ROBO ADVISORS: DEMOCRATIZING WEALTH MANAGEMENT

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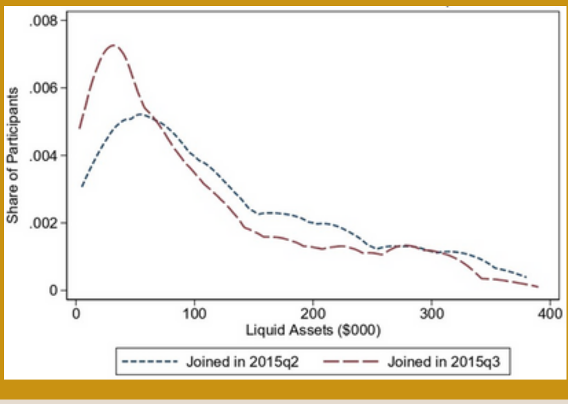
> “The wealth-management industry stratifies customers in a manner rather similar to airlines. ‘High-net-worth’ clients fly business class, picking stocks and chatting in person with named advisors. The cattle class gets no service at all. Technology is conspiring to change that.”
>
> --THE ECONOMIST [1]

Access to robo advisors can benefit less-wealthy investors by expanding access to sophisticated wealth management, generating a gain of the same value as around a 5% annual pay raise for the average investor, according to research by Dr. Michael Reher, Assistant Professor of Finance at the UC San Diego’s Rady School of Management.

However, traditionally, less-wealthy investors have been kept from such services due to high initial investment thresholds. On July 7, 2015, Wealthfront, the largest standalone robo advisor in the U.S. market (*The Appendix lists the 5 largest robo advisors by asset under management*), unexpectedly reduced its account minimum from $5,000 to $500. Before the reduction, Reher reports half of U.S. retail investors could not participate without investing at least 30% of their wealth, while 37% could not participate without borrowing.

Reher’s access to weekly data [2] allowed him to identify the reduction’s effect on robo participation. Figure 1 shows that the wealth distribution shifted sharply left in the third quarter of 2015, immediately after the reduction. He said the results imply that the reduction “democratized” the robo market by bringing in new investors. New participants were half as wealthy as existing ones, earned $40,000 less in annual income, made deposits that were half as large, and were 16% more likely to belong to the middle class. However, democratization is incomplete, since investors from the first quintile remain non-participants. Table 1 defines the income classes based on wealth quintile and liquid assets.

Figure 1 | Wealth Distribution of Wealthfront Robo Participants (Reher 2023)



Reher further examines the wealth constraints on middle-class investors. He states, “If middle-class investors face wealth constraints, then they are more likely to make an initial deposit exactly at the prior minimum $5,000.” Results in Figure 2 support the effects of wealth constraints. Middle-class investors who became participants before the reduction were 20% to 30% more likely to invest right at the $5,000 minimum. The bunching dissipates immediately after the reduction

[1] The Economist. (2019, December 18). Wealth managers are promising business-class service for the masses. Retrieved from https://www.economist.com/finance-and-economics/2019/12/18/wealth-managers-are-promising-business-class-service-for-the-masses

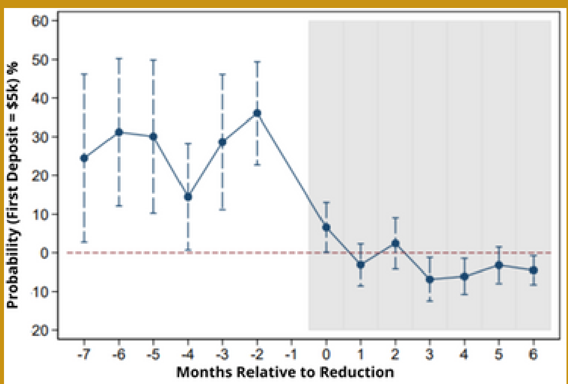
[2] The robo advising data set analyzed by Reher contains a weekly time series of deposits with Wealthfront from December 1, 2014, through February 29, 2016. Additionally, the dataset includes information about a robo participant’s wealth.

Table 1 | Distribution of Wealth Quintile based on Liquid Assets

Class	Wealth Quintile	Range of Liquid Assets ($000)
Lower	First	0 - 0.6
Middle	Second	0.6 - 6.3
	Third	6.3 - 42
Upper	Fourth	42 - 211
	Fifth	>211

Note: This table uses the 2016 Survey of Consumer Finances (SCF) to summarize the range of liquid assets that define each of the U.S. wealth quintiles in thousands of dollars, and their associated income classes as described by Reher. Wealth consists of liquid assets, defined as the sum of checking accounts, savings accounts, certificates of deposit, cash, stocks, bonds, savings bonds, mutual funds, annuities, trusts, IRAs, and employer-provided retirement plans.

Figure 2 | Event Study. Investing at $5K Showed Bunching Behavior by Middle Class. (Reher 2023)



The reduction in account minimum raises welfare of the new robo participants by 0.8% annually, in terms of lifetime consumption. Reher says, “Consumption is closely related to GDP; you should think of this as increasing a person’s GDP by 0.8%. Given that GDP growth is typically 2-3%, it’s a meaningful number and it is very large for the older people who participated.” Interestingly, the results challenge the paradigm that these robo products are for younger investors. Reher suggests that “the gains are much higher for the older household than the younger ones, and the older households drive the returns and are the biggest gainers from the reduction.”

Investors aged 55 and above experienced a three-fold increase in welfare (1.68%) compared to those under 35 (0.58%). This difference, as Reher explains, can be attributed to disparities in human capital. Older investors generally have fewer remaining working years and non-increasing earnings growth. As a result, they may fail to reach the wealth threshold at which it becomes optimal to participate with the robo-advisor before retirement, under a $5,000 minimum. Conversely, younger investors may eventually accumulate enough earnings to become a robo investor—even under the higher minimum.

This leads us to the question of why robo advisors are preferred. The research documents three advantages that robo portfolios have over portfolios managed by retail investors:

1. Robo portfolios contain greater exposure to priced risk factors, such as bond and value premia.

2. They are much better diversified.

3. Robo portfolios exhibit personalization by both age and wealth, referred to as a "double glide path." This means exposure to stocks falls as an investor ages, holding wealth fixed; but it rises as an investor becomes wealthier, holding age fixed.

Robo portfolios feature a higher Sharpe ratio [3] of 0.75 vs. 0.45 for self-managed portfolios. "There is a huge reduction in the idiosyncratic risk, and that is what is really driving the increase in Sharpe ratio. There is a 1-2 percent increase in expected return," according to Reher.

Robo advisors themselves also may stand to benefit from the reduction in account minimums and the potential influx of new participants. Wealthfront, for instance during the sample period, charged 0% of the invested amount if the amount was under $10,000, and thereafter charged a fee of 0.25%. This contrasts with other robo advisors that either tend to charge high fees with no account minimums or may have a larger account minimum. The attractive fee structure of robo advisors such as Wealthfront makes their services more accessible and affordable for less-wealthy retail investors.

Reher said the research findings indicate, "new robo participants invest with persistence: 98% of them do not close their account over our sample period; and 72% make a subsequent deposit."

These results are particularly encouraging as they suggest new participants did not join the advisor for short-term experimentation, but rather to become long-term investors. In addition, with investors likely improving their odds for success, their commitment also implies a potentially sustainable future revenue source for the advisor.

In conclusion, the research underscores the transformative potential of technology in the wealth-management industry. By leveraging robo advisors and their innovative features, investors, particularly those with limited financial resources, can access sophisticated investment tools, achieve better diversification, and potentially improve their long-term financial well-being.

The democratization of wealth management through technology holds promise for a more inclusive and efficient financial landscape.

[3] Investopedia defines Sharpe ratio as a measure of an investment's risk-adjusted performance, calculated by comparing its return to that of a risk-free asset. The Sharpe ratio compares the return of an investment with its risk.

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Appendix

Robo Advisor	AUM ($ billion)	Fees By Account Size	Account Minimum
Vanguard, Personal Advisor Services	206.6	0.3% (under $5mil) 0.2% (between $5mil and $10mil) 0.1% (between $10mil and $25mil) 0.05% (over $25mil)	$50k
Charles Schwab, Intelligent Portfolios	65.8	$0 (clients need to maintain roughly 8-10% of their assets in cash. In addition, a $300 planning fee is charged on enrollment and a $30-per-month advisory fee is charged on a quarterly basis.)	$5k
Wealthfront	43	0.25%[4]	$500
Betterment	36	$4 (under $20k or if recurring monthly deposit under $250), or 0.25% (over $20k or if recurring deposit over $250)	$0
Personal Capital (acquired by Empower Retirement as of August 18, 2020 [5])	16.1 [6]	0.89% (under $1mil) 0.49% to 0.89% (over $1mil	$100k

[4] Fees charged by Wealthfront during the sample period were 0% if the account size was under $10k and 0.25% if the account size was over $10k.
[5] Empower Retirement. (2020, 18th August). Empower Retirement Completes Personal Capital Acquisition. https://www.empower.com/press-center/empower-retirement-completes-personal-capital-acquisition
[6] AUM data for the robo advising services of Personal Capital, Charles Schwab, and Vanguard was accessed from an article published by Forbes, as it was not available on their respective websites.
Friedberg, B., & Curry, B. (July 9, 2022). Top-10 Robo-Advisors by Assets Under Management. Forbes. Retrieved from: https://www.forbes.com/advisor/investing/top-robo-advisors-by-aum/
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