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Automated Advice

Jill E. Fisch, Marion Labouré and John A. Turner

Planning for retirement is difficult for many people. Retirement income calculators are one way they can receive assistance in determining how much they need to save for retirement. These calculators are a form of automated advice, where the individual has no interaction with another person but only interacts with a computer program.[1]

Beyond knowing how much they need to save, a problem many people encounter in planning for retirement is difficulty in managing the investment of their retirement savings. This problem could be resolved by hiring a financial adviser, but financial advisers generally charge fees based on their client's assets and for this reason have minimum asset requirements to guarantee sufficient fees. Financial advisers often charge 100 basis points (1%) of assets, but some charge as much as 200 basis points. Only about a third of the U.S. population seeks financial advice.[2] Although researchers have documented widespread evidence of low financial literacy,[3] for which financial advice could be an effective substitute,[4] financial advice is not available to many people, either because they view it as too expensive or because they have too few assets to make it worthwhile for a financial adviser.

A recent innovation that goes beyond retirement planning calculators and addresses issues in investing is automated financial advisers, commonly known as robo-advisers. Robo-advisers are automated online services that use computer algorithms to provide financial advice on investments and manage clients' investment portfolios.

What Are Robo-advisers?

Robo-advisers provide financial advice to clients through the internet without human contact. The client begins by creating an online account in response to a questionnaire. Computer algorithms match that information to an appropriate asset allocation. Robo-advisers use quantifiable factors such as wealth, income, tax situation, investment goals and risk tolerance to provide portfolio recommendations tailored to that client's needs. They construct a portfolio that typically consists of low-cost exchange-traded funds (ETFs) or mutual funds. Robo-advisers also manage their clients' portfolios on an ongoing basis—they reinvest dividends, redemptions and interest payments.

The first robo-advisers—Wealthfront and Betterment—began providing financial advice to public investors in 2010. Wealthfront began as a mutual fund company, KaChing, and originally used human advisers.[5] The original objective of Wealthfront's founders, Andy Rachleff and Dan Carroll, was to provide financial advice to the tech community.[6] Wealthfront's founders shifted the company's focus when they identified the potential that computer software offered for making investment advice accessible to more people at a lower cost.[7]

A variety of other firms have begun to offer robo-advisory services. A BlackRock study[8] describes the launch of 22 new robo-advisory firms in the U.S. in 2014 and 44 new

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1 Anna M. Rappaport and John A. Turner, "How Does Retirement Planning Software Handle Postretirement Realities?" in *Reorienting Retirement Risk Management*, ed. Robert L. Clark and Olivia S. Mitchell (Oxford University Press: Oxford, England, 2010): 66–85.

2 J. Michael Collins, "Financial Advice: A Substitute for Financial Literacy?" *Financial Services Review* 21, no. 4 (2012): 307–22.

3 Annamaria Lusardi and Olivia S. Mitchell, "The Economic Importance of Financial Literacy: Theory and Evidence," *Journal of Economic Literature* 52, no. 1 (2014): 5–44, *http://www.aeaweb.org/articles.php?doi=10.1257/jel.52.1.5.*

4 Jill E. Fisch, Tess Wilkinson-Ryan and Kristin Firth, "The Knowledge Gap in Workplace Retirement Investing and the Role of Professional Advisors," *Duke Law Review* 66 (2016): 633–72, *http://dlj.law.duke.edu/article/the-knowledge-gap-in-workplace-retirement-investing-and-the-role-of-professional-advisors-fisch-vol66-iss3/.*

5 Anthony Ha, "Investing Site KaChing gets Classier as Wealthfront," Venture Beat, Oct. 19, 2010, *https://venturebeat.com/2010/10/19/kaching-wealthfront/.*

6 Tom Taulli, "Interview: Wealthfront CEO and Founder Andy Rachleff," *IPO Playbook* (blog), InvestorPlace.com, Feb. 7, 2012, *https://investorplace.com/ipo-playbook/interview-wealthfront-ceo-and-founder-andy-rachleff/#.Wpxj6JPwZqd.*

7 Wealthfront, "The Financial Industry Wasn't Designed to be Fair," accessed March 21, 2018, *https://www.wealthfront.com/origin.*

8 BlackRock, "Digital Investment Advice: Robo Advisers Come of Age," white paper, September 2016, *https://www.blackrock.com/corporate/en-mx/literature/whitepaper/viewpoint-digital-investment-advice-september-2016.pdf.*

firms in 2015. While the first robo-advisers were stand-alone firms, with their growing popularity, various types of incumbent financial firms now provide robo-advisers, including banks, broker-dealers, technology firms and asset managers.

The amount of assets managed by robo-advisors has continued to grow. At the end of 2014, Corporate Insight reported that U.S. robo-advisers managed $19 billion in assets.[9] In 2016, that number had grown to $126 billion.[10]

Young people are more likely to use robo-advisers than older people. A survey of people with investments outside of a pension plan[11] finds that 38% of individuals age 18 to 34 have used a robo-adviser, compared to 4% of individuals ages 55+.

SERVICES

Robo-advisers generally rebalance the client's portfolio so that changes in the stock market do not affect the portfolio allocation. Wealthfront rebalances its clients' portfolios by reinvesting dividends and new contributions in underweighted asset classes so that no tax is generated in taxable accounts by selling assets to rebalance. Wealthfront argues that rebalancing is one of the advantages it offers over many human advisers.[12] However, target date funds also provide rebalancing. Some robo-advisers also offer tax loss harvesting for taxable accounts, which involves selling investments that have had losses to offset the taxes on investments with realized capital gains.[13]

One type of robo-adviser that has received little attention is online advice programs provided to pension participants through their 401(k) plans. TIAA Institute research[14] investigates the use of online advice by participants in plans where TIAA is the sole record keeper. In 2012 and 2013, 6.5% of participants in their sample sought asset allocation advice using an online tool made available to TIAA participants. The demand for advice increased fourfold with the introduction of online advice tools.

The quality of advice robo-advisers provide is more transparent than for human financial advisers. While it is not possible to monitor the private conversations financial advisers have with their clients, it is possible to evaluate the advice provided by computer models.[15] This greater transparency may lead robo-advisers to adhere more closely to regulatory requirements than some human advisers.

FEES

Robo-advisers typically charge substantially lower fees than human advisers. The cost ranges from free to 50 basis points. Betterment and Wealthfront charge a flat fee of 25 basis points. T. Rowe Price does not charge a fee for its robo-adviser, but instead is paid solely through the fees for the investment products it manages for its clients.

Most robo-advisers use passive, index-fund approaches to investing,[16] while financial advisers are more likely to recommend higher-fee actively managed approaches. Thus, robo-advisers not only have lower advisory fees,

9   Angela Scott-Briggs, "What is a Robo-Adviser, Origin and History," *Fintech News* (blog), TechBullion, Nov. 24, 2016, *http://www.techbullion.com/robo-advisor-origin-history.*

10 Statista, "Forecast of Assets Under Management of Robo-Advisors in the United States from 2016 to 2020 (in billion U.S. dollars)," report, February 2016, *https://www.statista.com/statistics/520623/projected-assets-under-management-us-robo-advisors/.*

11 Financial Industry Regulatory Authority, "Report on Digital Investment Advice," report, March 2016, *https://www.finra.org/sites/default/files/digital-investment-advice-report.pdf.*

12 Wealthfront, "The Financial Industry."

13 Wealthfront, "How Does Tax-Loss Harvesting Relate to Rebalancing?" updated Nov. 13, 2017, *https://support.wealthfront.com/hc/en-us/articles/209348586-How-does-tax-loss-harvesting-relate-to-rebalancing-.*

14 Jonathan Reuter and David Richardson, "New Evidence on the Demand for Advice within Retirement Plans," *Trends and Issues*, TIAA Institute research, April 2017, *https://www.tiaainstitute.org/sites/default/files/presentations/2017-04/New%20Evidence%20on%20the%20Demand%20for%20Advice%20within%20Retirement%20Plans_Insights_April%202017.pdf.*

15 Government Accountability Office, "401(k) Plans: Improved Regulation Could Better Protect Participants from Conflicts of Interest," GAO-11-119 (Jan. 28, 2011), *http://www.gao.gov/products/GAO-11-119.*

16 Jonathan Walter Lam, "Robo-Advisers: A Portfolio Management Perspective" (senior thesis, Yale College, April 4, 2016), *https://economics.yale.edu/sites/default/files/files/Undergraduate/Nominated%20Senior%20Essays/2015-16/Jonathan_Lam_Senior%20Essay%20Revised.pdf.*

they generally also spend less on trades and charge lower fees on their investments. The fees on the investment options for Betterment clients range from 7 to 15 basis points.[17]

In addition, human advisers may have minimum assets requirements of $100,000 or more, making them inaccessible to lower and middle-income clients.[18] In contrast, robo-advisers offer far lower minimum account balances. Wealthfront requires a minimum balance of $500, and Betterment does not require any minimum balance. These lower minimums make robo-advisers particularly well-suited for young people just starting to save.

Robo-advisers offer their clients convenience. Clients can access robo-advisers at any time and from any location. For some clients, the procedure of providing information through a website platform is also more convenient than filling out paper documents or meeting with a human adviser. Some clients, however, prefer a human interaction.

Limitations

There are some limitations to robo-advice.

QUALITY OF ADVICE

Robo-advice differs considerably across advisers, which suggests the quality of advice may also differ considerably. One study[19] compares the advice of seven robo-advisers for a hypothetical 27-year-old. It finds the portfolio allocation to equities varied from 51% to 90%.

SCOPE OF ADVICE

When advising clients on portfolio allocation, not all robo-advisers consider the client's other investments, in particular their 401(k) investments.[20] The robo-adviser may not know about all the pension accounts the client has, and may not consider the assets of the client's spouse. However, similar issues apply for human financial advisers. For instance, when both spouses have their own assets, a human adviser will not necessarily know about the financial assets of the spouse.

One issue is whether robo-advisers do less well than financial advisers in preventing clients from selling low and buying high. Betterment has researched this issue with its own clients and has found it helps to contact its actively engaged clients during a market downturn, but that contacting clients not actively engaged may backfire because some of those clients do not pay attention to the fluctuations of the stock market.[21]

CONFLICTS OF INTEREST

Conflicts of interest are inherent in financial transactions. When robo-advisers have different levels of service with different fees, they have a conflict of interest to recommend the service that provides them the highest income. In addition, they have a potential conflict of interest concerning encouraging pension rollovers because a rollover would enable them to manage the investments in a client's pension account.

Future Trends

This section considers trends in robo-advisers.

THE MOVE TO HYBRIDS

In the past few years, some financial advisory companies have begun to combine the features of robo-advisers and human advisers, creating a hybrid financial adviser. The key features of the hybrid model are that hybrids charge lower fees than human advisers by automating part of the investment process but still offer the possibility of talking with a financial adviser.

The stand-alone robo-adviser movement is slowly declining in relative importance. Some of the major financial management companies, such as Vanguard and Charles Schwab, have incorporated robo-advisers into their business model, using the hybrid model.

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17 Betterment, "Is Your Old 401(k) Costing You?" accessed March 8, 2018, *https://www.betterment.com/401k-and-ira-rollover/?gclid=CjwKEAjwja_JBRD8idHpxaz0t3wSJAB4rXW55KvrzvjgmvpQLWhL_4Hzz2De3RXD-tAsyx88We8XiBoC_zzw_wcB.*

18 Larry Ludwig, "The Rise of the Robo Advisors—Should You Use One?" InvestorJunkie, last updated Dec. 16, 2017, *https://investorjunkie.com/35919/robo-advisors/.*

19 FINRA, "Report on Digital Investment Advice."

20 Cybele Weisser, "The Rise of the Robo-Adviser," *Consumer Reports*, July 28, 2016.

21 Dan Egan, "Our Evidence-Based Approach to Improving Investor Behavior," Betterment, Oct. 12, 2017, *https://www.betterment.com/resources/investment-strategy/behavioral-finance-investing-strategy/behavioral-testing/.*

Vanguard's Personal Advisor Services charges 30 basis points and requires an account minimum of $50,000, while Schwab Intelligent Advisory charges 28 basis points with an account minimum of $25,000. Schwab Intelligent Advisory combines Schwab Intelligent Portfolios and the availability of human advisers. It provides comprehensive financial planning services, not just portfolio management, which it implements with the Schwab robo model.[22] The Schwab service offers unlimited contact with a certified financial planner 24/7. Raymond James Financial has announced that its 7,100 advisers will have access to a robo-adviser by the end of 2017.[23] The advisers will use the robo-adviser as a tool for advising clients.

GREATER PRODUCT DIVERSIFICATION

The growing number of robo-advisers has led to greater product diversification. In 2016, Ellevest started as a robo-adviser catering to women. The premise is that because women have longer life expectancies than men, they need to have different portfolios from men the same age.[24] The Ellevest clientele are also well educated. Ellevest reports that more than 40% of its clients have master's degree or doctorates.[25]

True Link focuses on older investors and retirees.[26] OpenInvest and Earthfolio offer investors the opportunity to combine socially responsible investing with a robo platform. The fees of these specialized firms are higher than those of the original robo-advisers.

In 2017, Betterment began offering three new options:

- A fund that takes into account criteria of socially responsible investing
- A low-risk alternative to its standard fund
- A high-risk alternative, which is its Goldman Sachs

Smart Beta portfolio; this fund invests based on factors such as the momentum or the quality of a stock

FEES

Robo-advisers have the advantage of economies of scale in that one adviser (one computer algorithm) advises many clients. Betterment, for example, has more than 150,000 clients.[27] Thus, over time, as the robo-advisers acquire more clients and their clients accumulate more assets, their fees should fall even further. The lower fees may make financial advice accessible to a larger market of people who would not be willing to pay the fees associated with human financial advisers.

SOPHISTICATION

Because robo-advisers are relatively new, it is expected that they will increase in sophistication. A Penn Wharton issue brief[28] identifies four core components of robo-advisers:

- The investment algorithms
- The customer and financial product data to which the algorithms are applied
- The choice architecture through which the advice is delivered
- The information technology infrastructure

It is likely robo-advisers will increase in sophistication in each of these areas.

Conclusion

The development of robo-advisers is a major new innovation in helping people prepare for retirement. Robo-advisers are a type of automated advice that helps people choose and manage their financial

22 Michael Kitces, "Is Schwab Intelligent Advisory a Threat to Independent Financial Advisors?" *The Nerd's Eye View* (blog), Pinnacle Advisor Solutions, Dec. 22, 2016, *http://www.pinnacleadvisorsolutions.com/2016/12/22/is-schwab-intelligent-advisory-a-threat-to-independent-financial-advisors/*.

23 Liz Skinner, "Raymond James to Deliver Robo Service for Advisers by Year End," *Investment News*, Jan. 30, 2017, *http://www.investmentnews.com/article/20170130/FREE/170139992/raymond-james-to-deliver-robo-service-for-advisers-by-year-end*.

24 Weisser, "The Rise of the Robo-Adviser."

25 Ellevest, "We've Rounded Up the Biggest Ellevest Trends," email dated Sept. 2, 2017.

26 True Link, "How It Works: True Link's Investment Planning Process," accessed March 21, 2018, *https://www.truelinkfinancial.com/how-it-works*.

27 Egan, "Our Evidence-Based Approach."

28 Tom Baker and Benedict Dellaert, "Regulating Robo Advisors: Old Policy Goals, New Challenges," Penn Wharton Public Policy Initiative issue brief vol. 5, no. 7 (July 2017), *https://publicpolicy.wharton.upenn.edu/issue-brief/v5n7.php*.

investment portfolios. They charge lower fees and have lower minimum account balances than do human advisers. They provide low-fee portfolios. They provide automatic rebalancing, and some provide tax-loss harvesting. They offer the promise of extending affordable financial advice to people with smaller portfolios who in the past have generally not received financial advice.

Jill E. Fisch is Perry Golkin Professor of Law at University of Pennsylvania Law School and co-director, Institute for Law and Economics. She can be reached at *jfisch@law.upenn.edu*.

Marion Labouré is Associate of the Economics Department at Harvard University. She can be reached at *marion_laboure@fas.harvard.edu*.

John A. Turner, Ph.D., is director of the Pension Policy Center in Washington, D.C. He can be reached at *jaturner49@aol.com*.