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# Early ETF adoption among self-directed investors

Investor Insights

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- The proportion of Vanguard retail households using exchange-traded funds has more than doubled since 2013.
- ETFs are used by different types of investors as both primary portfolio components and as supplements to already diversified portfolios.
- Investors today use ETFs primarily for equity exposure.

## ETFs are increasing in popularity among self-directed investors

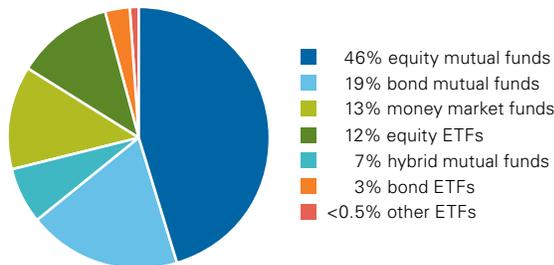
The first ETFs came to market 25 years ago, but it is mostly in the last decade that individual investors have embraced the product.<sup>1</sup> By December 2017, the U.S. ETF market stood at \$3.4 trillion, while the U.S. mutual fund market totaled \$18.7 trillion (Figure 1).

Our analysis of early ETF adoption trends is based on data for nearly 5 million self-directed Vanguard retail investor households. These households hold mutual fund, ETF, and individual security investments in IRA or taxable accounts, either on a mutual fund transfer agency or brokerage account system.<sup>2</sup> This analysis includes only those assets held at Vanguard, which may not be representative of the complete household portfolio.

At Vanguard, the proportion of households using ETFs has more than doubled since 2013, reaching 11% of households in 2018 (Figure 2). At the same time, mutual funds remain the dominant holding; 83% of Vanguard

**Figure 1. U.S. market for mutual funds and ETFs**

The total U.S. market for mutual funds and ETFs was \$22.1 trillion at the end of 2017



Sources: Vanguard, 2019, and the Investment Company Institute.

retail households held mutual funds at the end of 2018. The dominance of mutual fund holdings reflects several facts: most retail investors originally opened their accounts with mutual fund holdings, many investors do not yet have a brokerage account at Vanguard, and, finally, inertia in financial decision-making means that portfolio trading and changes to holdings occur slowly.

The increasing popularity of ETFs at Vanguard is at least partially driven by investors who opened their first account at Vanguard within the previous three years. In 2018, 17% of new households purchased ETFs, compared with 6% in 2013. This reflects growing demand for ETFs as well as the introduction of Vanguard Brokerage Services.<sup>3</sup>

**Figure 2. Use of ETFs**

Vanguard retail investors

	All households		New households	
	2013	2018	2013	2018
<b>Percentage of households using</b>				
Mutual funds	89%	83%	84%	62%
ETFs	5%	11%	6%	17%
<b>Individual securities</b>				
	10%	12%	7%	10%
<b>Types of ETF investors</b>				
<b>Diversifiers (1–25% ETFs)</b>				
	70%	55%	42%	28%
<b>Users (26–75% ETFs)</b>				
	22%	25%	32%	30%
<b>Enthusiasts (76–100% ETFs)</b>				
	8%	20%	26%	42%

**Note:** New households are those that opened their first account within the previous three years.

**Source:** Vanguard, 2019.

<sup>1</sup> See *2018 Investment Company Fact Book*, Investment Company Institute, May 2018, 58th edition; available at [www.icifactbook.org](http://www.icifactbook.org).

<sup>2</sup> Individuals in the same household are considered to be investing jointly, and so we analyze ETF holdings at the household level rather than the individual level. If a household contains multiple members, the age of the oldest member is used as the age of the household. The median household balance in Vanguard accounts is approximately \$55,000.

<sup>3</sup> In 2013, new client accounts were opened on a mutual fund transfer agency and investors had to elect to open a brokerage account allowing ETF trading. In 2018, new client accounts were opened on a brokerage account allowing ETF trading.

We define three types of ETF investors based on the fraction of their portfolio held in ETFs: diversifiers, with 1% to 25% of assets in ETFs; users, with 26% to 75% of assets in ETFs; and enthusiasts, with more than 75% of assets in ETFs. Among all ETF investors in 2018, 20% were ETF enthusiasts. But among new households over the past three years, 42% of ETF investors were enthusiasts. This reflects a common pattern in financial decision-making: New client entrants are more likely to adopt new investment and service features, generally because they are making active decisions and are not, like existing clients, already invested in an appropriate product, such as a mutual fund.

### ETFs are used in different ways to construct portfolios

Households using ETFs tend to hold higher balances and complex portfolios, with ETFs representing one-fifth of the aggregate holdings (Figure 3). However, within this group of all users, we find investors with varying characteristics using ETFs in different ways.

The different characteristics of our three ETF groups are suggestive of the ways in which ETFs were added to portfolios (Figure 4). ETF diversifiers are older, affluent, and long-tenured Vanguard households. ETFs represent 7% of their aggregate household portfolio and are part of a more complex investment and account landscape, with the typical diversifier having 3 accounts and 12 distinct investment holdings. These statistics are indicative of a dynamic in which established affluent investors have “tested the waters”—using ETFs in a selected way.

At the other extreme are ETF enthusiasts. They are younger investors, with a median age of 36, and are also relatively new to Vanguard, with a median account tenure of 3 years. ETFs represent 97% of portfolio assets at the median, and their median equity allocation is 93%. Enthusiasts are lower-wealth investors—they have about 4% of the median wealth of ETF diversifiers. Enthusiasts also have simpler portfolios, typically holding a handful of investments in a single account.

In terms of gender preference, ETF diversifiers are most likely to come from joint households. ETF users and enthusiasts are more likely to be from male households.

**Figure 3. Investor demographics by ETF usage**

Vanguard retail investors

	Non-users	All ETF users
Median ETF allocation	0%	20%
Median age	54	51
Median length of account ownership (years)	14	9
Median account balance	\$49,000	\$152,000
Male only	40%	41%
Female only	36%	21%
Joint	24%	38%
Median number of accounts owned	1	2
Median number of investments held	2	9
Median equity allocation	72%	73%

Source: Vanguard, 2019.

**Figure 4. ETF investor demographics by investor type**

Vanguard retail investors

	Diversifiers (1–25% ETFs)	Users (26–75% ETFs)	Enthusiasts (76–100% ETFs)
Median ETF allocation	7%	44%	97%
Median age	58	47	36
Median length of account ownership (years)	15	6	3
Median account balance	\$344,000	\$90,000	\$14,000
Male only	35%	45%	55%
Female only	18%	23%	26%
Joint	47%	32%	19%
Median number of accounts owned	3	2	1
Median number of investments held	12	8	4
Median equity allocation	66%	71%	93%

Source: Vanguard, 2019.

**Factors relating to ETF usage include portfolio complexity, age, tenure, and wealth**

We model which characteristics are associated with ETF adoption (Figure 5).<sup>4</sup> The strongest factor associated with ETF usage is the number of investments held. For example, a portfolio with 21 or more holdings has a 37-percentage-point-higher probability of holding ETFs versus the reference group, a household with 2 holdings. At the same time, ETF usage is also associated with

investors who are younger, have newer account relationships, or hold lower balances. This model suggests that two dynamics are at work in decision-making surrounding today's ETF investors: they either have complex portfolio strategies (suggestive of increased knowledge or financial sophistication) or they are younger or new account owners (suggestive of active decision-making, a willingness to try new investment approaches, and/or a view of ETFs as a diversified investment vehicle similar to mutual funds).

**Figure 5. Factors influencing ETF adoption**

Vanguard retail investors

*The predicted probability of ETF usage among the reference group was 13%*

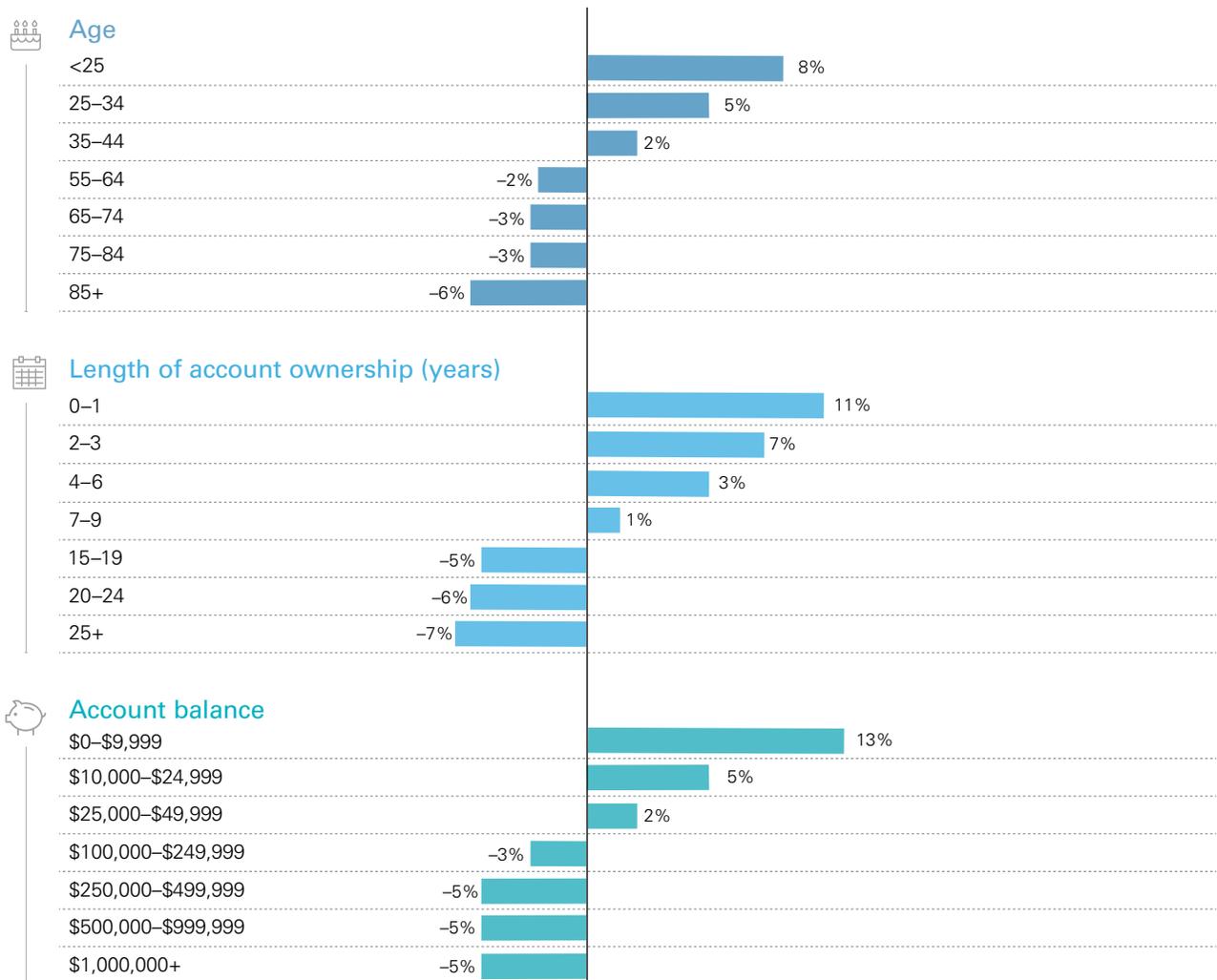
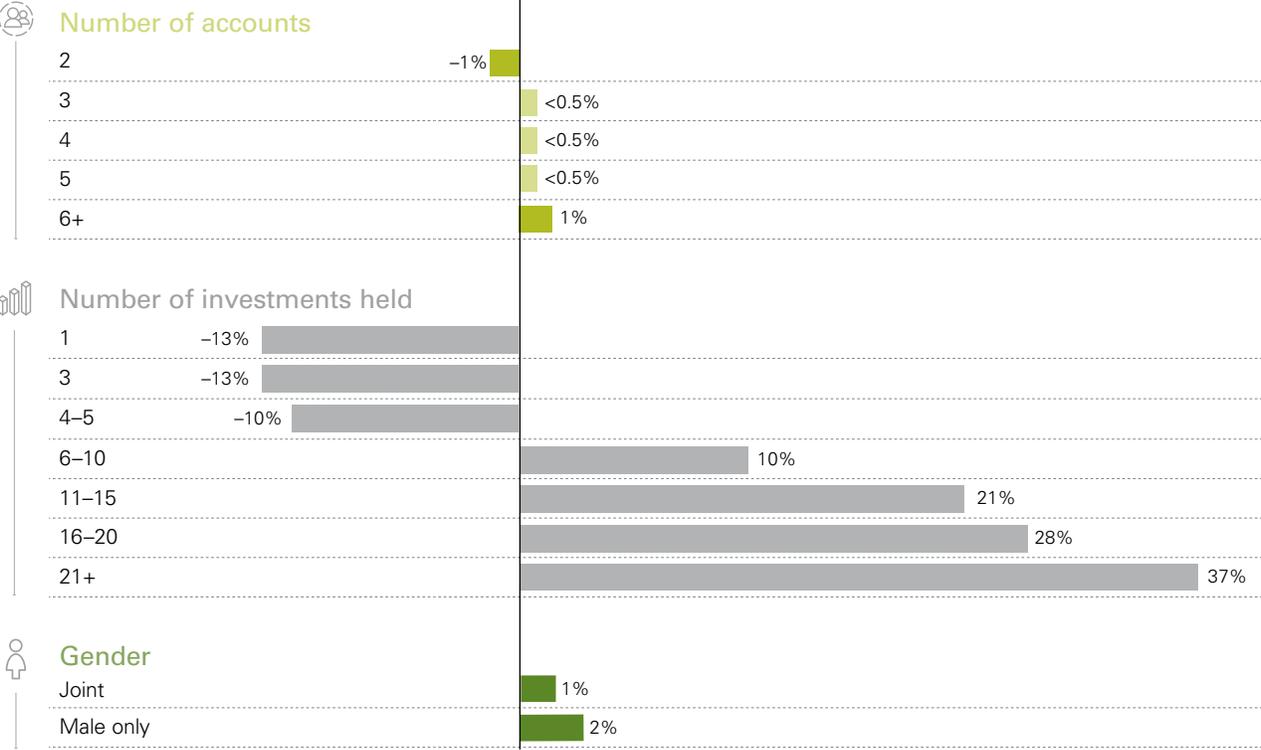


Figure 5. (continued)



Notes: The reference group consists of: age 45–54, length of account ownership 10–14 years, balance \$50,000–\$99,999, 1 account, 2 investments, female-only household. All results are statistically significant except for 3, 4, or 5 accounts owned.

Source: Vanguard, 2019.

## ETFs are primarily used for equity exposure

Vanguard fixed income ETFs have been available for over a decade. However, among ETF households at Vanguard, about 90% of all ETF assets are invested in equity strategies. ETF diversifiers across all ages tend to have overall equity allocations somewhat lower than non-users (Figure 6). As ETF usage increases, we note a corresponding increase in the overall equity allocation. ETF enthusiasts hold the highest equity allocations.

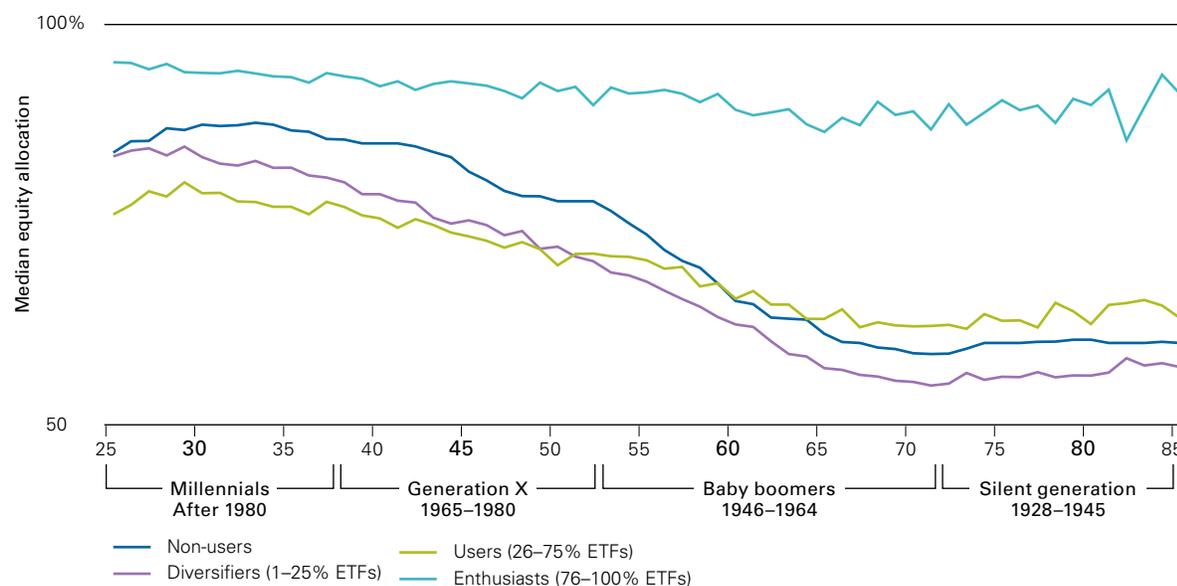
For investors older than age 60, enthusiast equity allocations are 24 to 36 percentage points higher than equity allocations for non-users and diversifiers. In fact, “silent generation” ETF enthusiasts have equity allocations close to 90%, similar to millennials. The typical silent generation household allocates 63% to equities.<sup>5</sup>

## Implications

This analysis of initial adoption of ETFs at Vanguard suggests that ETFs are increasing in popularity among Vanguard retail households of all types. For more established investors, ETFs are used in conjunction with other investments to build relatively complex portfolios and are typically added to an established portfolio of mostly mutual funds. For newer investors, ETFs are serving as the primary investment vehicle. Current investors using ETFs appear to view them primarily as an equity investment and make very limited use of fixed income ETFs.

Figure 6. ETF usage and age-based equity allocations

Vanguard retail investors by ETF investor type



Source: Vanguard, 2019.

<sup>5</sup> For an in-depth analysis of generational differences, see De Luca, Thomas J., and Jean A. Young, *Risk-Taking Across Generations*, June 2018, Vanguard research; available at [personal.vanguard.com](http://personal.vanguard.com).

## Appendix

For our ETF adoption model, we use a Probit regression to assess the relationship between investor demographic and portfolio attributes and the likelihood an investor will own an ETF. The dependent variable, ETF user, is binary. A value of 1, corresponding to an investor who owns an ETF, is considered the positive event. All variables on the right-hand side are categorical.

ETF user =  $\alpha$  + demographic variables + portfolio complexity variables +  $\varepsilon$

*Demographic variables* include age of the oldest household member (reference: 45–54 years), tenure of the longest-tenured household member (reference: 10–14 years), total household balance (reference \$50,000–\$99,999), and household gender (reference: female-only household).

*Portfolio complexity variables* include number of unique investments held (reference: 2 unique investments) and number of accounts (reference: 1 account).

All results are statistically significant at the 5% level, except number of accounts = 3, 4, or 5.

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