

Robo-Advising

RYAN CHAN-WEI

Memorandum

DATE: February 1, 2019
TO: Jay Cleighton, Chair, Securities and Exchange Commission
Robert W. Coke, President and CEO, Financial Industry Regulatory Authority
FROM: Office of Craig Fillups, Counsel, Department of the Treasury
RE: Concept Paper on a Maximally Digital Robo-adviser—iRobo, Inc.



Now that the shutdown is behind us, Craig Fillups has asked me to reach out to the two of you about a potentially promising new initiative in the FinTech space.

As we have discussed on numerous occasions, the Trump Administration is committed to improving the financial well-being of all Americans by supporting responsible innovation in financial services. Over the past few months, we have been approached by dozens of FinTech entrepreneurs with new and exciting value propositions.

As a pilot program, Craig Fillups has decided to vet a handful of these proposals with the leadership of key regulatory agencies. To that end, I am sending along materials regarding a proposal to set up a “maximally digital” robo-advisory firm (iRobo, Inc.). Mr. Fillups received the proposal last week, and we’re forwarding this package in the hopes of beginning a high-level conversation regarding the desirability and viability of this approach. To the extent that your schedule permits, we were hoping to set up a preliminary meeting on the topic next week on Thursday afternoon. We envision the conversation as being entirely informational with the understanding that this proposal would remain subject to otherwise applicable legal processes.

As you will see, the iRobo team contemplates an advisory platform with a markedly reduced level of human involvement—it will only have one human employee. The advisory process itself will be fully automated, with a view to keeping costs as low as possible and increasing access to capital market

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investments. More details can be found in the letter and supporting documents, which are appended to this memorandum.

At our meeting next week, we hope to take up two questions:

1. Whether a proposal of this sort is desirable as a matter of public policy; and
2. The extent to which it could be implemented under current laws and regulations.

At the same time, we will be having a Treasury Department team consider whether the iRobo proposal is consistent with the Department's own recommendations in its July 2018 FinTech Report.

Finally, Regulation Best Interest (BI) need not be considered at this stage, as this rulemaking is still pending as of early 2019.

Thank you.

Letter of Transmittal: Time-dated 21 January 2019; 14:32:45

i-Robo, Inc.

DATE: February 2019
TO: Office of Craig Fillups, Department of the Treasury
FROM: Ernie D'Amato
RE: Proposal of a Maximally Digital Robo-Adviser— iRobo, Inc.

I obtained your address from one of my professors and he encouraged me to get in touch. I am a recent MBA graduate of the Harvard Business School, and I am writing to enlist the support of the Department of the Treasury for iRobo, Inc., a robo-advisory firm that I am planning to set up.

iRobo would be the first maximally-digital robo-adviser and I will be the only human employee. All financial transactions will be executed using computer algorithms. Outside contractors will be hired only when necessary to handle compliance with anti-money laundering requirements and other compliance matters. Additionally, we are still in the process of deciding on iRobo's revenue model, but we are cognizant of the respective challenges posed by both a transaction fees model and an AUM-based (assets under management) fee model.

This idea was conceived as part of a business school class, "FinTech Innovation," and I am writing to you now because I hope to secure the backing of the Department of the Treasury as we attempt to obtain regulatory approval.

My colleagues and I are still exploring how best to structure the business, but a possible model is for iRobo to be a dual registrant, meaning that it would function as both an SEC-registered broker-dealer and a registered investment adviser under applicable state and federal laws. This means that iRobo would have to comply with both the suitability and fiduciary standards incumbent on dual registrants.

Alternatively, as is the case with the vast majority of robo-advisers, iRobo may function only as a registered investment adviser (albeit with broker-dealer transactional support in the background). This would mean that iRobo is only required to comply with the fiduciary standard incumbent on registered investment advisers. This might be an appropriate model because states have no jurisdiction over a registered investment adviser with more than \$100 million in assets under management, and we expect iRobo to far exceed that sum. By contrast, state regulators continue to have oversight of broker-dealers regardless of their amount of assets under management, and it may be an unnecessary regulatory burden for iRobo to subject itself to both state and federal oversight.

Regardless of which model we eventually choose, in working up our business proposal, my colleagues and I became aware that issues have arisen with respect to how robo-advisers can comply with the aforementioned regulatory standards. We foresee that these concerns may be amplified with respect to iRobo because it will have far fewer human employees than any existing robo-advisory firm.

We have, however, addressed these issues and, to that end, I am attaching a paper written by one of my classmates in the FinTech Innovation course and a recent Juris Doctor graduate of the Harvard Law School. Her paper explains how iRobo could meet both the suitability and fiduciary standards incumbent on dual registrants, and her arguments remain cogent regardless of whether we eventually decide to pursue a

dual registrant model. This is because she addresses the suitability and fiduciary standards in discrete sections. (We've addressed other issues related to recordkeeping, custodial arrangements, and related compliance materials elsewhere.).

As her paper documents, the investment advice given by humans is not inherently superior to advice dispensed by algorithms and, indeed, the supervision by algorithms is likely more straight-forward than the supervision of humans. I trust you will find her arguments as persuasive as I did.

I look forward to hearing back from you and gaining your support for this endeavor.

The iRobo Business Model

This is a brief overview of how the iRobo platform would operate:

1. Potential clients begin by visiting the iRobo website (www.irobo.com).
2. They click on the “Get Started” tab, which prompts them to create an account by providing their identification, contact, and bank account details.
3. Clients are asked to fill in a questionnaire with respect to age, occupation, investing experience, annual income, investable assets, investing goals, and risk profile. Clients will also be required to complete an additional survey designed to generate an accurate estimate of each client’s appetite for risk. Our algorithm matching process was designed by computer scientists, adapting practices refined in online dating applications with a demonstrated record of eliciting unbiased customer profiles and successful matches.
4. Clients are free at all times to amend the responses to both questionnaires and surveys and will be reminded on a monthly basis of their ability to make these amendments.
5. Clients are directed to an external consultant’s website to address compliance with anti-money laundering requirements. (Outside vendors will also provide compliance and other recordkeeping and custodial services required of registered broker-dealers and investment advisers.)
6. Clients deposit an initial sum of money into their iRobo accounts and are given the option to set up an “Auto Deposit,” which enables them to make regular, periodic deposits from their checking account to their iRobo accounts.
7. iRobo’s algorithms process the information provided above and identify an appropriate asset allocation and a targeted annual rate of return, then execute what it determines to be an optimal investment strategy for each client.
 - a. Clients are given the option of viewing further details, such as:
 - i. An in-depth analysis of the assets held (e.g., characteristics and disclosure documents related to all holdings);
 - ii. A detailed breakdown of how their assets are allocated (e.g., percentages and investment horizons); and
 - iii. Key components of the iRobo optimization algorithm (e.g., risk-return goals, tax efficiency, and expense minimization).
 - b. Clients are also given the option to engage in further customization (e.g., setting stop-loss orders or adjusting asset allocation) at any point.
 - c. Our investment algorithms will track market movements in real-time and update investment strategies and optimization protocols as appropriate.

8. Customers will receive all required disclosures and statements in electronic format through a computerized process overseen by our compliance algorithm. For those interested in verbal communications, iRobo has purchased a state-of-the-art automated phone system to respond to customer queries.
9. iRobo has hired a panel of leading computer scientists to review the operation of its algorithms on a periodic basis (initially monthly, but eventually quarterly or yearly). All algorithms and databases will be available for review by supervisory personnel at any time, including (if desired) on a real-time feed. (iRobo does, however, request that this information be treated as confidential supervisory information and not be disclosed to third parties.)

The Regulation of Robo-Advising

What Is the Minimum Amount of Human Involvement Required to Provide Investment Advice?*

Introduction

Robo-advisers have changed the complexion of the financial services industry in a multitude of ways, not least by reducing the need for a human adviser to be present for investment advice to be dispensed. This paper will focus on that issue, by examining the minimum amount of human involvement required to provide investment advice.

Although there are myriad robo-advisory services, for the sake of clarity this paper will focus on robo-advising firms that are regulated as “dual registrants.” These firms perform the dual functions of investment adviser and broker-dealer and are consequently regulated as such—they are required to register with both the SEC and FINRA.

The upshot is that dual registrants—as the name suggests—face twofold obligations. On the one hand, they are subject to the fiduciary obligations imposed on investment advisers by the Investment Advisers Act of 1940. On the other hand, they also must comply with the suitability standard set out for broker-dealers in the Securities Exchange Act of 1934 and FINRA Rule 2111.

Admittedly, in the case of dual registrants, it is difficult to draw a bright-line distinction between the fiduciary and suitability standards; they often shade into each other, and there have been calls for a harmonized fiduciary standard. However, it is beyond the ambit of this paper to delve into the nuances of that debate. The fiduciary and suitability standards are sufficiently distinct to warrant separate treatment for the purposes of understanding the regulatory issues discussed below.

This paper will argue that the minimum amount of human involvement required for a robo-adviser to provide investment advice is one person and, to that end, it will proceed in four stages:

1. The first section will provide a brief explanation of the fiduciary and suitability standards and elaborate on the minimum amount of human involvement required for *any* dual registrant to provide investment advice (i.e., one person).
2. The second section will focus on the central claim of this paper—that only one human being is needed—and set out the key arguments that must be justified for this claim to stand. In essence, this paper will need to show that the use of robo-advising technology does not affect the ability of a dual registrant to fulfill either the fiduciary or suitability standard, which would mean that a dual-registrant robo-advising firm can thus dispense investment advice just as *any* dual registrant would. Therefore, in accordance with the prevailing regulatory requirements, this would mean that only one person is needed.

As a tangential matter, this section will also draw on empirical research to contend that robo-advisers are not necessarily inferior to human advisers. Much ink has been spilled over concerns that algorithms can never replicate a “human touch,” but it will be argued that the underlying thrust of

* Prepared by Jane Gonzales in connection with the HBS Financial Innovation Competition

this paper—that robo-advising firms should be welcomed—is ultimately borne out by empirical evidence.

3. The third section will focus on the suitability standard that must be met by broker-dealers and evaluate the arguments for and against whether robo-advising firms can meet that standard. It will be argued that robo-advisers are fundamentally able to fulfill the suitability standard.
4. In a similar vein, the fourth and final section will highlight the fiduciary obligations incumbent on investment advisers and assess the arguments for and against whether robo-advisers can successfully discharge those obligations. As noted in the preceding section, it will be argued that robo-advisers can also satisfy the fiduciary standard, although it may be harder to do so than with the suitability standard.

The Existing Regulatory Framework

This paper focuses on robo-advising firms that are regulated as dual registrants, and such firms face twofold regulatory requirements. As investment advisers, they are held to a fiduciary standard; as broker-dealers, they must comply with a suitability standard. This section will explain what these standards entail and highlight the existing regulatory framework for the minimum number of humans required for investment advice to be dispensed.

The exact content of the fiduciary obligations that an investment adviser must discharge is not cut and dried, but it is sometimes described as constituting: 1) a duty of loyalty to serve the best interests of clients and to disclose any conflicts of interest; and 2) a duty of care requiring the investment adviser to provide suitable advice and to seek the best execution of his clients' securities transactions.¹

The suitability standard for broker-dealers can be found in FINRA Rule 2111, and it is markedly similar to the second limb of an investment adviser's fiduciary duty. Specifically, it requires that a broker-dealer "must have a reasonable basis to believe that a recommended transaction or investment strategy involving a security or securities is suitable for the customer."²

Although the fiduciary and suitability standards sound similar, they are in fact sufficiently distinct to warrant different treatment. To understand the relationship between the fiduciary and suitability standards, it is best to simply see the latter as "a less intensive form of fiduciary duty" than the one imposed on investment advisers.³ An excellent explanation can be found in an article by Professor Howell Jackson and Talia Gillis, who argue that the suitability requirement for broker-dealers "tracks the essence of fiduciary duty: legal obligations that arise out of the nature of the relationship between a firm and its customers."⁴

¹ Stephen Wink, Stefan Paulovic and Michael Shaw, *Dually Registered Brokers and Advisers*, 46 THE REVIEW OF SECURITIES & COMMODITIES REGULATION 191, 195, Sept. 4, 2013.

² FINRA Rule 2111, Suitability, http://finra.complinet.com/en/display/display_main.html?rbid=2403&element_id=9859 [, accessed January 31, 2019.

³ Howell Jackson and Talia Gillis, *Fiduciary Duties in Financial Regulation: Harvard Public Law Working Paper No. 18-24*, 16, SOCIAL SCIENCE RESEARCH NETWORK (Apr. 17, 2018), <https://papers.ssrn.com/sol3/abstract=3149577>, [<https://perma.cc/MJY7-KEMP>].

⁴ *Id.*

Lastly, under the existing regulatory framework, at minimum only one human is needed for a dual registrant to dispense investment advice. For both investment advisers and broker-dealers, this information can be found in their SEC registration documents—Form ADV and Form BD respectively. Their registration documents allow for the possibility of an investment adviser functioning as a “sole proprietor,” with the individual in question wearing multiple hats (e.g., Chief Executive Officer and Chief Compliance Officer).⁵

Only One Human Is Needed

The central claim of this paper is that the minimum amount of human involvement required for a robo-adviser to provide investment advice is one person, and this section will set out the key arguments that must be justified for this claim to stand.

So far, it has been established that at minimum only one human is required for a typical dual registrant to dispense investment advice (i.e. a sole proprietor), and the overarching argument of this paper is that the use of robo-advising technology does not affect this minimum requirement.

Subsequent sections will show that the use of robo-advising technology does not impair the ability of a dual registrant to fulfill either the fiduciary or suitability standard, which would mean that a dual registrant robo-advising firm could thus dispense investment advice just as *any* dual registrant would. In essence, the prevailing regulatory framework would still apply to robo-advisers, and therefore only one human would be needed.

In addition, it is important at this juncture to address the normative question of whether robo-advising algorithms are inherently inferior to human advisers. The succeeding discussion will operate on the working assumption that robo-advisers are at least equal, if not superior, to human advisers; therefore, before proceeding, it is worthwhile to assuage concerns that algorithms can never replicate a “human touch” in decision-making.

Much ink has been spilled over the notion that robo-advising algorithms are less effective than human advisers, especially because of their “inability to address subtleties” that humans can provide through “personalized advice.”⁶ The implication is that human advisers have superior judgment and following their advice allows clients to attain a better rate of return on their investments compared to following the advice of robo-advisers.

However, there is in fact a plethora of empirical research suggesting the contrary. Economist Brian Melzer and his colleagues have conducted research in Canada which suggests that advice proffered by human advisers is “one-size-fits-all” rather than “personalized,”⁷ and that human advisers often hold “misguided

⁵ Division of Investment Management, Securities and Exchange Commission (SEC), *Form ADV, Uniform Application for Investment Adviser Registration and Report by Exempt Reporting Advisers* (07-17), SEC Form ADV, SEC Form 1707 (07-17), Part 1A, <https://www.sec.gov/about/forms/formadv-part1a.pdf>; Division of Trading and Markets, Securities and Exchange Commission (SEC), *Form BD, Uniform Application for Broker-Dealer Registration* (01-2008), SEC Form 1490 (1-08), <https://www.sec.gov/files/formbd.pdf>; [<https://perma.cc/SVU5-AWDK>].

⁶ Tara Bernard, *The Pros and Cons of Using a Robot as an Investment Adviser*, THE NEW YORK TIMES, Apr. 29, 2016, <http://www.nytimes.com/2016/04/30/your-money/the-pros-and-cons-of-using-a-robot-as-an-investment-adviser.html> [..].

⁷ Stephen Foerster, Juhani Linnainmaa, Brian Melzer & Alessandro Previtero, *Retail Financial Advice: Does One Size Fit All?*, 72 THE JOUR. OF FIN. 1441, 2017.

beliefs.”⁸ Similarly, Terrance Odean has published a wealth of articles suggesting that humans tend to behave irrationally when making investments;⁹ he points out that humans making investments “systematically share biases”¹⁰ and are particularly susceptible to the disposition effect, which is the tendency “to hold losing investments too long and sell winning investments too soon.”¹¹

The above-mentioned papers only represent the tip of the iceberg—behavioral economists have conducted a substantial amount of research on these issues¹²—but the upshot is that robo-advising algorithms are not necessarily inferior to human advisers and may in fact be superior because they bring a level of dispassionate objectivity that humans are not capable. The corollary, therefore, is that robo-advising firms offer much that can be welcomed.

Meeting the Suitability Standard

The suitability requirement states that a broker-dealer “must have a reasonable basis to believe that a recommended transaction or investment strategy involving a security or securities is suitable for the customer.”¹³

The argument that robo-advisers cannot meet the suitability requirement without additional human involvement turns on the concern that robo-advisers “are not a substitute for human judgment.”¹⁴ For example, FINRA sees human judgment as an essential component of conducting portfolio analysis in a way that is “appropriate for an individual client,”¹⁵ because robo-advising algorithms do not possess “the requisite knowledge about the securities or customer necessary to make a suitable recommendation.”¹⁶

In particular, FINRA is concerned about the inability of robo-advisers to 1) gather and adequately evaluate all of the required information about clients to make a suitability determination; 2) rectify conflicting answers to client profile questionnaires; and 3) pair clients’ investment profiles with suitable securities or investment strategies.¹⁷

FINRA’s concerns are understandable, but these problems are by no means insurmountable and will be subsequently addressed to show how robo-advisers can in fact meet the suitability standard. Ultimately,

⁸ Juhani Linnainmaa, Brian Melzer & Alessandro Previtero, *The Misguided Beliefs of Financial Advisers: Kelly School of Business Research Paper No. 18-9*, (SOCIAL SCIENCE RESEARCH NETWORK, Jan. 20, 2018) <https://papers.ssrn.com/sol3/id=3101426> [<https://perma.cc/4TSB-LSQ8>].

⁹ See, e.g., Brad Barber & Terrance Odean, *The Behavior of Individual Investors*, HANDBOOK OF THE ECONOMICS OF FINANCE: VOLUME TWO (George Constantinides, Milton Harris & Rene Stulz, Eds., 2013).

¹⁰ Brad Barber & Terrance Odean, *The Courage of Misguided Convictions*, 55 FINANCIAL ANALYSTS JOURNAL 41 (1999).

¹¹ Terrance Odean, *Are Investors Reluctant to Realize Their Losses?* 53 THE JOURNAL OF FINANCE 1775 (1998).

¹² See, e.g., Matthew Rabin, *Psychology and Economics*, 36 JOURNAL OF ECONOMIC LITERATURE 11, 1998; Robert Shiller, *Human Behavior and the Efficiency of the Financial System* 1999: NBER Working Paper No. 6375, NAT. BUR. ECON. RESEARCH; Harrison Hong, José Scheinkman & Wei Xiong, *Advisers and Asset Prices: A Model of the Origins of Bubbles*, 89 JOURNAL OF FINANCIAL ECONOMICS 268, 2008.

¹³ FINRA, *supra* note 2.

¹⁴ Melanie Fein, *Regulatory Focus on Robo-Advisors*, SOCIAL SCIENCE RESEARCH NETWORK, Sept. 12, 2017, <https://ssrn.com/abstract=3028259> [<https://perma.cc/U75Y-DNXC>].

¹⁵ Melanie Fein, *FINRA’s Report on Robo-Advisors: Fiduciary Implications*, SOCIAL SCIENCE RESEARCH NETWORK, Apr. 1 2016, <https://ssrn.com/abstract=2768295> [<https://perma.cc/6ZXX-VG95>].

¹⁶ Regulatory Operations, *Report on Digital Investment Advice*, FINANCIAL INDUSTRY REGULATORY AUTHORITY, March 15 2016, <http://www.finra.org/sites/default/files/digital-investment-advice-report.pdf> [<https://perma.cc/MR4W-4Y2D>].

¹⁷ Fein, *supra* note 14 at 8.

the lack of human involvement that many perceive to be robo-advising's greatest weakness should instead be seen as its greatest strength. Regulators must, therefore, be careful not to throw the baby out with the bathwater.

An important caveat to the discussion that follows is that it will proceed on the assumption that the robo-advisers in question are "well designed." While this is undoubtedly "stacking the deck in favor of robo-advisers," as Professors Tom Baker and Benedict Dellaert have done, it is necessary to delimit the scope of this paper lest it morphs into a paper on algorithm design.¹⁸

Gathering Information

Firstly, FINRA is concerned about the ability of robo-advisers to "gather and adequately evaluate all of the required information about clients to make a suitability determination."¹⁹ This concern is understandable and will be swiftly evident to anyone who has signed up for an account at any of the major robo-advising platforms.

For instance, a Betterment account can be opened in less than five minutes, and the pre-sign-up questionnaire consists almost entirely of multiple-choice questions.²⁰ In comparison, Wealthfront has a more comprehensive pre-sign-up process that also involves a risk assessment analysis,²¹ but it also still falls short of the level of nuance required to conduct an appraisal of suitability tailored to the individual customer.²²

For example, consider Wealthfront's risk tolerance questionnaire,²³ which asks a customer how they would respond to a steep market correction. In response, a customer can only choose from the following four options: "buy more," "keep them all," "sell some," or "sell them all"; there are no intermediate options that allow a customer to specify an exact percentage of their stock portfolio or the price(s) at which they would buy or sell.²⁴ However, this is far removed from reality—trying to invest effectively with only four options for action is like trying to hit a baseball pitch by swinging the bat at four pre-determined angles.

It is therefore unsurprising that FINRA has expressed unease about this aspect of robo-advising. However, the issue does not lie with robo-advisers but rather with the structure of the client onboarding questionnaire. For that reason, rather than concluding that robo-advisers are inherently unable to meet the suitability standard, the better response may be to set out guidelines for questionnaires that would assist robo-advisers in obtaining the information required to meet the suitability standard.

This is not an inordinately difficult undertaking, as the questionnaires do not need to be especially sophisticated; they only need to replicate a typical conversation that a human investment adviser would

¹⁸ Tom Baker & Benedict Dellaert, *Regulating Robo Advice across the Financial Services Industry*, 103 IOWA LAW REV. 713, 724, 2018.

¹⁹ Fein, *supra* note 14, 8.

²⁰ Betterment, *Get Started: Here's what to expect*, BETTERMENT, 2018, https://www.betterment.com/app/get_started.

²¹ Wealthfront, *Get Started: Let's build a smart investment plan*, WEALTHFRONT, 2018, <https://www.wealthfront.com/start/intro> [<https://perma.cc/XW49-6QV6>].

²² Caelainn Carney, *Robo-Advisers and the Suitability Requirement: How They Fit in the Regulatory Framework* 2018 COLUMBIA BUS. LAW REV. 586, 601, 2018.

²³ Wealthfront, *supra* note 21.

²⁴ Carney, *supra* note 22, 601.

have with their client, and this should not be hard to accomplish considering the advancement of artificial intelligence technology.²⁵

Essentially, such a questionnaire could take the form of a chatbot that mimics the reactive and adaptive nature of human conversation—if a customer says that he would “sell some” of his stocks in a market downturn, the chatbot would then ask him to specify a percentage of his portfolio and a price range for his shares. By the end of the online conversation, the robo-adviser platform should have enough information to make investment decisions that are sufficiently tailored to the specific context of the client, moving one step closer towards meeting the suitability standard.

At the end of the day, the difference between human and robo-advisers is one of degree rather than kind; admittedly, humans offer a “warm-body effect” that robo-advisers do not possess,²⁶ but the substantive process is similar. A human adviser that has dealt with hundreds of clients will inadvertently have a mental checklist that he subconsciously refers to during the client onboarding process,²⁷ and this is no less formulaic than how a robo-advising algorithm would operate.

Rectifying Conflicting Answers

Secondly, FINRA is concerned about the ability of robo-advisers to “rectify conflicting answers to client profile questionnaires.”²⁸ Once again this concern stems from an issue with questionnaire design rather than with robo-advisers; it would be inadvisable to dismiss robo-advisers as being inherently unable to meet the suitability standard without first considering alternative solutions to this problem.

For example, a possible solution might involve adding built-in triggers to the questionnaire that 1) prompt a customer when their responses appear to be internally inconsistent, and 2) flag the inconsistent information for further review by a human adviser before an account can be opened.²⁹ The result is that conflicting responses would be subject to multiple levels of checks, and a customer would not be able to start an account with a robo-advising platform until the conflicts have been resolved.

FINRA’s concerns over resolving conflicting responses to questionnaires can be alleviated, and they should not pose any obstacle to robo-advisers meeting the suitability standard.

Pairing Clients with Investments

Lastly, FINRA is concerned about the ability of robo-advisers to “pair clients’ investment profiles with suitable securities or investment strategies.”³⁰ This is the easiest of FINRA’s concerns to resolve. As discussed earlier, empirical research has demonstrated that human advisers are susceptible to a surfeit of

²⁵ Jennifer Hill, W. Randolph Ford, & Ingrid Ferreras, *Real conversations with artificial intelligence: A comparison between human–human online conversations and human–chatbot conversations*, 49 *Computers in Human Behavior* 245 (2015); Heloisa Candello, Claudio Pinhanez, David Millen & Bruna Daniele Andrade, *Shaping the Experience of a Cognitive Investment Adviser* in DESIGN, USER EXPERIENCE, AND USABILITY: UNDERSTANDING USERS AND CONTEXTS (PART 3) (Aaron Marcus & Wentao Wang, Ed’s. 2017).

²⁶ Jill Fisch, Marion Laboure and John Turner, *The Economics of Complex Decision Making: The Emergence of the Robo Adviser*, UNIVERSITY OF PENNSYLVANIA LAW SCHOOL – INSTITUTE FOR LAW AND ECONOMICS, 2017, [<https://perma.cc/8CCP-ETF6>].

²⁷ See, e.g., Daniel Kahneman & Mark Riepe, *Aspects of Investor Psychology*, 24 *JOURNAL OF PORTFOLIO MANAGEMENT* 52, 64 1998.

²⁸ Fein, *supra* note 14, 8.

²⁹ Carney, *supra* note 22, 603; Securities and Exchange Commission, Division of Investment Management, *Guidance Update: Robo-Advisers*, SECURITIES AND EXCHANGE COMMISSION, No. 2017-02, 7, Feb. 23, 2017) 7 [<https://www.sec.gov/investment/im-guidance-2017-02.pdf>] [<https://perma.cc/UT5K-2MFW>].

³⁰ Fein, *supra* note 14, 8.

biases, suggesting that dispassionate robo-advisers should be able to match customers to investments at least as well as—if not even better than—human advisers.³¹

This leads to the corollary conclusion that if human advisers are capable of meeting the suitability standard, then so are robo-advisers. Understandably, this then raises questions of algorithm design (i.e., only well-designed robo-advisers should be able to meet the suitability standard, in the same way that only competent human advisers can do so), but the answers to those questions lie beyond the scope of this paper.

It is clear that robo-advisers are able to match clients with appropriate investment strategies that equal, if not surpass, the ability of a human broker-dealer.

Discharging Fiduciary Obligations

Having addressed the suitability standard, this section will examine the question of whether robo-advising firms can meet the fiduciary obligations incumbent on investment advisers. This section will argue that robo-advisers can meet the fiduciary standard as well, even though their case might not be as strong as with the suitability standard.

Having established earlier that the suitability standard is “a less intensive form of fiduciary duty,”³² and because the suitability standard has already been examined in the previous section, this section will focus on the area in which the fiduciary standard goes above and beyond what is required under the suitability standard.

This aspect of the fiduciary standard bears repeating, because it is at the crux of the debate: the key distinguishing feature is that the investment-adviser fiduciary relationship requires advisers to act in the “best interest” of their clients. While the content of “best interest” is not “well defined,”³³ for the purposes of this discussion about robo-advisers, it is clear that it is a higher bar than the suitability standard because it requires the adviser to conduct “initial and ongoing due diligence.”³⁴ In essence, this means that the investment-adviser fiduciary relationship is a continuing relationship, as opposed to the predominantly transactional nature of broker-dealer relationships.

It is, therefore, inherently more challenging for robo-advisers to meet the fiduciary standard than the suitability standard, because they “have no human contact with the client” and it is consequently harder for them to identify their client’s best interest within the context of an “ongoing relationship.”³⁵ This is the position taken by a broad spectrum of commentators, ranging from Melanie Fein and Professor Arthur Laby, to the Massachusetts Securities Division.

³¹ Foerster, *supra* note 7; Linnainmaa, *supra* note 8; Barber, *supra* note 9; Barber, *supra* note 10; Odean, *supra* note 11; Rabin, *supra* note 12; Shiller, *supra* note 12; Hong, *supra* note 12.

³² Jackson, *supra* note 3, 16.

³³ Carney, *supra* note 22, 598.

³⁴ Fein, *supra* note 15, 4.

³⁵ Melanie Fein, *Are Robo-Advisors Fiduciaries?*, SOCIAL SCIENCE RESEARCH NETWORK 18, 2017, <https://ssrn.com/abstract=3028268> [<https://perma.cc/LS4C-QXS7>]

Challenges Faced in Meeting the Fiduciary Standard

For instance, the Massachusetts Securities Division (MSD) has argued that robo-advisers “may be inherently unable” to carry out the fiduciary obligations of an investment adviser.³⁶ The division arrived at this conclusion primarily on the grounds that robo-advisers 1) do not conduct either initial or ongoing due diligence on clients and 2) often disclaim the obligation to act in a client’s best interests.³⁷ Specifically on the latter point, the MSD argued that clients are routinely left to provide crucial updates about any changes to their financial or personal situation; robo-advisers typically decline any ongoing duty to make such inquiries, despite the fact that such changes may well have an impact on the appropriateness of investment decisions.³⁸

Similarly, Professor Arthur Laby has suggested that robo-advisers will struggle to meet the fiduciary standard because they are unable to capture the nuances that would ordinarily arise in a human-to-human interaction.³⁹ Professor Laby argues that clients cannot inform robo-advisers of “wrinkles,” such when the client anticipates the possibility of significant changes in their financial situation (e.g., an inheritance), and this inability to account for the complete factual matrix means that a robo-adviser cannot be said to be acting in a client’s “best interest.”⁴⁰

Melanie Fein, a former head of Arnold & Porter’s Bank Mutual Funds Practice, goes one step further and argues that robo-advisers cannot meet the fiduciary standard not only because they are unable to conduct “ongoing due diligence,” but also because they are not equipped to act in a client’s “best interest” during times of severe market corrections.⁴¹ This notion finds support from former SEC Commissioner Kara Stein, who has also raised concerns that “robo-advisers will not be on the phone providing counsel if there is a market crash.”⁴²

These concerns are not unfounded—even though algorithms are disinterested and dispassionate, their human clients are still subject to the emotional turmoil wrought by market vicissitudes.⁴³ Because robo-advisers are unable to appreciate the nuances of human emotion (e.g., fear or greed) in providing investment advice, human advisers will still be needed during market downturns to provide the emotional reassurance that algorithms cannot offer. This has been described as the “warm-body effect,”⁴⁴ and is perhaps best summarized by a Wall Street Journal article which argued that “an email or text message in the fall of 2008 would not have sufficed to keep millions of panicked savers from selling, with devastating consequences for their nest eggs.”⁴⁵

³⁶ Massachusetts Sec’y of State, Securities Division, *News and Updates: Policy Statement: Robo-Advisors and State Investment Adviser Registration*, MASSACHUSETTS SEC’Y OF STATE, SECURITIES DIVISION 8, Apr. 1, 2016, <https://www.sec.state.ma.us/sct/sctpdf/Policy-Statement--Robo-Advisers-and-State-Investment-Adviser-Registration.pdf> [<https://perma.cc/P92H-4CV5>].

³⁷ *ibid.*

³⁸ Fein, *supra* note 14), 20.

³⁹ Bernard, *supra* note 6.

⁴⁰ *ibid.*

⁴¹ Melanie Fein, *Robo-Advisors: A Closer Look*, Scholarly Paper ID 2658701, SOCIAL SCIENCE RESEARCH NETWORK 5, 2015, <https://ssrn.com/abstract=2658701> [<https://perma.cc/2BXF-TQAQ>].

⁴² Kara Stein, *Surfing the Wave: Technology, Innovation, and Competition: Remarks at Harvard Law School’s Fidelity Guest Lecture Series*, Nov. 9, 2015), <http://www.sec.gov/news/speech/stein-2015-remarks-harvard-law-school.html> [<https://perma.cc/MHF8-6T8Y>].

⁴³ Bret Strzelczyk, *Rise of the Machines: The Legal Implications for Investor Protection with the Rise of Robo-Advisors*, 16 DePaul Business and Commercial Law Journal 54, 62, 2018.

⁴⁴ Fisch, *supra* note 26, 15.

⁴⁵ Robert Litan and Hal Singer, *Obama’s Big Idea for Small Savers: “Robo” Financial Advice*, WALL STREET JOURNAL, July 21, 2015), <https://www.wsj.com/articles/obamas-big-idea-for-small-savers-robo-financial-advice-1437521976> [<https://perma.cc/C6A4-AC82>].

Overcoming the Challenges

There are two primary issues that have been identified, namely the inability of robo-advisers to 1) conduct “ongoing due diligence,” and 2) act in the “best interests” of clients during times of market stress. Both contain a kernel of truth but have been blown out of proportion.

Firstly, while it is true that robo-advisers are unable to conduct “ongoing due diligence” in the sense that they depend on customer input, the issue yet again lies with algorithm design rather than with robo-advisers. After all, Professor Laby’s concern that robo-advisers are not able to account for “wrinkles” applies to human advisers just as much as it does to robo-advisers—a human investment adviser would also be unable to account for such information unless it had been disclosed.

The inability to conduct “ongoing due diligence” is thus not an insuperable barrier to meeting the fiduciary standard; critics may have painted robo-advisers as entirely passive platforms, but this is not necessarily the case. Just as an investment adviser might call his clients monthly to check for updates to their financial situation, so too could a robo-adviser be pre-programmed to prompt clients monthly to provide updates, if any, regarding their financial and personal situation.

Secondly, concerns about the inability of robo-advisers to act in the “best interests” of clients during market downturns are similarly overstated. Admittedly, a robo-adviser may not be able to provide the reassurance that comes with the “warm-body effect,”⁴⁶ but it cannot be said that human investment advisers always have a steady hand on the tiller when market corrections occur. After all, it has been observed by John Bogle that “investors are more volatile than investments.”⁴⁷

Considering that human advisers are not likely to be paragons of calm during market crashes, it is not implausible that robo-advisers could do at least as good a job as human advisers in acting for the “best interests” of their clients during times of market stress. For example, robo-advisers could be preprogrammed to execute stop-loss orders during severe downturns, with the trigger price determined by answers to the risk-appetite questionnaire during the client onboarding process.

Additionally, it is also possible for robo-advisers to protect the “best interests” of their clients by implementing a trading “kill switch” that is activated when the market volatility exceeds a predetermined benchmark. For example, although not specifically referred to as a “kill switch,” this occurred on the morning after the Brexit vote in 2016, when Betterment suspended all trading on its platform for over two hours. The rationale behind the trading halt was to protect the “best interests” of Betterment’s clients—Betterment explained that it would have been “undesirable” for their clients to trade into such “wild price swings,”⁴⁸ and the halt was meant to “protect clients from making panicked decisions that would result in poor trade execution and higher transaction costs.”⁴⁹

⁴⁶ Fisch, *supra* note 26, 15.

⁴⁷ John Bogle, *Black Monday and Black Swans*, 64 *Financial Analysts Journal* 30, 34, 2008.

⁴⁸ Michael Wursthorn and Anne Tergesen, *Robo Adviser Betterment Suspended Trading During ‘Brexit’ Market Turmoil* WALL STREET JOURNAL, June 24, 2016, <http://www.wsj.com/articles/robo-adviser-betterment-suspended-trading-during-brexit-market-turmoil-1466811073> [<https://perma.cc/D3KM-J2A8>].

⁴⁹ Megan Ji, *Are Robots Good Fiduciaries? Regulating Robo-Advisors Under the Investment Advisers Act of 1940*, 117 *Columbia Law Review* 1543, 1568, 2017.

Therefore, we can see that neither objection is insurmountable, and that perhaps it might be possible for robo-advisers to meet the fiduciary standard after all.

Disclosure-and-Consent Requirements

Up to this point, the arguments in favor of robo-advisers meeting the fiduciary standard have primarily been defensive and argued that the criticisms levelled against robo-advisers can be rebutted. However, this subsection will attempt to put forward a novel argument, by arguing that their fiduciary obligations could also be discharged through disclosure-and-consent requirements.

The foundation for this idea is borrowed from Professor Howell Jackson and Talia Gillis of Harvard Law School, who point out that “sometimes disclosure-and-consent requirements are so onerous that they approximate rules of conduct.”⁵⁰

The reasoning behind this approach is that 1) disclosure-and-consent requirements and 2) conduct rules are essentially two sides of the same “fiduciary duty” coin. In light of the fact that it is structurally more challenging for robo-advisers to meet conduct rules, for example because they lack volition, the emphasis should instead fall on the use of disclosure-and-consent requirements as a means by which robo-advisers can meet the fiduciary standard. After all, as long as the disclosure-and-consent requirements are “sufficiently stringent,” they can be approximated to a rule of conduct.⁵¹

As Professor Jackson and Talia Gillis suggest, a “sufficiently stringent” regulatory framework could take the form of ex post disclosure-and-consent requirements, such as “where a fiduciary must obtain consent for every transaction falling within a certain category.”⁵² An ex post disclosure-and-consent requirement might seem like an unduly onerous burden for both robo-advisers and their clients, especially because robo-advising is meant to streamline and automate the investment advisory process. However, it is a necessary imposition if a balance is to be appropriately struck between allowing robo-advisers to discharge their fiduciary obligations and ensuring that clients are protected.

This paper does not have the scope to flesh out the specificities of an ex post disclosure-and-consent requirement for robo-advisers, but a model might be drawn from Article 24(4) of the European Union’s recently implemented Markets in Financial Instruments Directive II.⁵³

Article 24(4) imposes an ex post disclosure requirement on investment advisers that is precisely the sort desired in this subsection, with the only difference being the lack of an additional requirement for informed consent.

⁵⁰ Jackson, *supra* note 3, 17.

⁵¹ Jackson, *supra* note 3, 21.

⁵² *ibid*; the specific example used is Section 206(3) of the Investment Advisers Act of 1940, which requires investment advisers to acquire consent for every relevant transaction when trading with a client as principal. Professor Jackson and Talia Gillis argue that “such a consent requirement creates an insuperable barrier to certain kinds of transactions, effectively approximating a rule of conduct.”

⁵³ Article 24(4) of Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014.

Among other things, Article 24(4) requires that the following information be provided to clients “in good time”:

- whether or not the advice is provided on an independent basis; and
- whether the advice is based on a broad or on a more restricted analysis of different types of financial instruments and, in particular, whether the range is limited to financial instruments issued or provided by entities having close links with the investment firm or any other legal or economic relationships... so close as to pose a risk of impairing the independent basis of the advice provided.⁵⁴

Additionally, Article 24(4) also requires that “the information about all costs and charges . . . which are not caused by the occurrence of underlying market risk, shall be aggregated to allow the client to understand the overall cost as well as the cumulative effect on return of the investment, and where the client so requests, an itemized breakdown shall be provided. Where applicable, such information shall be provided to the client on a regular basis . . . during the life of the investment.”⁵⁵

Ex post disclosure-and-consent requirements are thus a possible means by which robo-advisers could discharge their fiduciary obligations, although this is not as straightforward as meeting the suitability standard. No matter how stringent they may be, the notion that meeting disclosure-and-consent requirements alone could be sufficient for a robo-adviser to perform its fiduciary duty does not comport with the orthodoxy of investment adviser fiduciary law.

However, although it may be easy to conclude that this proposal holds no prospect of success, it is important to heed recent guidance from the SEC, which hints at a likelihood that such a disclosure-based strategy could work.⁵⁶ Specifically, the SEC has acknowledged the notion that robo-advisers can meet the investment adviser fiduciary standard, provided they comply with key qualitative metrics: such as *ex ante* “adequate and effective disclosure.”⁵⁷

The SEC’s suggestion of an *ex ante* disclosure-only requirement is less rigorous than what has been proposed in this subsection. What they suggest is more similar to a hedge clause recommending that robo-advising firms alert potential clients to, among other things, “the particular risks inherent in the use of an algorithm;⁵⁸ they also emphasize that the disclosures should be written in “plain English” and brought to the attention of potential clients (e.g., “through design features such as pop-up boxes”).⁵⁹ In essence, the SEC seems to suggest that sufficient *ex ante* disclosure would entail ensuring that clients signing up to a robo-advising platform do so with a heightened awareness of its unique features and attendant risks.

The proposal in this subsection goes even further than the SEC’s *ex ante* disclosure-only requirement by arguing for an *ex post* disclosure-and-consent requirement. Therefore, even though it may be unconventional, it is likely to be sufficient to allow robo-advisers to discharge their fiduciary obligations.

⁵⁴ *Id* at 5.

⁵⁵ *Ibid*.

⁵⁶ Securities and Exchange Commission, Division of Investment Management, *supra* note 29.

⁵⁷ Nicole Iannarone, *Computer as Confidant: Digital Investment Advice and the Fiduciary Standard*, 93 CHICAGO-KENT LAW REVIEW 141, 158, 2018.

⁵⁸ Securities and Exchange Commission, Division of Investment Management, *supra* note 29, 4.

⁵⁹ *Id* at 5.

Conclusion

Robo-advisers are capable of meeting the suitability and fiduciary standards, and thus the prevailing regulatory framework should apply to them—meaning that at minimum only one human being is needed for investment advice to be dispensed.

However, an important caveat is that the preceding discussion takes place at a very high level of abstraction. Although it is a helpful intellectual exercise to consider the minimum amount of human involvement required for a robo-adviser to provide investment advice, in practice robo-advising firms are unlikely to be pushing that envelope. After all, dual registrants of the sort discussed in this paper will often have assets under management in excess of \$100 million, and it would be inadvisable for a single individual to be responsible for such vast sums.

Robo-advising algorithms are our friend, not foe; therefore, regulators should be careful to avoid knee-jerk responses that risk throwing the baby out with the bathwater. It is sometimes said that it is “better to be approximately right than precisely wrong,”⁶⁰ and the advent of robo-advising provides us with the opportunity to do just that; the path ahead is uncertain but filled with transformative potential and, in stepping forward, we should be careful not to sacrifice financial innovation on the altar of over-regulation.⁶¹

⁶⁰ This aphorism is often attributed to Warren Buffett.

⁶¹ Chris Brummer and Yesha Yadav, *FinTech and the Innovation Trilemma* Scholarly Paper ID 3054770, SOCIAL SCIENCE RESEARCH NETWORK 12, 2018, <https://www.ssrn.com/abstract=3054770> [<https://perma.cc/88QQ-DJAJ>].

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Note: The Treasury Department [FinTech Report of July 2018](#) addresses issues related to robo-advising on pages – 159 to 164.