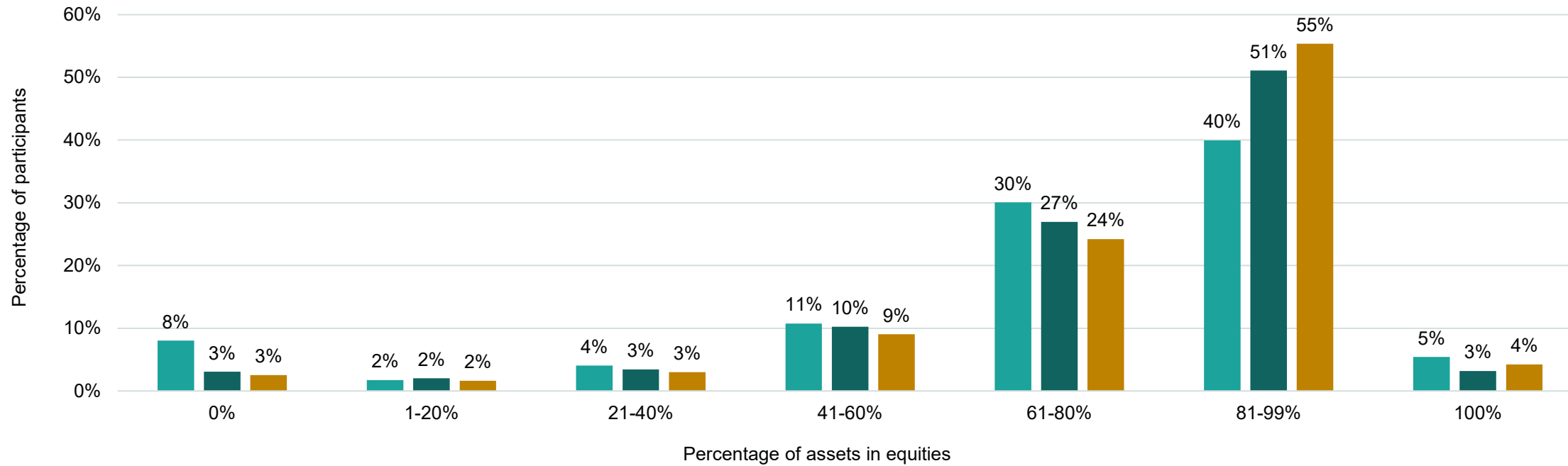
*Among plans offering target-date options.

**Among participants owning target-date options.

Source: Vanguard, as of December 31, 2022.



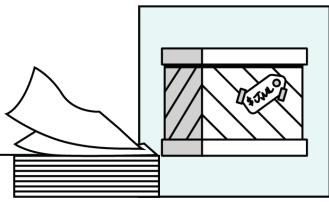
Participant equity exposure



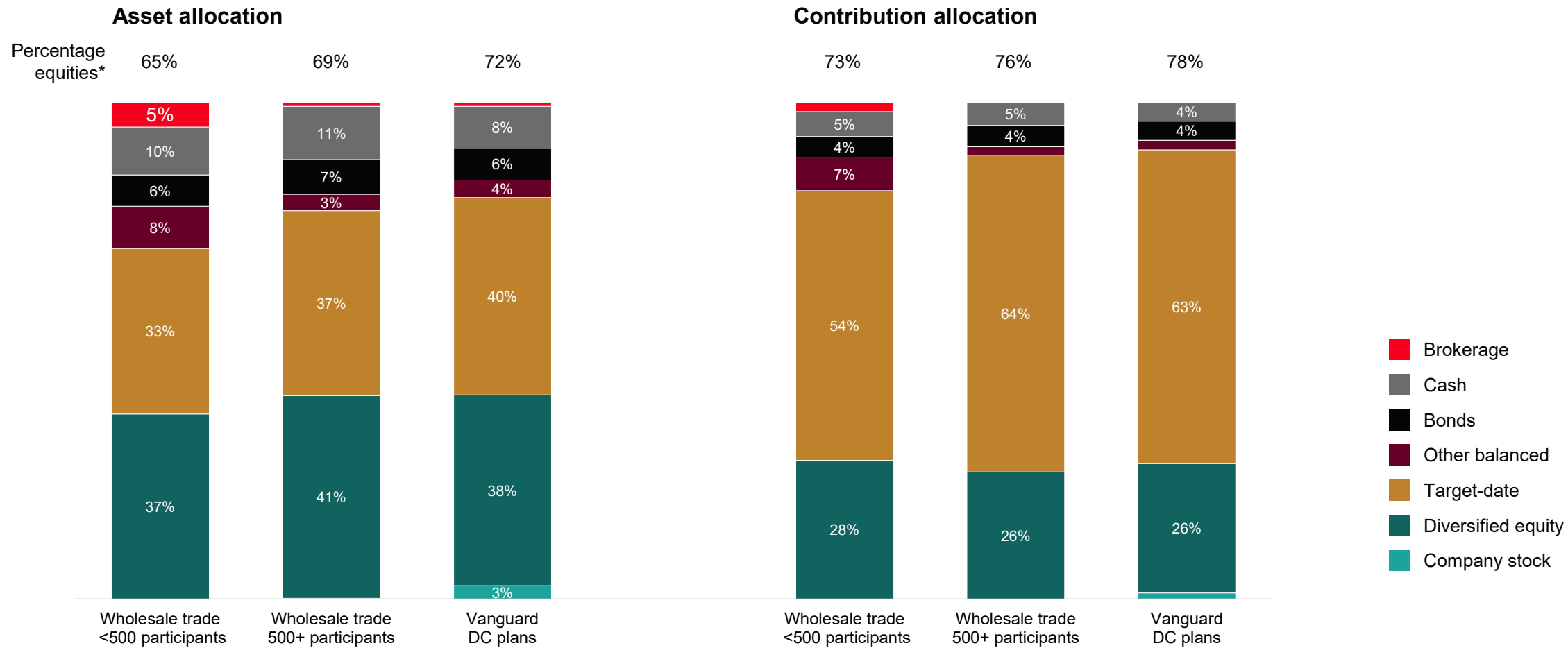
	Average percentage in equities	Median percentage in equities
Wholesale trade <500 participants	70%	79%
Wholesale trade 500+ participants	75%	85%
Vanguard DC plans	77%	86%

Source: Vanguard, as of December 31, 2022.

Bar chart may not align precisely with percentages due to rounding.



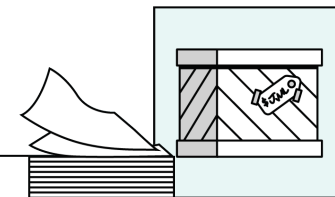
Asset and contribution allocations



*Equities include company stock, diversified equity, and the equity portion of balanced funds.

Source: Vanguard, as of December 31, 2022.

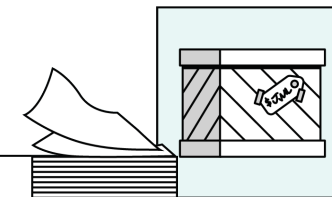
Bar chart may not align precisely with percentages due to rounding.



Participants with professionally managed allocations

	Wholesale trade <500 participants	Wholesale trade 500+ participants	Vanguard DC plans
All participants			
Single target-date fund	50%	64%	59%
Single balanced fund	4%	<0.5%	<0.5%
Managed account program	3%	5%	7%
Total	57%	69%	66%
New plan entrants during the year			
Single target-date fund	78%	93%	87%
Single balanced fund	4%	<0.5%	<0.5%
Managed account program	1%	1%	2%
Total	83%	94%	89%

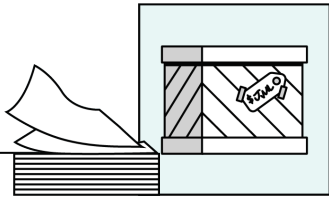
Source: Vanguard, as of December 31, 2022.



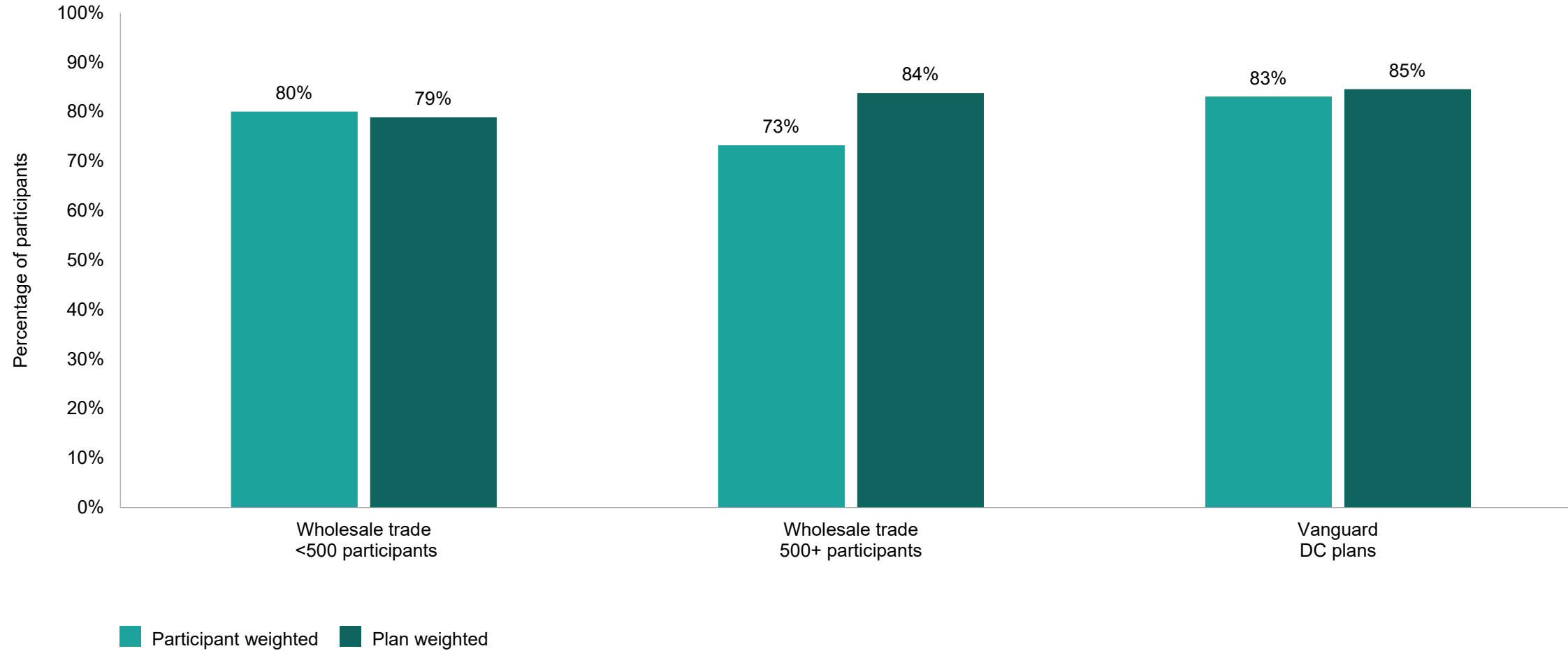
Automatic enrollment options*

	Wholesale trade <500 participants	Wholesale trade 500+ participants	Vanguard DC plans
Automatic enrollment*			
Number of plans	15	17	884
Percentage of plans	50%	77%	58%
Default automatic enrollment rate			
1 percent	0%	0%	2%
2 percent	0%	0%	5%
3 percent	40%	41%	34%
4 percent	20%	24%	14%
5 percent	20%	6%	17%
6 percent or more	20%	29%	28%
Default automatic increase rate			
1 percent	60%	82%	66%
2 percent	0%	0%	3%
Voluntary election	27%	18%	25%
Service feature not offered	13%	0%	6%
Default automatic increase cap			
<6 percent	0%	0%	2%
6 to 9 percent	22%	14%	17%
10 to 14 percent	44%	50%	48%
15 to 19 percent	22%	14%	22%
20+ percent	11%	14%	6%
No cap	0%	7%	5%
Default fund			
Target-date fund	93%	100%	98%
Other balanced fund	0%	0%	1%
Money market or stable value fund	7%	0%	1%

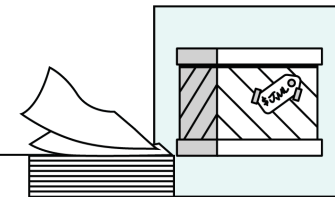
*Limited to plans using Vanguard's automatic enrollment service.
Source: Vanguard, as of December 31, 2022.



Participation rates



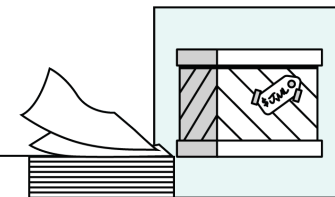
Source: Vanguard active plans with nondiscrimination testing completed during the past two years. Bar chart may not align precisely with percentages due to rounding.



Participant deferral rates

	Wholesale trade <500 participants	Wholesale trade 500+ participants	Vanguard DC plans
Deferral rates			
Average	7.8%	6.8%	7.4%
Median	6.5%	6.0%	6.4%
Distribution of rates			
<4.0%	22%	28%	25%
4.0% – 6.0%	24%	23%	19%
6.1% – 9.9%	26%	31%	32%
10.0% – 14.9%	18%	13%	17%
15.0%+	10%	5%	7%

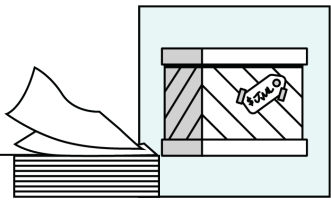
Source: Vanguard active plans with nondiscrimination testing completed during the past two years.



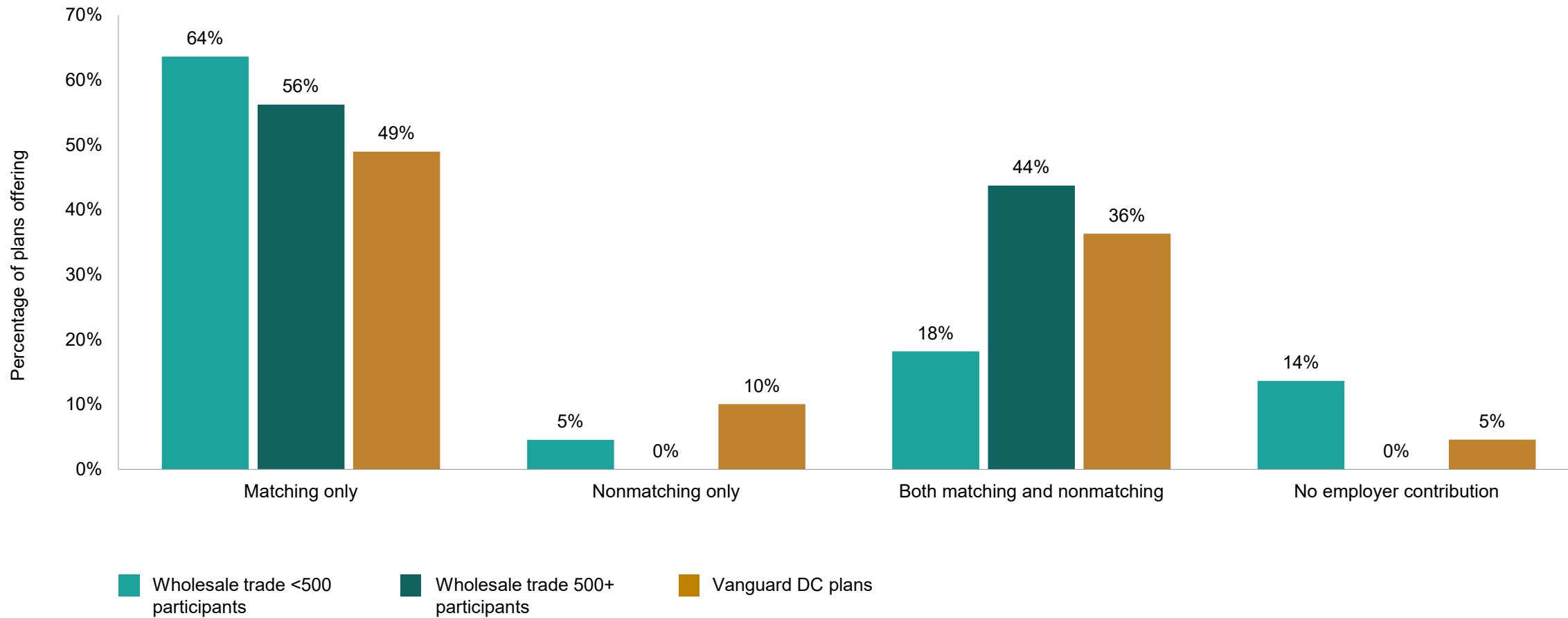
Aggregate participant and employer contribution rates

	Wholesale trade <500 participants	Wholesale trade 500+ participants	Vanguard DC plans
Total saving rate			
Average	12.6%	11.5%	11.3%
Median	11.6%	10.7%	10.6%
Distribution of rates			
<5.0%	15%	15%	18%
5.0% – 8.9%	21%	20%	20%
9.0% – 11.9%	28%	22%	21%
12.0% – 14.9%	13%	16%	17%
15.0% +	22%	28%	23%

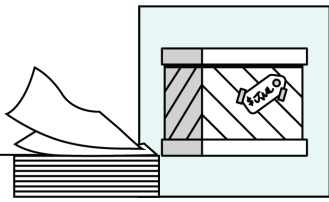
Source: Vanguard active plans with nondiscrimination testing completed during the past two years.



Types of employer contributions

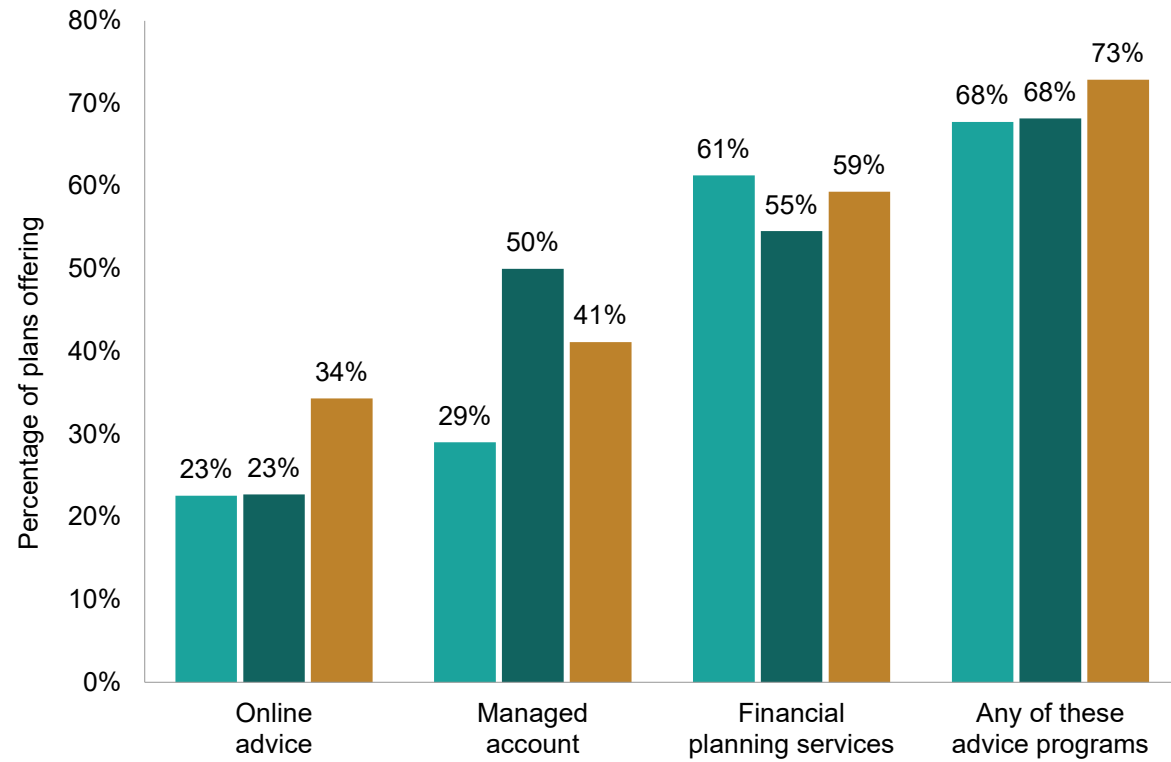


Source: Vanguard active plans with nondiscrimination testing completed during the past two years. Bar chart may not align precisely with percentages due to rounding.

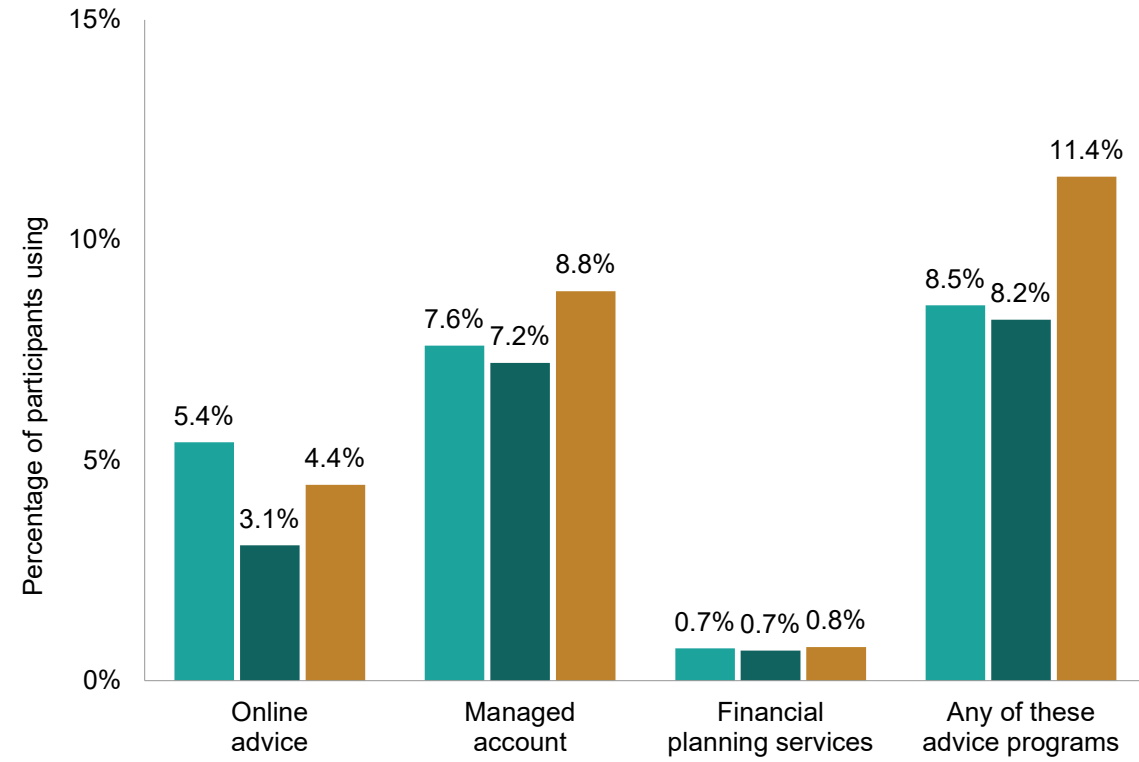


Advice services

Advice offered

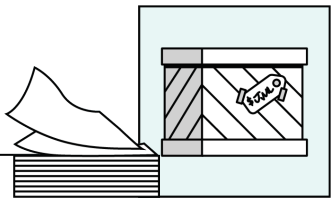


Advice used

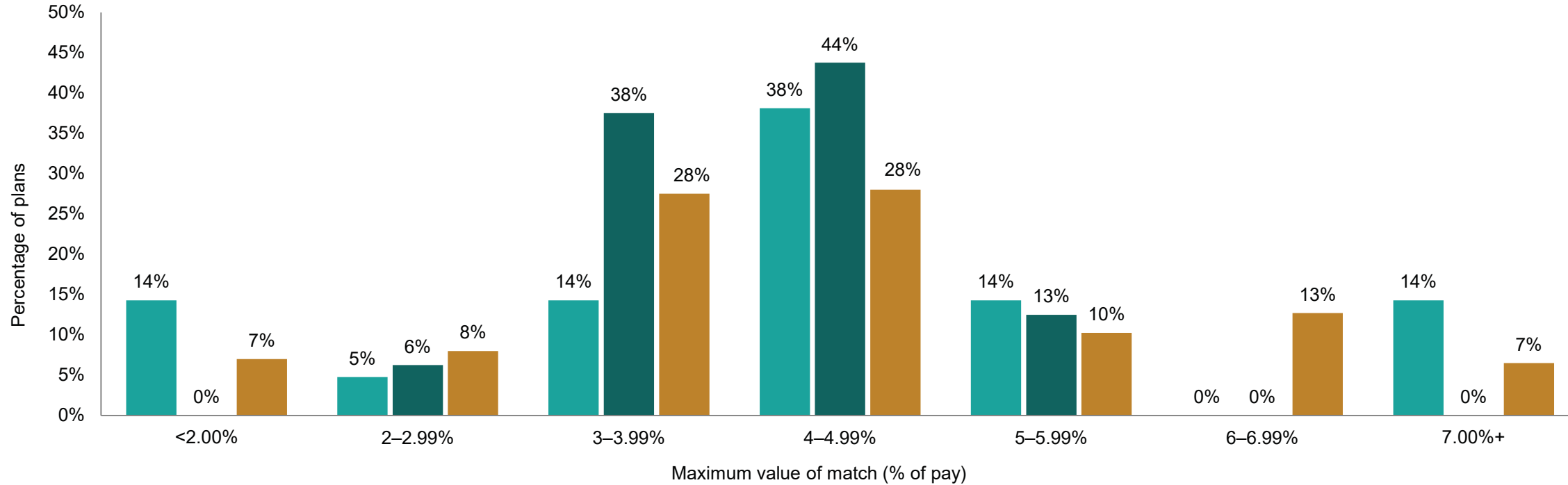


■ Wholesale trade <500 participants
 ■ Wholesale trade 500+ participants
 ■ Vanguard DC plans

Source: Vanguard, as of December 31, 2022.
 Bar chart may not align precisely with percentages due to rounding.

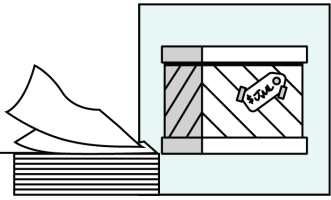


Matching contributions

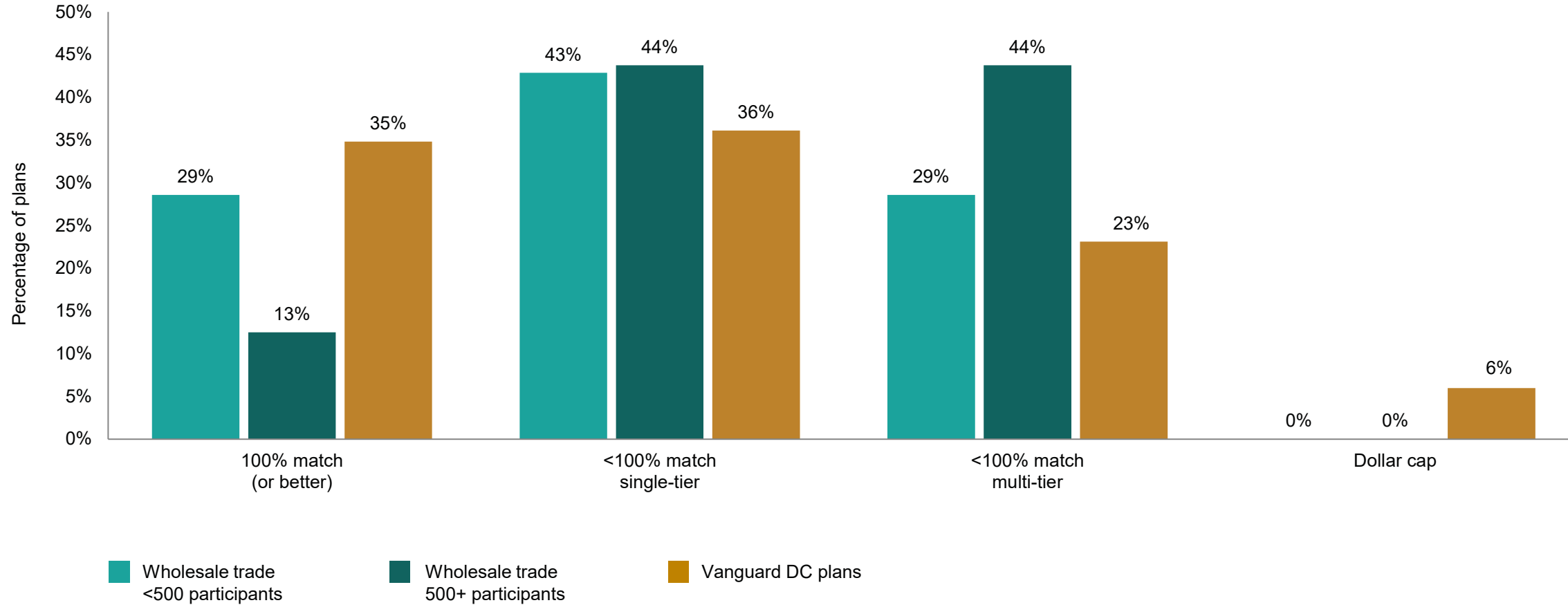


	Average value	Median value
Wholesale trade <500 participants	4.2%	4.0%
Wholesale trade 500+ participants	3.8%	4.0%
Vanguard DC plans	4.5%	4.0%

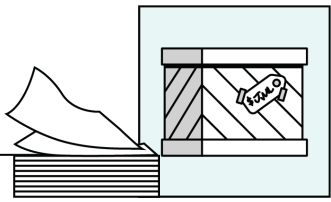
Source: Vanguard active plans with nondiscrimination testing completed during the past two years. Bar chart may not align precisely with percentages due to rounding.



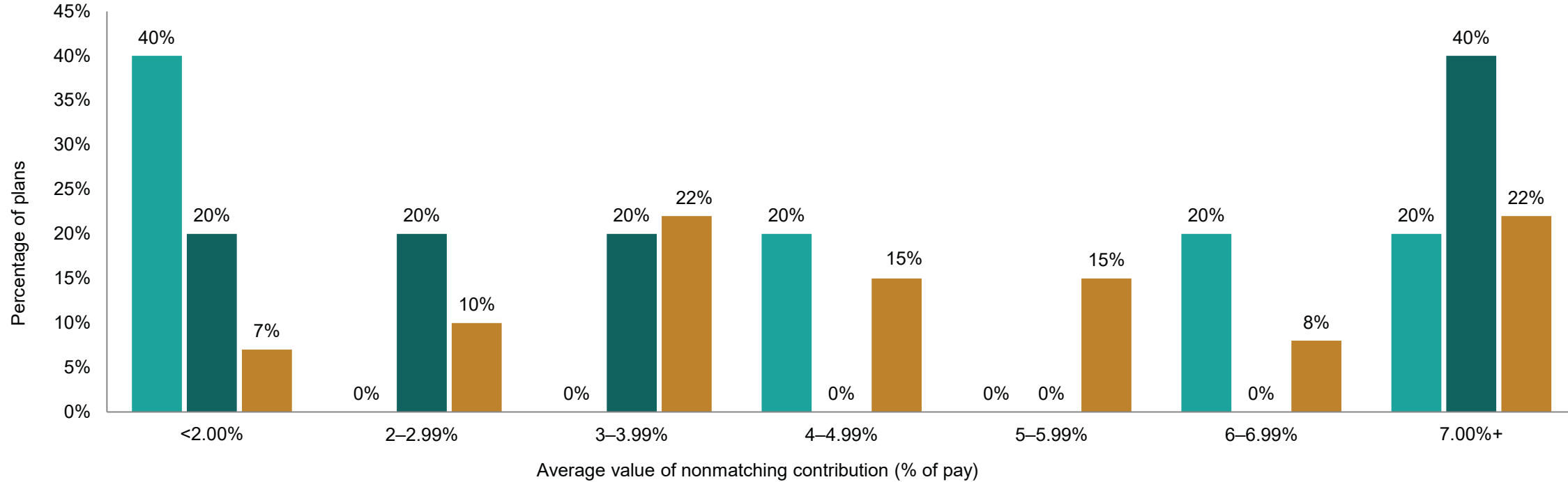
Matching formulas



Source: Vanguard active plans with nondiscrimination testing completed during the past two years. Bar chart may not align precisely with percentages due to rounding.

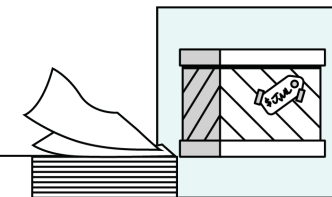


Nonmatching/Profit-sharing employer contributions



	Average value	Median value
Wholesale trade <500 participants	5.0%	5.0%
Wholesale trade 500+ participants	5.7%	3.0%
Vanguard DC plans	5.1%	4.1%

Source: Vanguard active plans with nondiscrimination testing completed during the past two years. Bar chart may not align precisely with percentages due to rounding.



Roth availability and use

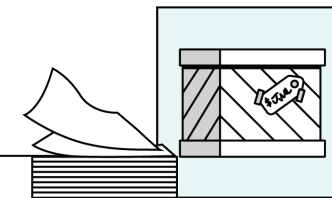
	Wholesale trade <500 participants	Wholesale trade 500+ participants	Vanguard DC plans
Percentage of plans offering Roth (among plans with elective deferrals)	73%	95%	80%
Percentage of plan assets invested in Roth*	2.5%	2.0%	3.8%
Distribution of percentage of plan assets in Roth			
<1%	36%	29%	19%
1–2%	36%	33%	36%
3–5%	5%	29%	27%
6–9%	23%	5%	13%
10–14%	0%	5%	4%
15%+	0%	0%	2%
Percentage of participants with assets in Roth*	15%	11%	16%
Percentage of participant assets in Roth**	13%	13%	17%
Distribution of participant assets in Roth			
1–24%	57%	60%	54%
25–49%	19%	21%	23%
50–74%	17%	14%	14%
75–99%	6%	4%	6%
100%	1%	1%	3%
Percentage of participants making Roth contributions (past 12 mo)***	16%	12%	15%
Percentage of participant contributions going to Roth**	58%	53%	55%
Distribution of percentage of participant contributions to Roth			
1–24%	16%	21%	22%
25–49%	25%	27%	26%
50–74%	17%	17%	15%
75–99%	6%	6%	7%
100%	36%	28%	30%

*Among plans offering Roth.

**Among participants using Roth.

***Among participants making elective deferrals.

Source: Vanguard, as of December 31, 2022.



Participant loans and in-service withdrawals

	Wholesale trade <500 participants	Wholesale trade 500+ participants	Vanguard DC plans
Outstanding loans*			
Percentage of participants with outstanding loans	15%	11%	12%
Percentage of account balance in loans	10%	10%	11%
Average loan balance	\$10,438	\$8,572	\$10,369
Number of outstanding loans per participant*			
No loans	85%	89%	88%
One loan	11%	11%	10%
Two loans	3%	0%	2%
Three+ loans	1%	0%	0%
Loans issued past 12 months*			
Average per 1,000 active participants	185	73	93
Average loan amount	\$13,112	\$10,777	\$10,701
Nonhardship withdrawals taken past 12 months**			
Average per 1,000 active participants	161	122	93
Average withdrawal amount	\$22,442	\$16,411	\$17,560
Hardship withdrawals taken past 12 months**			
Average per 1,000 active participants	49	48	49
Average withdrawal amount	\$6,064	\$4,126	\$5,126

*Among plans allowing loans.

**Among participants allowed in-service withdrawals.

Source: Vanguard, as of December 31, 2022.

Important information

All investing is subject to risk, including the possible loss of the money you invest. Be aware that fluctuations in the financial markets and other factors may cause declines in the value of your account. There is no guarantee that any particular asset allocation or mix of funds will meet your investment objectives or provide you with a given level of income.

A stable value investment is neither insured nor guaranteed by the U.S. government. There is no assurance that the investment will be able to maintain a stable net asset value, and it is possible to lose money in such an investment.

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.

Vanguard Personal Advisor® is provided by Vanguard Advisers, Inc. (VAI), a registered investment advisor. Please review the Vanguard Personal Advisor brochure for important details about this service. Vanguard Personal Advisor's financial planning tools provide projections and goal forecasts, which are hypothetical in nature, do not reflect actual investment results, and are not guarantees of future results.

Vanguard Situational Advisor™ is provided by Vanguard Advisers, Inc. (VAI), a registered investment advisor. Eligibility restrictions may apply.

Neither VAI nor Vanguard Situational Advisor can guarantee a profit or prevent a loss.

Vanguard Digital Advisor® is provided by Vanguard Advisers, Inc., a federally registered investment advisor. Go to vanguard.com/digitalbrochure for important details about this service. Vanguard Digital Advisor's financial planning tools provide projections and goal achievement forecasts that are hypothetical in nature. They are provided for educational purposes only and are not guarantees of future results.

Vanguard Managed Account Program is provided by Vanguard Advisers, Inc., a registered investment advisor.

The Vanguard Group has partnered with Financial Engines Advisors L.L.C. (FEA) to provide subadvisory services to the Vanguard Managed Account Program and Personal Online Advisor. FEA is an independent, federally registered investment advisor that does not sell investments or receive commission for the investments it recommends with respect to the services which it is engaged in as subadvisor for Vanguard Advisers, Inc. (VAI). Advice is provided by Vanguard Advisers, Inc. (VAI), a federally registered investment advisor and an affiliate of The Vanguard Group, Inc. (Vanguard). Vanguard is owned by the Vanguard funds, which are distributed by Vanguard Marketing Corporation, a registered broker-dealer affiliated with VAI and Vanguard. Neither Vanguard, FEA, nor their respective affiliates guarantee future results. Vanguard will use your information in accordance with Vanguard's Privacy Policy.

Edelman Financial Engines® is a registered trademark of Edelman Financial Engines, LLC. All rights reserved. Used with permission.

VAI is a subsidiary of VGI and an affiliate of VMC. Neither VAI nor its affiliates guarantee profits or protection from losses.

© 2023 The Vanguard Group, Inc. All rights reserved.

For institutional use only. Not for distribution to retail investors.