BACKEND BENCHMARKING PRESENTS:

The Robo Ranking™

EDITION 1

Summer 2018 Edition

Bringing Transparency to Robo Investing

We are excited to publish our first edition of *The Robo Ranking*™. *The Robo Ranking*™ is the only comprehensive ranking of Robo Advisors that includes not only the features and services, but also the performance of Robo Advisors. Robo Advisors have taken the advice industry by storm, with the larger independent providers continuing to show strong growth, and robo advice technology being adopted across banks, brokerages, and other traditional advice firms. Robo advice providers are proving attractive to individual investors in large part due to their significantly lower minimums and costs. Since these products are relatively new to the investment landscape, there is little information available to investors. Here at Backend Benchmarking, our goal is to bring transparency to the robo advice industry to empower investors to seek the best products and services.

***The Robo Ranking*™ goes well beyond performance and grades the robos across 45 specific metrics. We scored each robo on various high-level categories, such as features, financial planning, customer experience, access to live advisors, transparency and conflicts of interest, size and tenure, account minimums, costs, and performance. Each metric where we grade the robos is specific and unambiguous.**

The Executive Summary

We believe *The Robo Ranking™* is a powerful tool to help those seeking a digital advice product find the best providers. Although we rank each robo with an overall score, we also acknowledge the differences in individual investors and their situations. To help different types of investors find a product that is right for them, we created sub-rankings to help investors understand areas where different products excel. Once an investor has identified their needs, the sub-rankings can help them select a provider that excels in areas that are most important to them.

Performance is partly based on Backend Benchmarking's innovative method to compare globally diversified portfolios called Normalized Benchmarking. A methodology of Normalized Benchmarking can be found on our website. The details of how we created the scores and ranking can be found on our website and at the back of this report.

In this issue we are also publishing an interview with Fidelity Go. At Backend Benchmarking we always like to get to know the providers themselves and speak directly with the people who create and manage these products. Interviews with other robo advice providers can be found in past *Robo Report™* publications, which are available for free at theroboreport.com.

Robo Ranking

Best Overall Robo

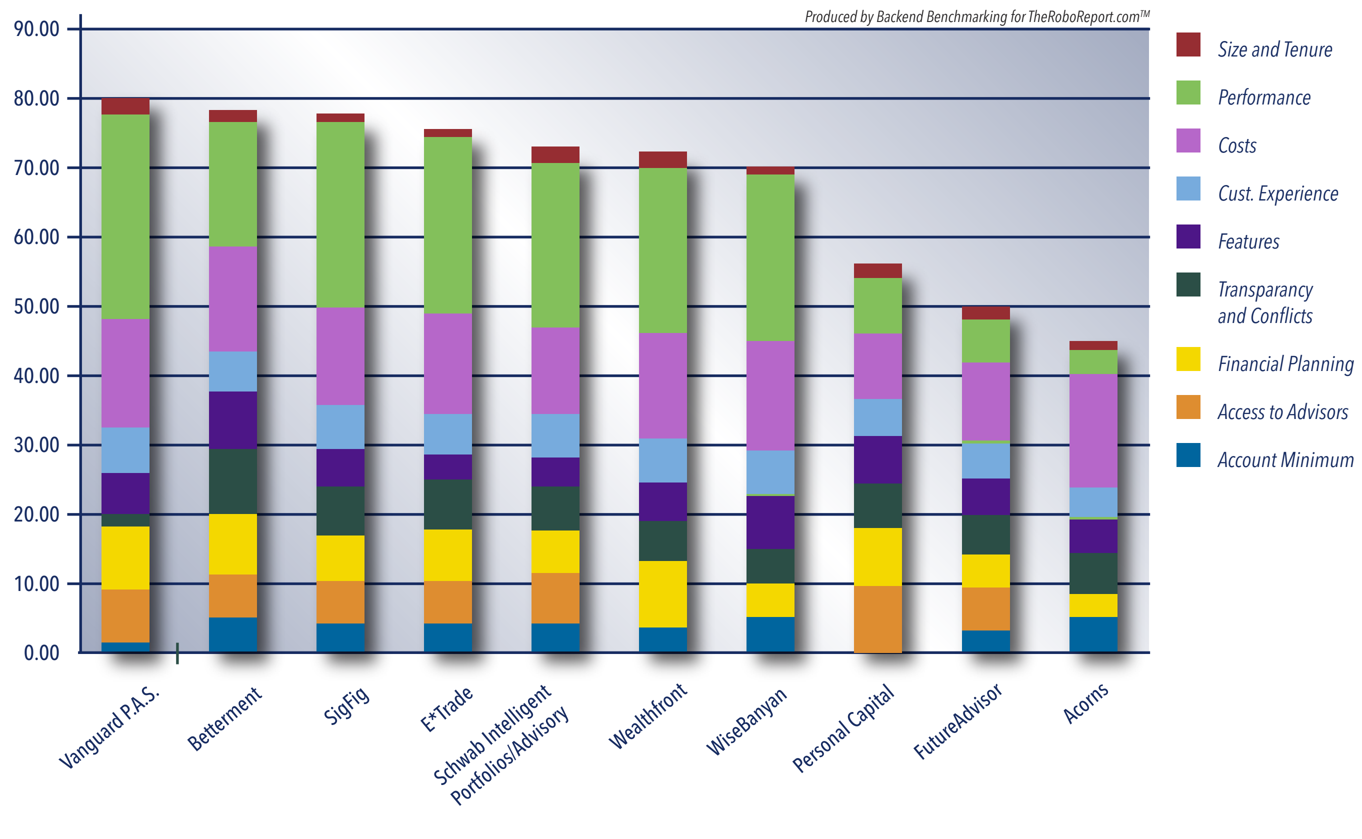
Winner: Vanguard
Runner-Up: Betterment
Honorable Mention: SigFig

Vanguard has taken the top spot in our Robo Ranking. Vanguard has a compelling offer: professionally managed accounts, rebalancing, live advisors, full service financial planning, and a portfolio that has outperformed over the past two years, all for a management fee of 0.30%. Vanguard's time-tested, low fee, indexing approach to investment management has proved successful over the two-year period in which we have tracked their account. Advisors can provide robust financial planning services and help clients stay on track to meet their goals. Although many of the Personal Advisor Services' clients were existing Vanguard clients, investors have been voting with their wallets as Vanguard has approximately three times assets under management as their next largest rival. The value proposition of Vanguard Personal Advisor Services is undeniably compelling. Vanguard's high level of service and strong performance propelled them to our top spot. Vanguard scored well in most categories, but by holding all proprietary funds, not making the performance and construction of their model portfolios available online publically, among other criteria, they lagged in the transparency and conflicts of interests category. Another drawback of Vanguard's service is their online experience. Those seeking a modern online experience with innovative digital planning and other tools should consider other winning providers.

We award Betterment the second Best Overall Robo. They are pioneers in the space and have continued to stay on the cutting edge of user experience and technology. Their website is intuitive and helpful. They have simple but high quality digital financial planning tools, while offering access to more in-depth planning and advice at their premium level. Betterment helps users understand the relative performance of their accounts by allowing users to compare their portfolio to benchmarks. Fractional shares, tax-loss harvesting, availability of most account types, and lack of proprietary investment products all helped Betterment achieve runner-up. Although Betterment's performance has lagged behind the group over the long term, their breadth of services and features propelled them to the second overall score in our ranking. Betterment has a well-rounded, quality platform and a strong value proposition to investors.

SigFig receives an honorable mention for Best Overall Robo. SigFig has a nice user interface and customer experience. Combined with the ability to aggregate outside accounts, SigFig can give you a holistic view of your investment and savings accounts. Their new retirement planner is basic, but has good features and provides advice on how to adjust a user's plan to stay on track towards retirement. Their digital service comes with access to live advisors when clients need more guidance than what the digital tools can provide. They have a low minimum of $2,000 and a fee in line with other low-cost robo advisors, at 0.25% annually. SigFig has also done well in our two-year performance numbers, coming in second only to Vanguard when looking at returns above or below the normalized benchmark and the Sharpe ratio. Strong performance, a quality set of digital tools, and access to live advisors earned SigFig an honorable mention for Best Overall Robo.

Robo Ranking



Robo Ranking

	Account Minimum	Access to Advisors	Financial Planning	Transparancy and Conflicts	Features	Customer Experience	Costs	Performance	Size and Tenure	Total
Vanguard P.A.S.	1.00	8.10	9.00	1.80	6.12	6.48	15.17	30.00	2.00	79.66
Betterment	5.00	6.30	9.00	9.00	8.45	5.85	15.11	18.00	2.00	78.71
SigFig	4.00	6.30	6.30	7.20	5.04	6.60	14.44	27.00	1.20	78.07
E*Trade	4.00	6.30	7.20	7.20	3.60	6.03	14.83	25.50	0.67	75.33
Schwab Intelligent Portfolios/Advisory	4.00	7.20	6.30	6.30	4.10	6.44	12.71	24.00	2.00	73.04
Wealthfront	4.00	0.00	9.00	5.40	6.12	6.19	15.48	24.00	2.00	72.19
WiseBanyan	5.00	0.00	4.50	5.40	7.74	5.99	16.24	24.00	1.20	70.06
Personal Capital	0.00	9.00	9.00	6.30	7.20	5.19	9.86	7.50	1.80	55.85
FutureAdvisor	3.00	6.30	4.50	6.30	5.04	4.78	12.30	6.00	1.60	49.82
Acorns	5.00	0.00	4.50	5.40	4.14	4.63	16.99	3.00	1.40	45.05

Robo Ranking Facts

Portfolio	2-Year Annualized Return	Return Above/Below Normalized Benchmark	Sharpe Ratio	Account Minimum	Fee
Acorns[1]	6.73%	-2.87%	0.83	No minimum	$1/month for Acorns; $2/month when adding Acorns later for Retirement accounts. Custom pricing for balances above $1 million
Betterment[15]	8.61%	-1.45%	1.10	"Digital Only": No minimum; "Premium": $100k Minimum	Digital Only: 0.25%; Premium (unlmited chat and calls with advisor): 0.40%
E*Trade[3]	8.95%	-0.34%	1.20	$5,000	0.30% annually
FutureAdvisor[3]	6.58%	-2.55%	0.90	$10,000	0.50% annually
Personal Capital[4]	8.39%	-2.92%	1.00	$100,000	0.89% annually for the first $1 million; lower at different tiers over $1 million
Schwab[5]	9.48%	-0.89%	1.19	"Intelligent Portfolio": $5,000; "Intelligent Advisory": $25,000	No fee for digital only "Intelligent Portfolio"; Access to live advisor with "Intelligent Advisory" has 0.28% fee.
SigFig[6]	9.33%	-0.11%	1.21	$2,000	No fee for the first $10K; 0.25% annually over $10K
Vanguard[4,A]	9.11%	-0.02%	1.31	$50,000	0.30% annually for the first $5 million; lower at different tiers over $5 million
Wealthfront[10]	9.25%	-0.81%	1.19	$500	0.25% annually
WiseBanyan[8]	9.17%	-0.74%	1.21	No minimum	No Fee for basic package; 0.24% anually to add tax loss harvesting; other add-on packages come at additional cost.

Sub-Ranking Winners

Best Robo for Performance at a Low Cost

Winner: Vanguard
Runner-Up: SigFig

Vanguard is the winner in this category. Their returns above/below the normalized benchmark and Sharpe ratio were the highest over the two-year period. Vanguard has one of the simplest portfolios in our universe, with just five total funds: A fund each for domestic and international equities, and three municipal bond funds. With a management fee of 0.30%, a portfolio that stays fully invested, and low underlying fund expense ratios, Vanguard has managed to outpace their counterparts over the trailing two-year period. Sometimes simple portfolio construction goes a long way.

SigFig is the runner-up in this category. They achieved second place in both the returns above/below the normalized benchmark and Sharpe ratio. They also keep their portfolio simple. They hold two similar broad-based, all-cap domestic equity funds, and two broad-based ETFs each for developed and emerging markets. Their bond portfolio is a little more diverse than Vanguard's, with holdings across many types of bonds, including a dedicated emerging market bond fund. This helped their fixed income outperform Vanguard's, but not enough to earn them the top spot. SigFig's fee is 0.25% above the first $10,000 invested and holds funds with low expense ratios.

Best Robo for Complex Financial Planning Needs

Winner: Personal Capital
Runner-Up: Vanguard

When it comes to complex financial needs, dedicated live advice is difficult to replicate. Personal Capital won this category due to their top-in-class digital tools and interface combined with live advice. Their digital features, like many others, include the ability to pull in information from outside accounts. Aggregating outside account information combined with live advisors empowers Personal Capital to incorporate a client's entire financial picture when dispensing advice and planning. Through the online tools, users can analyze budgets and cash flows, build complex plans, and see their entire financial picture in one place. These features make Personal Capital a great place for those with more complex needs. Something to note, however: Although Personal Capital has a great service, it is more expensive than other competitors. Minimums are $100k and pricing starts at 0.89% annually.

Although we have high hopes for the future of digital financial planning, we are sticking to old-fashioned human planners when life gets complex. Vanguard's dedicated advisors and custom-built plans provide the necessary level of flexibility when modeling complex situations. Like Personal Capital, Vanguard also has the ability to aggregate outside account information, and bases their plans on a client's entire asset picture, regardless of where the accounts are held. For a fee of only 0.30%, Personal Advisor Services is a compelling solution for investors with planning needs and the desire to keep costs at rock bottom. Although their planning and advice is great value for a low cost, clients who want a high-tech and great user experience on their provider's website and app should look elsewhere; Vanguard's digital experience leaves a lot to be desired.

Best Robo for Digital Financial Planning

Winner: Personal Capital
Runner-up: Wealthfront
Honorable Mention: Betterment

Personal Capital and Wealthfront both have strong digital financial planning tools. It is no surprise that the best digital planning tools are provided by independent robos, as we find the independent robos often have higher quality digital experiences. We like Personal Capital's intuitive and flexible digital planning tool the best in our universe. Whether a user is looking to build a single-goal plan or a complex multi-goal plan, they will find this financial planner capable of handling their needs. Life, income, and wealth rarely follow a straight path, and Personal Capital's planner can model different cash flows and events to better reflect real-life complexities. Rental income, pensions, selling a home, renovating a home, and other cash flows can be added into this planner. Personal Capital makes this tool available not only to their paying clients, which requires a $100k minimum, but to anyone who wants to sign up and link their external accounts for free. In this category, Personal Capital is the clear winner.

Wealthfront also has strong financial planning tools where multiple goals can be built. Wealthfront's Path tool integrates multiple goals into a single plan and has nice features for specific goals, like helping a user determine an affordable purchase price of a new home. Each one of these goals can be tracked, and users are given a probability of success as well as the amount of savings needed to keep their goal on track. Wealthfront also has good features for those looking to build a plan around funding their own, or a child's, education. Integration of multiple goals into a single financial plan, flexible tools that help guide users through building goals, and goal-planning widgets designed for specific types of goals earn Wealthfront the second place spot.

Betterment handles multi-goal financial plans by creating single independent goals. Like Wealthfront, clients can track the progress of their goals, and are given savings recommendations to help meet them. Although Betterment's planner falls short of creating an integrated multi-goal plan, their individual goals are sufficiently flexible and informative to earn them an honorable mention in this category.

All three of the providers can link outside accounts and include the balances and investments in those accounts as part of their goals. These three digital planners are all quality tools and can help clients chart a route to achieving their financial goals.

Best Robo for First-Time Investors

Winner: Betterment
Runner-up: Acorns

Betterment's digital-only product is low cost and has a zero-dollar minimum, making it a good place for a first-time investor. Their platform handles simple, single-goal financial plans well, and makes investing easy to understand and implement for new investors. Users also have access to customer support to help them if they run into issues or have basic questions about their accounts. With Betterment, as a first-time investor becomes more experienced, wealthier, and their planning needs grow, they can upgrade to Betterment premium without having to change providers or portfolios. Betterment's easy-to-use and simple interface, no minimum balance, quality basic digital planning, and the ability to upgrade to premium down the road make Betterment a great first step into investing.

Although Acorns did not score well in our ranking, they are proving to be very successful at attracting young, low asset, and other clients. One area where Acorns excels, but is also difficult to measure, is encouraging positive behavior when it comes to saving and investing. So despite their low score, we are awarding them the runner-up in Best Robo for First-Time Investors. Acorns' main feature is Round-Ups, which invests a small amount of money each time a linked debit or credit card is used. Acorns takes the difference between the purchase amount and the nearest dollar amount and deposits that amount into a investment account for the user. Although this typically adds up to relatively small sums of money, it is a great feature to help users get in the habit of saving and investing regularly. Acorns has designed their platform with a mobile-first mentality and simplified the user interface, lowering the mental barriers to investing for those that have never invested before. Their platform has proven successful at attracting users, and although Acorns manages less total money than the other leading robos, they have the most clients by a wide margin. For those who have not invested before, Acorns is a great place to start. All of this said, we need to point out one aspect of their platform: Acorns' users pay between $1 and $3 a month, depending on which features they enroll in, regardless of account balance for accounts under $1 million. For users with low account balances, this can mean the fee paid by users is a very large portion of their balance. Using simple math, a $100 account that is charged $12 a year is roughly equivalent to a 12% management fee. Users need to be aware of this cost if they plan on carrying only a small balance in their accounts.

Best Robo from an Incumbent Financial Institution

We have held back on awarding a winner in this category for this release of *The Robo Ranking*™. This release of the ranking includes only robos where we have collected a full two years' worth of performance history, which leaves out important offerings like Fidelity Go and TD Ameritrade's Essential and Selective Portfolios. Our next ranking, which will be published 6 months from now, will include these two offerings. In the meantime, here are our thoughts on E*Trade, Schwab, Fidelity Go, and TD Ameritrade.

Schwab

Schwab provides the best user experience of these offerings. Their Intelligent Portfolios online portal has a fresh look with easy and intuitive navigation. They offer some very basic digital goal planning, with increased functionality and access to live advisors when a client upgrades to Intelligent Advisory. Schwab offers their digital-only Intelligent Portfolios product at no management cost, although they do mandate a large cash position, which we believe helps them offset the cost of offering the product for free. Overall, Schwab's digital advice product suite is a strong offering from an incumbent firm.

TD Ameritrade

Like Schwab, TD Ameritrade has multiple levels of service. Essential Portfolios is their most basic service, which costs in line with other low-cost providers at 0.30% annually. Selective Portfolios' costs are less transparent and depend on the amount of money invested. Selective Portfolios comes with a financial consultant to help users tackle more complex questions or for those who are more comfortable having access to live consultants. The Essential Portfolios online portal does have some basic goal planning features and can help you determine if you are on track to hit your goals. The digital planning features do not provide great guidance on how much one should be saving for retirement or other goals. Those that want more robust planning and help determining spending in retirement would need to utilize the live consultants at the Selective Portfolios level or with other TD Ameritrade advised products. Selective Portfolios does offer a couple more portfolio options, like a portfolio designed to provide income to the investor. Overall, TD Ameritrade's products are better than average compared to offerings from other incumbent firms.

E*Trade

E*Trade has a low-cost robo similar to other offerings from incumbents. Their digital platform has nice performance and asset allocation charts. There are some good retirement planning tools on E*Trade's website, but they are not well-integrated with the accounts view and represent a more traditional retirement calculator. It can be a little tricky to find the planning tools on the website, and progress towards financial planning goals is not displayed with the account balances like many other platforms. That said, once the planning tools are located, they do a good job of helping users determine how much to spend, modeling social security, and other tasks, making for a quality planning experience. E*Trade Core Portfolios customers can pick up the phone to get help from live specialists. E*Trade does provide more comprehensive services with other offerings if users feel like Core Portfolios is not a robust enough advice service. E*Trade has a lot to offer, but the overall digital experience is not well-integrated and can take some navigating to find features. Tax-loss harvesting is not offered with Core Portfolios.

Fidelity Go

Fidelity Go has the basic features of other offerings from incumbents. Their goal planning tool within the Fidelity Go portal gives the user a basic single-goal projection and likelihood of success. Their more robust planning tool is found outside the Fidelity Go area of the site and is a quality tool, but similar to other incumbent firms, there is a lack of integration between Fidelity Go and legacy features on Fidelity's website. One aspect of Fidelity Go we particularly like is their fee transparency. Fidelity Go's underlying mutual funds do not have expense ratios, making their 0.35% management fee an "all in" cost. We love to see a total fee to the user as a single, transparent number. Fidelity Go does not offer tax-loss harvesting, and those who want live financial advice will have to upgrade to a more traditional advice offering with Fidelity.

Robo Interviews

This quarter, we spoke with Brooke Forbes, Senior Vice President of Customer Experience on the digital customer experience team at Fidelity. As the head of the digital customer experience team, Brooke is in a great position to address how clients are interacting with Fidelity Go and what Fidelity is learning about digital advice.

Similar to what we have heard from other providers, digital advice is making the biggest impression on clients that are new to a professionally managed portfolio. Brooke shared with us that only about 10% of their clients are migrating from a traditional advice relationship. Self-directed investors are a diverse group of individuals with different needs and behaviors when it comes to their investment choices. Brooke helped us identify two types of self-directed investors that are attracted to Fidelity Go, despite their different characteristics.

The first type of investor trends much younger and has existing accounts, but is still relatively new to investing. Fidelity Go is successfully introducing these clients to a managed product. This type of client may have difficulty finding an advisor, as they are in the earlier stages of wealth accumulation. Fidelity Go was designed to attract younger, digitally savvy investors by creating an easy, straightforward, and highly accessible platform, simplifying the investment process. As Brooke puts it, "We anchored the entire design of the experience around, could you go from digital profiling all the way to getting invested in literally 5 minutes." Fidelity Go can be set up in minutes, has no minimum, and eliminates the need for a younger investor to create their own portfolio allocation and to navigate what can be a confusing and opaque landscape of investment products. These clients seem like a natural fit for a digital advice solution.

The second type of self-directed investor attracted to Fidelity Go is one that is more actively engaged in their portfolio. This type of investor "is our more sophisticated active investor, where they are truly doing a lot of the trading and decision making, they're way beyond in their life stage and needs." says Brooke. These investors typically fund a Fidelity Go account with just a portion of their assets, adding the managed account to their larger portfolio. According to Brooke, these investors like control, and although final investment selection is managed by Fidelity Go, users have control over their risk tolerance scores, and thus the model portfolio that is eventually selected for them.

One way robo advice is transforming the client/advisor relationship is by shifting some of the responsibilities, like risk tolerance selection, from the advisor to the client. Clients typically select a risk tolerance and model portfolio via an online questionnaire. This method is more hands-off for the advisor, but gives the client greater control over how their money is invested. Even if final portfolio construction is left to the provider, this level of control, combined with low costs and a digital platform, is resonating with more seasoned self-directed clients.

The challenge facing Fidelity Go and others is how to create an environment that both serves as a simple introductory gateway to managed money for a less sophisticated and younger demographic, while also providing sufficient complexity and detail for more actively engaged users.

Fidelity Go recently released some changes to their platform based on customer feedback. The two major changes were to pricing and the minimum. In an effort to create pricing transparency, Fidelity Go now holds Fidelity mutual funds that have no fees or expense ratios, so clients can clearly see their all-in expenses. It was refreshing to hear that, when the underlying funds in the models were changed, clients with large taxable gains or other unique circumstances were contacted and given the ability to opt out of this account transition to avoid a large taxable event.

The second major change was to drop the minimum investment to $0. Brooke explained that both transparency and accessibility were two major themes from client feedback. This coincides with their efforts to attract younger clients, many of whom are just starting out investing. This younger and less experienced demographic is the fastest growing segment.

As one of the largest providers serving self-directed clients, Fidelity is positioned well to grow Fidelity Go. Given the size of Fidelity's existing footprint, and that it is typical for a new product to be first adopted by existing customers, it was not surprising to learn that nearly 75% of those who have signed up for Fidelity Go already had a relationship with Fidelity.

As far as what is next for Fidelity Go and the robo industry, Brooke points to artificial intelligence and the increase in services provided. Brooke sees robo advice platforms as expanding into adjacent industries. She believes that digital platforms make it easier for consolidation and partnership. She also sees an increase in B2B partnerships and integrations, expanding the products and services that are accessible on robo advice platforms.

Technology has automated onboarding, investing, rebalancing, and other functions of an advisor, but computers have not yet mastered replicating the personal touch and relationship of traditional advisors. Brooke believes that advancements in artificial intelligence will help robo advisors better replicate the human conversations around planning and advice. Brooke also shared her perspective that digitization started out as a cost conversation for many companies, but it is now transitioning to a value-add conversation. As always, we are excited to see the next wave of innovation from robo advisors.

Robo Ranking Methodology

How We Rank the Robos

The robos were ranked on a comprehensive set of criteria. The final robo score was made up of a qualitative review of their services, platform, company, and features, as well as a quantitative score based primarily on the costs and performance of the portfolio. A small portion of the quantitative score is based on the size and tenure of the robo advice product. When scoring the qualitative aspect of the service, we looked at six main criteria: financial planning, user interface and customer experience, product features, access to live advisors, transparency and conflicts of interest, and account minimums.

Below we give an explanation of the criteria that earned robos points in each section.

Financial Planning: Here we graded the platforms on the quality of financial planning services offered. Robos that allowed users to build or create single or multi-goal financial plans were awarded points. Other financial planning tool features that earned points were those that allowed for "what if" scenarios, helped users calculate retirement spending needs, including social security benefit estimates, allowed for the inclusion of pension or other retirement income, and offered suggestions on appropriate monthly saving goals.

User Interface and Customer Experience: Here we evaluated the user interface and the digital customer experience. We looked at the ease of getting to basic account information and general accessibility of the site. We measured the number of clicks required to access basic account and portfolio information and used third party software to produce an "accessibility score." Points were also awarded to platforms that had good content and articles on basic personal finance and investing topics. During onboarding we looked to see if the online process took less than 30 minutes from start to account opening, and if the onboarding questionnaire took into account a user's comfort with investing and inquired or mentioned whether the user has an emergency fund. We also scored robos that had the ability to aggregate held-away accounts for a holistic financial picture. Availability of live chat options and mobile apps also helped robos score higher in this category.

Product Features: Robos were awarded points for different types of features. Tax-loss harvesting, tax efficiency, automatic deposits, ability to trade fractional shares, rebalancing, types of accounts offered, access to impact or other themed portfolios, and the ability of a robo to customize a portfolio to a specific customer situation were the features we looked for in this category. We also included a field for unique and additive features that were not explicit in our scoring. This unique and additive features criteria was a small portion of the overall features score.

Transparency and Conflicts of Interest: In this category we looked for things like whether or not a user could easily compare their portfolio to relevant benchmarks to help them understand performance. We also awarded points for platforms that made their models available before account opening, and further points if they also published performance of their models to prospective customers. Availability of white papers and other information on how portfolios are constructed were also awarded points. We also awarded points to those portfolios that did not rely entirely on proprietary products or chose no proprietary products when constructing their portfolios.

Access to Live Advisors: Robos with access to live advisors, or the ability to upgrade to a product that has live advisors, earned points. Robos earned more points if there was a dedicated live advisor option, if they required their advisors to hold CFPs, and if live advisors were made available to all service levels. Partial points were awarded to firms that had products or programs with live advisors if those programs were not part of the digital advice offering.

Account Minimum: Robos earned points for having lower minimums. This section was weighted less than the other five categories above.

Costs: Robos with low management fees and low fund expense ratios received higher scores. Additionally, we consider a cash allocation in part of costs if the cash holding is earning less than 1.00% APY. If a cash holding was earning 1.00% on the cash position they received full points in this section. Robos with cash allocations that are earning less than 1.00% in cash received less than full points in this category. The cash allocation had a much smaller impact than management fees and weighted expense ratios.

Performance: We used two metrics to grade a robo's performance. The first was Sharpe ratio, which is a measure of risk-adjusted returns. The second was their return above/below the normalized benchmark. This measurement method reduces the impact of different equity/bond allocations in the portfolio. The method of using a normalized benchmark was created by the team at *The Robo Ranking*™ and is explained in detail in the methodology section on the website.

Size and Tenure: This score is based on the AUM and age of the robo advice products. Large amounts of AUM and older products are less likely to be discontinued in the future, forcing a client to change providers or products, which can be disadvantageous to the client. Robos that do not publish their AUM specific to the robo advice product only received the points available for the age of the robo. We encourage robo advisors and their parent companies to release AUM data for their different products in the interest of transparency to the investor.

DISCLOSURE:

[1] These accounts were funded with more than the minimum amount required to establish an account. Had the accounts been funded with more assets, they would be charged a same flat dollar fee up to $5,000 or a flat percentage on assets under management fee over $5,000. A higher advisory fee would have the result of decreasing reflected performance, while a lower advisory fee would have the result of increasing reflected performance.

[3] These accounts were funded with more than the minimum amount required to establish an account. Due to the flat advisory fee, performance is not affected by the accounts' asset levels.

[4] This account was funded with the minimum amount required to establish an account. Had the account been funded with more assets it would, at certain asset levels, be eligible for a lower advisory fee. The lower advisory fee would have the result of increasing reflected performance.

[5] This account was funded with more than the minimum in order to take advantage of tax-loss harvesting. However, due to the flat advisory fee, performance is not affected by the account's asset level. Tax-loss harvesting may result in better or worse performance compared to similarly positioned accounts that do not have tax-loss harvesting associated with the account.

[6] This account was funded with the minimum amount required to establish an account. Had the account been funded with more assets it would be charged the same or, in the case of over $10,000, a higher advisory fee. A higher advisory fee would have the result of decreasing reflected performance.

[8] These accounts have no minimum required to establish an account. Due to the flat advisory fee, performance is not affected by these accounts' asset level.

[10] These accounts were funded with more than the minimum amount required to establish an account. The first $10k in the account is not charged an advisory fee. New accounts are charged an advisory fee on the full amount of assets which would decrease reflected performance.

[15] This account has no minimum required to establish an account and is enrolled in the Digital Only plan. If the account was enrolled in the premium service with access to live advisors there would be a higher advisory. The higher advisory fee would have the result of decreasing reflected performance.

[A] *On June 19th, 2017, Vanguard removed Backend Benchmarking's primary Vanguard account from the Vanguard Personal Advisor Services program. As of June 20th, 2017, the primary account was replaced by a secondary account with the same risk profile as the primary account. The returns for the secondary account have been linked to the original primary account. Asset type and allocation between the two accounts at the time of the switch were very close but not identical.*

This report represents Backend Benchmarking's research, analysis and opinion only; the period tested was short in duration and may not provide a meaningful analysis; and, there can be no assurance that the performance trend demonstrated by Robos vs indices during the short period will continue. Backend Benchmarking is under common ownership and control with Condor Capital Management, an SEC registered investment adviser. A copy of Condor's disclosure Brochure is available at www.condorcapital.com. Condor Capital initiated a position in Schwab and TD Ameritrade in one of the strategies used in many of their discretionary accounts on 5/30/2017 and 5/31/2017. As of 6/30/2018 the total size of the position is 35,760 shares of Schwab common stock and 33,752 shares of TD Ameritrade common stock.

For more information, please contact BackendBenchmarking at Info@BackendB.com

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