BRINGING TRANSPARENCY TO ROBO INVESTING

EDITION 18

Robo Report™ Fourth Quarter 2020

We are proud to publish the 18th edition of the *Robo Report*™ covering the fourth quarter of 2020, and the 6th edition of the *Robo Ranking*™. This *Report* is a continuation of an ongoing study that monitors well-known robo advisors. We strive to provide a reliable resource for both investors and professionals interested in the digital advice industry.

Highlights:

- *SigFig extends its reign as Best Overall Robo while SoFi emerges as a close contender (pg. 7)*
- *Titan Invest and themed Morgan Stanley portfolios sit atop the performance leader boards (pg. 14)*
- *Fidelity, Bank of America, and Schwab roll out new free planning apps facilitating goals-based investing for everyone (pg. 24)*
- *Walmart announces partnership with Ribbit Capital for a potentially groundbreaking offering (pg. 26)*
- *Is direct indexing the next wave to hit robos? (pg. 23)*
- *Interview with SoFi explains the path to becoming a holistic financial services provider for the modern era (pg. 27)*

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Executive Summary

This edition of the *Robo Report*™ tracks 92 accounts at 43 different providers and includes the *Robo Ranking*™, the most comprehensive analysis of robo advisors available. The *Ranking* includes both qualitative factors, such as access to advisors and financial planning features, as well as the performance metrics of our accounts held at each provider.

SigFig Maintains Best Overall Robo Position, SoFi and Fidelity Go Follow

Propelled by strong performance, access to live advisors, low costs, and a strong digital platform, SigFig has won the award for Best Overall Robo for the second *Ranking* in a row. While Schwab, Personal Capital, Wealthfront, and Betterment have some of the best digital platforms and top-notch digital planners, performance has held these providers back from being contenders for our Best Overall Robo award. However, all four have received awards in this *Ranking* for the qualitative categories where they shine. SoFi, driven by its performance, placed second and Fidelity Go placed third for the Best Overall Robo award.

Titan Finishes off Strong Year, SigFig Top 5-Year Performer

Titan capped off the year with another very strong quarter thanks to its active, stock-picking strategy. In the fourth quarter, it returned 15.89%, giving it a total return of 44.42% in 2020. Titan's stated strategy is to bring exceptional returns to the average investor through a hedge fund-like approach. So far, it is delivering. This portfolio is an all-equity portfolio. For reference, the S&P 500 index returned 18.39% and our average robo returned 14.90% on their equity holdings in 2020.

This is the first *Robo Report* in which we can share 5-year return data on certain robo advisors. Over that period, SigFig was the top total portfolio and equity performer, while Schwab was the top fixed-income performer. Domestic large-cap stocks and high-quality corporate and Treasury bonds propelled SigFig. Schwab benefited from a more diverse fixed-income mix with its higher-yield holdings doing well pre-pandemic and its longer duration TIPS bonds doing well during the pandemic.

SRI Performs Well and Is Here to Stay

Socially Responsible Investing (SRI) has continued to perform well. This bodes well for the burgeoning industry. Based on equity-only performance, over the 2-year trailing period, seven out of eight SRI options outperformed their standard counterparts at the same provider despite higher fund fees. One SRI portfolio even outperformed its standard counterpart by over 7% annually when comparing its equity performance. SRI funds have seen tremendous inflows but the future could be even bigger. Direct indexing could offer more ways to incorporate SRI themes into a portfolio.

A Recap and Look Forward at the Digital Advice Industry

The consolidation in the financial services and fintech industries is nothing new, but 2020 was a blockbuster year in terms of closures and acquisitions. Motif, a pioneer, closed its doors and sold technology to Schwab and clients to Folio. Empower purchased Personal Capital. Schwab purchased TD Ameritrade and Morgan Stanley purchased E*Trade. It is unclear how the purchasers will integrate the robo products.

Large incumbent firms launched an array of free financial planning products as a way to initiate relationships with clients who might not be ready for a paid investment advice relationship. These new users gain access to financial planning tools while the investment firms have a new method to reach prospective clients.

Lastly, we look ahead to what we think might happen in the industry in the years to come. The news of a Walmart and Ribbit Capital partnership raises many possibilities for a new clientele. Also, the widening availability of fractional shares and the demand for more tailored portfolios could lead to a large rise in the use of direct indexing.

Robo Ranking™

Bringing Transparency to Robo Investing

We are excited to publish the 6th edition of the *Robo Ranking*™. The *Robo Ranking* is the only comprehensive ranking of robo advisors. It examines not only the features and services but also portfolio performance that is sourced from real accounts tracked by Backend Benchmarking. Robo advisors have taken the advice industry by storm, with the larger independent providers continuing to show strong growth and innovative features, 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 digital advice industry to empower investors to seek the best products and services.

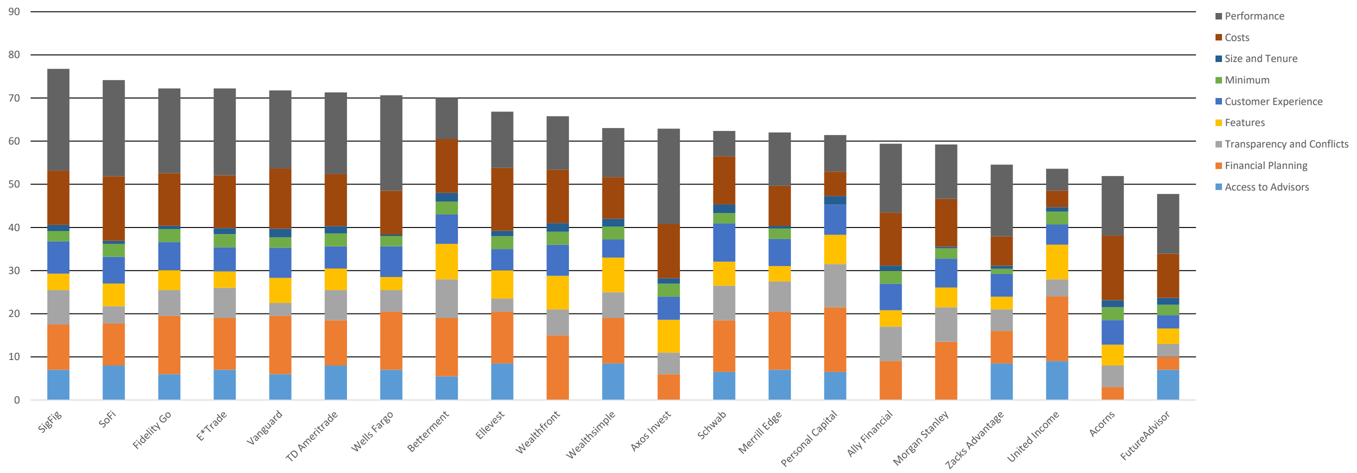
Introduction

The *Robo Ranking™* grades robo advisors across more than 45 specific metrics and is the only examination that includes real and reliable performance data. 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 that we grade is specific and unambiguous.

The *Robo Ranking* is a powerful tool to help those investors who are considering using a digital advisor. Although we rank and give each robo 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 understand areas where different products excel. Once investors have identified their needs, the category rankings can help them select a provider that stands out in the areas that are most important to them.

The performance score 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 at the end of the *Report*, as well as on our website.

Robo Ranking Scores



Robo Name	Access to Advisors	Financial Planning	Transparency and Conflicts	Features	Customer Experience	Minimum	Size and Tenure	Costs	Performance	Total
SigFig	7.00	10.50	8.00	3.80	7.48	2.40	1.40	12.60	23.59	76.77
SoFi	8.00	9.75	4.00	5.25	6.19	3.00	0.70	15.00	22.26	74.15
Fidelity Go	6.00	13.50	6.00	4.60	6.52	3.00	0.75	12.21	19.65	72.23
E*Trade	7.00	12.00	7.00	3.80	5.62	3.00	1.43	12.25	20.11	72.21
Vanguard	6.00	13.50	3.00	5.80	7.00	2.40	2.00	13.96	18.09	71.75
TD Ameritrade	8.00	10.50	7.00	5.00	5.12	3.00	1.67	12.08	18.95	71.32
Wells Fargo	7.00	13.50	5.00	3.00	7.12	2.40	0.33	10.16	22.13	70.64
Betterment	5.50	13.50	9.00	8.20	6.80	3.00	2.00	12.50	9.55	70.04
Ellevest	8.50	12.00	3.00	6.55	4.93	3.00	1.23	14.59	13.05	66.85
Wealthfront	0.00	15.00	6.00	7.80	7.20	3.00	2.00	12.39	12.40	65.79
Wealthsimple	8.50	10.50	6.00	8.00	4.20	3.00	1.80	9.68	11.35	63.03
Axos Invest	0.00	6.00	5.00	7.60	5.38	3.00	1.20	12.60	22.10	62.88
Schwab	6.50	12.00	8.00	5.55	8.89	2.40	2.00	11.17	5.87	62.38
Merrill Edge	7.00	13.50	7.00	3.55	6.30	2.40	0.58	9.29	12.38	62.01
Personal Capital	6.50	15.00	10.00	6.80	6.96	0.00	2.00	5.67	8.50	61.43
Ally Financial	0.00	9.00	8.00	3.80	6.15	3.00	1.20	12.29	15.96	59.40
Morgan Stanley	0.00	13.50	8.00	4.60	6.68	2.40	0.33	11.13	12.60	59.24
Zacks Advantage	8.50	7.50	5.00	2.94	5.29	1.20	0.67	6.86	16.58	54.53
United Income	9.00	15.00	4.00	8.00	4.68	3.00	1.02	3.84	5.06	53.60
Acorns	0.00	3.00	5.00	4.80	5.72	3.00	1.60	15.00	13.81	51.93
FutureAdvisor	7.00	3.00	3.00	3.60	3.09	2.40	1.60	10.20	13.87	47.76
MAX	**10**	**15**	**10**	**10**	**10**	**3**	**2**	**15**	**25**	**100**

Produced by Backend Benchmarking for BackendB.com

Best Robo Advisors

Best Overall Robo Advisor

- **Winner: SigFig**
- **Runner-up: SoFi**
- **Honorable Mention: Fidelity Go**

SigFig has retained its spot as the Best Overall Robo in this edition of the *Robo Ranking*™. SigFig remains atop the pile because of its record of strong performance, low fees, and access to advisors at lower asset levels than many other providers. SigFig tied Wells Fargo in terms of performance relative to the Normalized Benchmark but stood alone in risk-adjusted performance measured by the Sharpe ratio. Performance is a large component of the overall score and, thus, SigFig's strong performance drove it to the top. Additionally, SigFig also has many attractive features and access to live advisors.

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An investor can get started at SigFig with only $2,000 and SigFig only charges customers 0.25% annually on assets above $10,000. This makes it very affordable at all asset levels.

SigFig does have various tools and features available on its portal. One of its unique features is its ability to analyze outside accounts, flagging issues such as a lack of diversification and high fees. While other robos have aggregation tools, SigFig provides its users with these additional automated insights. It also has a retirement planner that allows users to adjust several factors and variables. The tool considers where a user will retire, their desired standard of living, and the risk profile of the user's investments, among other options. These quality digital tools, access to a live advisor, and strong performance helped SigFig land Best Overall Robo.

The runner up for Best Overall Robo is SoFi. SoFi is a very low-cost option and is one of only two robos to score full points in the Cost category of the *Ranking*. It has no investment minimum, no management fee, and offers access to expert advice.

SoFi had the fourth-best performance relative to its Normalized Benchmark and the second-highest Sharpe ratio. Among the portfolios used in the *Ranking*, SoFi had the second-best equity performance, returning 11.04% annually over the 3-year period. For more on SoFi's performance, see the Best Robo For Performance at a Low Cost Award.

SoFi's original business is as a consumer lender and provider of debt management. Combined with no investment minimum and no advisory fee, SoFi is a great choice for those looking to manage their debt and then start investing for their future. While SoFi has online budgeting tools, it does not offer much in the way of digital financial planning. Still, SoFi offers access to a team of financial planners that can provide planning advice. The introduction of a financial planning team greatly increased SoFi's score in this version of the *Robo Ranking*.

The introduction of a financial planning team greatly increased SoFi's score in this Robo Ranking.

Fidelity Go is ranked the third Best Overall Robo. To construct its portfolio, Fidelity Go uses its Fidelity Flex mutual funds. Although we acknowledge the conflict of interest when a provider relies on proprietary funds, the funds do not have any underlying expense ratios and the account is a perennially strong performer. Last year, Fidelity changed its fee structure, significantly reducing the effective fee for those with balances below $50,000. For clients with balances of $50,000 or higher, the all-in cost of 0.35% is competitive with most other low-cost providers when considering both the management fee and the underlying expense ratios of the funds. Clients can upgrade to the Personalized Planning and Advice Level, but the fees jump to 0.50% while the minimum increases to $25,000. This 0.50% fee and increased minimum, although not the lowest on the market, is competitive with other "hybrid advice" offerings. With this higher tier service, account holders can work with an advisor to address investment and planning needs, which are not covered by Fidelity Go's digital tools. Consistent performance, a competitive fee structure, and useful digital planning tools are the hallmark of a good robo advisor and why we ranked Fidelity Go third Best Overall Robo.

Best Robo for Performance at a Low Cost

- **Winner: SigFig**
- **Runner-up: SoFi**
- **Honorable Mention: Wells Fargo**

The *Robo Ranking* performance score is based on the account's Sharpe ratio and performance compared to the account's Normalized Benchmark. This *Ranking* uses data from the 3-year period ending December 31, 2020.

SigFig wins the Best Robo for Performance at a Low Cost award for a second consecutive *Robo Ranking*. From a returns perspective, SigFig was tied for first place with Wells Fargo Intuitive Investor. They both returned 0.23% above the Normalized Benchmark, while the average robo in the *Ranking* underperformed its Normalized Benchmark by -1.15%. Additionally, SigFig's Sharpe ratio was 0.59, while the group's average was 0.48, meaning that SigFig not only had compelling returns but took an efficient level of risk to achieve those returns.

SigFig and Wells Fargo returned 0.23% above the Normalized Benchmark while the average robo underperformed by -1.15%.

Over the last three years, SigFig's equity holdings benefited greatly from a few major themes. First, it avoided a value tilt during a period when the Russell 3000 Value Index returned 18.70% and the Russell 3000 Growth Index returned 83.84%, for the 3-year period ending December 31st, 2020. Approximately one-third of SigFig's entire portfolio is in VTI, Vanguard's Total Stock Market ETF. This fund is neutral in terms of its equity style, meaning that it does not exhibit a significant tilt towards growth or value. The ETF is, however, weighted towards large- and mega-cap holdings. While small-caps had a fantastic fourth quarter of 2020, favoring large-cap stocks benefited SigFig as they substantially outperformed mid-cap and small-cap stocks over a longer period.

It avoided a value tilt during a period when the Russell 3000 Value Index returned 18.70% and the Russell 3000 Growth Index returned 83.84%.

Within its fixed-income holdings, SigFig kept its bonds mostly allocated to high-quality U.S. bonds, which provided meaningful diversification during the COVID-19 sell-off. Last spring when equities collapsed, Treasury bonds fared well, providing stability to the portfolio. In tandem with the allocation to domestic large caps, these fixed-income choices drove SigFig's compelling Sharpe ratio.

SigFig's robo offering costs only 0.25% annually, making it one of the lowest advisory fees in the group. Its fund fees have an average expense ratio of approximately 0.07%, which is also low. The combination of stellar returns and a low total cost make it a compelling offering for most investors who can meet the $2,000 minimum.

SoFi wins the runner-up spot for Performance at a Low Cost. SoFi does not charge a management fee. Additionally, its fund fees have a staggeringly low average expense ratio of just 0.04% annually. The detrimental role that fees can play on an investor's long-term return is well documented, but SoFi users can be assured they are getting one of the best deals in the industry.

SoFi emphasizes U.S. large-cap companies tilted towards growth. The portfolio's signature holding is the SFY ETF, which is just under 40% of the total portfolio. Note that this ETF, the SoFi Select 500, is not just the 500 largest U.S. companies, but it is also weighted according to growth signals. This type of ETF has benefited greatly in the recent low-growth regime that has resulted in investors piling into large-cap U.S. growth companies like Tesla and Amazon. While value outperformed in the fourth quarter, portfolios have benefited from a growth tilt over the longer timeframe.

SoFi Select 500, is not just the 500 largest U.S. companies, but it is also weighted according to growth signals.

Wells Fargo Intuitive Investor is an honorable mention in the category. The big bank's robo advisor is offered at a low 0.35% management fee and was tied for first place with SigFig in terms of performance against its Normalized Benchmark. However, Wells Fargo does have a slightly higher 0.13% average fund fee in part due to allocations to ActiveBeta Goldman Sachs ETFs. Regardless, the main driver behind its compelling performance was its overall allocations. Wells Fargo has significantly more domestic exposure than foreign in its stock portfolio, which bolstered portfolio performance. Additionally, it held VXF, Vanguard Extended Market ETF, for its mid-cap and small-cap exposure. Over the last three years, this ETF significantly outperformed the Russell 2000 (a small-cap index) in part due to a meaningful tilt towards growth.

Best Robo for Complex Financial Planning Needs

- **Winner: Vanguard Personal Advisor Services**
- **Runner-up: Personal Capital**
- **Honorable Mention: Wealthsimple and Ellevest**

Investors with complex financial planning needs benefit from the ability to work with a live planner and should, therefore, consider robo advisors with access to human advisors.

Vanguard's Personal Advisor Services includes planning with a live advisor for only a 0.30% annual management fee. Personal Advisor Services championed the hybrid-advice model early on and centers the planning experience around live advisors. Working with an advisor, users can plan for multiple long-term investment goals and receive a comprehensive illustration of their assets. In previous *Rankings*, we have highlighted a lower quality online experience at Vanguard than many of the independent robos. Following the introduction of Vanguard's digital-only offering, Digital Advisor, Vanguard has also revamped the online experience with Personal Advisor Services. An improved online experience combined with a live advisor makes Vanguard Personal Advisor Services a compelling choice for those with more complex planning needs.

Working with an advisor, users can plan for multiple long-term goals and receive a comprehensive illustration of their assets.

The runner-up in this category is Personal Capital, which combines a traditional, live-advisor approach with best-in-class digital planning tools. The free digital planning tools are flexible and can handle a broad set of income and spending goals. For example, Personal Capital has a "Retirement Paycheck" feature that will help users determine a tax-efficient withdrawal strategy as they transition from earning a salary to relying on assets to supplement their income during retirement. When an investor needs help beyond what the digital planning tools can provide, Personal Capital's team of live advisors and planners is there to bridge the gap.

Personal Capital also offers access to multiple portfolio strategies, including direct indexing and SRI-themed portfolios. Those investing more than $1,000,000 with Personal Capital's Private Client service can receive custom portfolios that include individual stocks and bonds, as well as the option of gaining exposure to private equity investments.

Personal Capital also offers access to multiple portfolio strategies, including direct indexing and SRI-themed portfolios.

The biggest detriment to Personal Capital is its fees, which currently start at 0.89% annually.

When compared to other digital advice providers, this fee is high but it is still lower than most traditional advisors. Fees aside, Personal Capital was one of the few advisors in our *Ranking* with a perfect score in the financial planning category and is well-suited to help clients with complex needs.

Both Wealthsimple and Ellevest earned honorable mentions for complex financial planning capabilities. In their respective highest service levels—Wealthsimple Generation and Ellevest Private Wealth— investors receive individualized planning and investment services comparable to those offered by Personal Capital's Private Client offering. Ellevest, which caters to female investors, also has the unique feature of offering career coaching to help its clients navigate salary negotiations and other career challenges. Ellevest recently changed to a subscription model and now offers planning, budgeting, and career coaching sessions to their non-Private Wealth clients for an additional fee. On the other hand, Wealthsimple provides access to live advisors to all of their clients, regardless of service level. But, those who wish to build a full financial plan with a Wealthsimple planner will need a minimum investment of $100,000 and must be signed up for Wealthsimple Black or Generation.

Ellevest, which caters to female investors, also has the unique feature of offering career coaching.

Best Robo for First-Time Investors

- **Winner: Betterment**
- **Runner-up: Wealthsimple**
- **Honorable Mention: SoFi**

Betterment remains the Best Robo for First-Time Investors. Investors can get started with Betterment with any size initial investment for a low 0.25% annual advisory fee, making it a prudent and accessible option. Additionally, Betterment stands out with financial planning tools that are flexible and easy for new investors to understand. The user interface allows an investor to create specific portfolios that correspond with separate and unique goals. The goal forecaster shows how a one-time deposit, a change in recurring deposits, or a change in time horizon can influence the projected outcome. The outcomes themselves show a range of possibilities so that the investor can weigh the risks and have probability-driven expectations. For those new to understanding investment risk, there is a sliding-scale feature that displays how a higher allocation to stocks can change the range of predicted investment outcomes.

Betterment users can upgrade to Betterment Premium or schedule a one-time planning session with a Certified Financial Planner (CFP). A new investor can benefit by having a one-time consultation to create a plan and ask questions. Betterment Premium is there for investors as they grow their assets and require regular sessions or have complex needs. Investors can be confident that they are getting sound financial advice since the CFP designation is the industry standard. Betterment is one of the only robos to specify this credential as part of their offering.

When it comes to other features, Betterment Everyday offers a high-yield cash account that offers a superior interest rate compared to a standard checking account. Betterment also offers Socially Responsible Investing (SRI), income-focused investing, and smart-beta investing. These strategies may be interesting to new investors still exploring what makes sense for them. With no investment minimum, competitive fees, clear financial planning tools, an ability to upgrade for access to CFPs, and different options to explore, Betterment is our top choice for the first-time investor.

Betterment also offers Socially Responsible Investing (SRI), income-focused investing, and smart-beta investing.

Wealthsimple has held its runner-up position in this category. At its Basic tier, an investor can get started with no minimum investment and has access to options for SRI or Halal investing, roundups, and to financial experts without additional cost. No investment minimum encourages investors to get started even with small sums. SRI investing caters to many modern investors' interest in ethical choices, and roundups encourage the habit of regular saving and investing.

Investors can schedule a portfolio review with a financial expert at Wealthsimple's lowest tier, without additional cost. This makes asking questions and starting a dialogue with a professional easy for a first-time investor. Common behavioral pitfalls like trading when emotions are high, misjudging one's risk capacity, or failure to stay the course can all be mitigated with the assistance of an expert.

Investors can schedule a portfolio review with a financial expert at Wealthsimple's lowest tier, without additional cost.

SoFi deserves an honorable mention for this category. SoFi has no minimum, no management fee, and offers access to expert advice. While SoFi's main focus is being a provider of consumer lending and student debt management, it views investment management as an important complement. Once a typical customer pays down their student loans, they can begin saving, planning, and investing in-house with SoFi. SoFi Money offers high-interest saving and budgeting tools to support day-to-day personal finance needs. With SoFi, a new investor has an expert to call, the knowledge that they are getting a great deal on their investments, and the benefit of other financial tools and resources all in the same place.

Best Robo for Digital Financial Planning

- **Winner: Wealthfront**
- **Runner-up: Personal Capital**
- **Honorable Mention: Charles Schwab**

For most of its history, the financial industry provided detailed planning only to those with a considerable net worth. However, with the advent of digital-advice providers, access to planning has improved significantly for households of all asset levels. The Best Robo for Digital Financial Planning award recognizes the robos that best provide a clear picture of a user's financial situation and show a level of innovation in digital tools. Wealthfront, Personal Capital, and Schwab stand out as the best advisors in this category.

When looking at what these platforms have in common, there are a few major factors. First, is the ability to aggregate outside accounts into a user's financial picture. Wealthfront, Personal Capital, and Schwab Premium can directly link to external accounts. Next, these robo advisors have a unified plan that allows users to see their accounts come together in one plan. Lastly, each of the winners' platforms can integrate the finer details of life choices, like buying a home, considering Social Security, and other key factors that are outside of the investment portfolio.

Wealthfront won first place for this award due to its innovative features and sleek user interface. Without signing up for any paid service, users see their linked accounts in one place, their overall plan's expected future value, and Wealthfront will instantly calculate the user's savings rate. From there, the user can model a variety of planning goals, including saving for college or buying a home. As each scenario is added to the plan, users check in to their overall goal and see its impact. The balance between simplicity and sophistication shines with Wealthfront.

Wealthfront won first place for this award due to its innovative features and sleek user interface.

When looking at some of the innovative components that Wealthfront boasts, the first is the new Autopilot feature. Autopilot allows the user to set a specific amount of cash to be used as the liquidity in the plan, while excess cash is recommended to be moved to a Wealthfront investment account. This feature encourages the client to maximize their savings and make regular contributions to their investment accounts. Wealthfront's home-buying goal stands out as well. It will suggest an approximate housing price, mortgage, and down payment based on a user's financial situation. In tandem with the simplicity of the unified goal, these features keep Wealthfront at the top of this award.

Personal Capital is the runner-up for the Best Robo for Digital Financial Planning award. Whereas Wealthfront focuses on a single integrated plan, Personal Capital offers a series of individual tools for specific insights. For example, there are tools for analyzing advisor fees, debt management, and a Portfolio Checkup. These tools tend to be visual, intuitively designed, detailed, and free. Personal Capital also stands out for its inclusion of debt management planning, an area many robos have not yet integrated. These other tools aside, Personal Capital's digital plans are robust and, similar to Wealthfront, are capable of modeling multiple goals in a single, integrated plan.

Wealthfront focuses on a single integrated plan, Personal Capital offers a series of individual tools for specific insights.

One of the innovative features is the Portfolio Checkup. This feature displays a breakdown of the user's overall asset allocation and compares it to a recommended portfolio. It generates an efficient frontier and a projected account value to contextualize their current portfolio. Another feature is the "You-Index", a performance number based on the user's investments, which can be compared to traditional indices. Personal Capital's broad suite of tools earned it the runner-up spot.

Schwab wins the honorable mention for this category due to a stellar digital platform offered in its Premium version, a subscription-based offering with a $25,000 minimum. It also recently introduced a free tool called Schwab Plan to all users with a Schwab brokerage account. These planning tools are powered by MoneyGuidePro, an institutional-quality platform. A Premium user can directly link outside accounts, select from a variety of life events, and build multiple goals with their own risk tolerance. Additionally, Schwab allows users to customize the importance of each goal, ranking them between needs, wants, and wishes. Both Personal Capital and Schwab combine powerful digital tools with live planners, while Wealthfront maintains its digital-only approach.

These planning tools are powered by MoneyGuidePro, an institutional-quality platform.

Robo Ranking Facts (Results as of 12/31/2020)

	3-Year Annualized Return	3-Year Return vs. Normalized Benchmark	3-Year Sharpe Ratio	Account Minimum	Advisory Fee	Weighted Average Expense Ratio
Acorns[1]	7.54%	-1.24%	0.47	No minimum	$1/month for Acorns Invest; $3/month for Invest + Acorns Later + Acorns Spend; $5/mo for Acorns Family (includes family services). For balances above $1 million contact Acorns directly	0.05%
Ally Financial[9]	7.58%	-1.14%	0.50	$100	0.30% annually; Also offers 'cash-enhanced' portfolio with 30% invested in cash and no management fee	0.06%
Axos Invest[8]	8.99%	-0.01%	0.55	$500	0.24% annually	0.09%
Betterment[27]	7.22%	-1.84%	0.43	Digital: No minimum; Premium: $100,000	Digital: 0.25%; Premium: 0.40% (unlimited chat and calls with advisor), 0.10% discount on balances above $2M	0.09%
E*Trade[21]	8.33%	-0.45%	0.53	$500	0.30% annually	0.05%
Ellevest[38]	7.25%	-1.29%	0.46	Digital: No minimum; Private Client: $1 million	$1/mo, $5/mo, $9/mo - all of which offer investing, debit card, and increased access to discounts for coaching and financial planning based on tier level	0.07%
Fidelity Go[33]	8.24%	-0.59%	0.53	Digital Only: No Minimum; Personalized Planning & Advice: $25,000	Digital Only: for balances less than $10,000 there is no fee, for balances between $10,000 - $49,999.99 it is $3/mo, for balances $50,000 and above it is 0.35% annually. Personalized Planning & Advice: 0.50% annually	0.00%
FutureAdvisor[3]	7.24%	-1.37%	0.48	$5,000	0.50% annually	0.06%
Merrill Edge[31]	7.22%	-1.46%	0.46	Guided Investing: $5,000; Guided Investing with an Advisor: $20,000	Guided Investing: 0.45% annually (digital only); Guided Investing with an Advisor: 0.85% annually	0.07%
Morgan Stanley[12]	7.49%	-1.55%	0.47	$5,000	0.35% annually	0.08%
Personal Capital[4]	7.25%	-2.23%	0.43	$100,000	0.89% annually for the first $1 million; lower at different tiers over $1 million	0.10%
Schwab[5]	5.90%	-2.66%	0.35	Intelligent Portfolios: $5,000; Intelligent Portfolios Premium: $25,000	Intelligent Portfolios: No fee (digital only); Intelligent Portfolios Premium: $300 initial planning fee, $30/month subscription	0.18%
SigFig[6]	9.12%	0.23%	0.59	$2,000	No fee for the first $10k; 0.25% annually for balance over $10k	0.07%
SoFi[17]	8.61%	-0.21%	0.57	$1	No management fee	0.04%
TD Ameritrade[10]	8.68%	-0.65%	0.52	Essential Portfolios: $5,000, or $500 if automatic recurring deposits are set up; Selective Portfolios: $25,000	Essential Portfolios: 0.30% annually; Selective Portfolios: tiered at a higher fee level depending on account balance and portfolio selected	0.05%
United Income[16]	4.83%	-3.89%	0.30	No minimum	0.99% annually, lower at different tiers above $1 million	0.16%
Vanguard[4,A]	8.04%	-0.74%	0.51	Vanguard Personal Advisor Services: $50,000; Vanguard Digital Advisor: $3,000	Vanguard Personal Advisor Services 0.30% annually for the first $5 million; lower at different tiers over $5 million. Vanguard Digital Advisor combined fund and advisory fee is capped at 0.20%	0.07%
Wealthfront[22,B]	7.74%	-1.32%	0.45	$500	0.25% annually	0.10%
Wealthsimple[11]	6.86%	-1.92%	0.47	Basic: No minimum; Black: $100,000	Basic: 0.50% fee on accounts less than $100k; Black: 0.40% on accounts greater than $100k	0.11%
Wells Fargo[14]	9.18%	0.23%	0.54	$5,000	0.35% annually; discounted to 0.30% if subscribed to other specific Wells Fargo products	0.13%
Zacks Advantage[29]	7.88%	-0.84%	0.49	$25,000	0.70% on accounts less than $100K; 0.50% on accounts between $100K and $250K; 0.35% on accounts $250K and above	0.08%

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Returns are net of fees and from 12/31/2017 - 12/31/2020. The weighted average expense ratio calculations exclude cash holdings from the portfolio

Taxable Top Performers

1-Year Trailing Top Performers

	Best	2nd	3rd
Total Portfolio	Titan Invest	Morgan Stanley Robotics	Morgan Stanley Emerging Consumer
Equity	Titan Invest	Morgan Stanley Robotics	Morgan Stanley Emerging Consumer
Fixed Income	Wealthsimple	Interactive Advisors Legg Mason	SigFig

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2-Year Trailing Top Performers

	Best	2nd	3rd
Total Portfolio	Wealthsimple SRI	Merrill Edge SRI	Wells Fargo
Equity	Morgan Stanley SRI	Wealthsimple SRI	US Bank
Fixed Income	Wealthsimple	E*Trade	TIAA Active

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3-Year Trailing Top Performers

	Best	2nd	3rd
Total Portfolio	Tie: Wells Fargo & SigFig		TIAA SRI
Equity	Wells Fargo	Morgan Stanley SRI	SoFi
Fixed Income	Wealthsimple	E*Trade	SigFig

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4-Year Trailing Top Performers

	Best	2nd	3rd
Total Portfolio	SigFig	Axos Invest	Fidelity Go
Equity	SigFig	Vanguard	Axos Invest
Fixed Income	Schwab	E*Trade	SigFig

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5-Year Trailing Top Performers

	Best	2nd	3rd
Total Portfolio	SigFig	Axos Invest	Vanguard
Equity	SigFig	Vanguard	Axos Invest
Fixed Income	Schwab	SigFig	Axos Invest

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Total Portfolio winners are based on the portfolio's return vs. the Normalized Benchmark. Returns are net of fees and are as of 12/31/2020.

Performance Commentary

- *Robos cap off a tumultuous year on a strong note*
- *Titan stands above the field in 2020 with its stock picks*
- *SigFig is the top performer in our first 5-year analysis of returns, holds onto 4-year top spot*
- *SRI continues to outperform standard options*
- *Wealthsimple's long-duration fixed income boosts performance after interest rates fell*

Market Recap

Despite a difficult year that was defined by COVID-19 and political turmoil, financial markets were resilient. The nationwide rollout of two COVID-19 vaccines, coupled with greater clarity regarding the country's political climate, calmed market angst. The major indices had strong returns in the fourth quarter and finished 2020 at or around all-time highs. The S&P 500 Index climbed 12.14% in the fourth quarter, pushing its total gain in 2020 to 18.39%. In the fourth quarter, cyclically oriented sectors, specifically energy and financials, drove the market's gain. When looking across market caps, small-cap stocks fared substantially better than large-cap stocks in the fourth quarter to finish the year on-par with large-cap stocks. Finally, the long-standing trend of growth stocks outperforming their value stocks reversed this quarter, with value exhibiting its best quarter since 2009.

International equities from both developed and emerging markets also moved higher, outperforming domestic equities during the quarter. Many countries are still facing restrictive measures relating to the pandemic, but a weakening dollar and an overall increase in global trade activity over the quarter proved beneficial to emerging markets. China was a significant contributor to emerging markets' performance due to the strong demand for medical supplies and tech products, particularly in November. The recovery across developed market economies started slowly but began to pick up during the fourth quarter. All told, the MSCI Emerging Market Index returned 19.83% and the MSCI Developed Market Index gained 16.09% in the fourth quarter.

The fixed-income space continued to be guided by ultra-accommodative central bank policies put in place during the pandemic. The Federal Reserve reiterated that it will keep its discount rate at zero percent through the end of 2023, providing further monetary stimulus for a post-pandemic recovery. However, the yield curve moved only modestly, with the U.S. 10-Year Treasury Note yielding 0.93% at the quarter's end, up slightly from the prior quarter's 0.69% yield. In the corporate bond market, both investment-grade and high-yield spreads tightened as investors continued to price in the expectations of improving corporate profitability over the near term. Against this backdrop, corporate bonds generally outperformed government issues.

Robos Finish the Year Strongly After Rough Start

Mirroring the broader market, robo advisors had a tough start to 2020 and then came roaring back. In the fourth quarter alone, the average robo portfolio in our universe returned 15.90% on its equity holdings and 1.44% on its fixed income. Looking at the whole year, the average robo returned 14.90% on its

> *The average robo portfolio in our universe returned 15.90% on its equity holdings and 1.44% on its fixed income.*

equity and 6.30% on its fixed income for an average total return of 12.40%. That is a remarkable number given the volatility and difficulty of the year.

Titan Takes Top Spot for 1-Year Returns, Schwab has a Strong Quarter

Titan Invest, which over the last two *Robo Reports* has been a top performer over the shorter periods, is once again the top 1-year performer both compared to its Normalized Benchmark and when looking solely at equity performance. Its strategy stands out compared to the typical passive strategies seen at most robos in that it actively holds individual stocks—a strategy that has proven effective. The portfolio outperformed its benchmark by 27.22% over the year. Its equity holdings returned 44.81% over the period. Some of Titan's holdings, such as Netflix, Amazon, and Apple, were winners in the COVID economy. On the whole, the portfolio is tilted towards large-cap growth stocks, which as a group did well over the year. Over the fourth quarter, its performance was close to the average equity performance of other robos.

The portfolio outperformed its benchmark by 27.22% over the year.

Other portfolios that previously lagged in performance due to a value tilt were actually among the top performers over the quarter as vaccine hopes pushed up the industries that were hurt most by the pandemic. Schwab, one such portfolio, had the two top-performing equity portfolios over the quarter. The Schwab Domestic Focus portfolio returned 20.48% on its equity holdings, while the standard option returned 19.74%.

Morgan Stanley Has Multiple Top Performers Over the 1-Year Period

Behind Titan, Morgan Stanley filled out the top three spots for total portfolio and equity performance over the 1-year trailing period. Morgan Stanley's Robotics and Emerging Consumer portfolios placed second and third for both categories, respectively.

Morgan Stanley's Robotics portfolio held several themed ETFs that greatly outperformed the broader market. The most noticeable outperformer was the ARK Innovation ETF (ticker: ARKK), which returned 152.82% over 2020. The ARK ETF contributes to an overall tilt towards growth in the portfolio. While value outperformed growth in the fourth quarter, growth has significantly outperformed value over the 1-year period driven in large part by technology companies that have benefited in an economy that is increasingly working remotely. Holdings in technology and growth-heavy ETFs drove the equity performance over the period to a solid 29.77%.

Morgan Stanley's Robotics portfolio held several themed ETFs that greatly outperformed the broader market.

The Morgan Stanley Emerging Consumer portfolio placed third for total portfolio and equity performance in 2020. With 62% of its equity holdings allocated to foreign companies, it had one of the highest international tilts. While domestic equities outperformed developed and emerging markets, the makeup of the international holdings was heavily tilted to emerging markets, which outperformed developed. Furthermore, a China equity ETF bolstered the portfolio's performance as China helped drive emerging markets broadly. The selection of the Artisan Developing World Fund (APDYX), a highly growth-oriented global fund, also proved to be a strong choice. Both funds returned over 70% in 2020, compared to 18.39% for the S&P 500 Index.

The Morgan Stanley Emerging Consumer portfolio placed third for total portfolio and equity performance in 2020.

A mix of a passive Barclays Agg ETF and the active Western Core Bond Fund helped the fixed-income side of these two portfolios post above-average returns, in turn helping these portfolios secure a top total performance spot. Both of these funds have significant holdings in

Treasury bonds and investment-grade corporates. Treasury bonds performed quite well as investors sought safety in the first half of the year. Corporates, on the other hand, performed poorly as markets initially reacted to the pandemic, but rebounded strongly as the Federal Reserve stepped in to support corporate bond markets, generally ending the year with significant gains.

3-Year Highlights: Wells Fargo and Wealthsimple are Top Equity and Fixed Income Performers, respectively

Wells Fargo's Intuitive Investor jumped into the top equity performance spot for the 3-year trailing period and tied SigFig for the top spot for total portfolio performance. Wells Fargo held significantly more domestic stocks than foreign stocks during a period when U.S. markets have outperformed. It also held VXF, Vanguard Extended Market ETF, for its mid-cap and small-cap exposure. Over the last three years, this ETF significantly outperformed the Russell 2000 (a small-cap index) in part due to a significant tilt towards growth. While small- and mid-cap holdings generally underperformed large-cap stocks over the 3-year period, the fantastic run in small caps during the fourth quarter of this year helped reduce the performance gap.

Wells Fargo jumped into the top equity performance spot.

In the fixed-income landscape, Wealthsimple clearly stood out with its bond holdings returning 6.59% annually over the 3-year period ending 12/31/2020. This is better than the average by a whole 2% annually. The key for Wealthsimple was that the entirety of its fixed-income holdings are investment-grade, with nearly two-thirds being long-duration U.S. Treasury bonds. In response to the pandemic, the Federal Reserve lowered interest rates. Interest rates and bond prices are inversely correlated, and the duration of a bond and the size of its price movement in response to a change in interest rates are positively correlated. By holding long-duration Treasury bonds, Wealthsimple was able to capitalize on the shift to lower interest rates. Investors also flocked to Treasury bonds amidst the uncertainty caused by the pandemic. However, it is worth noting, at the beginning of 2021, there was a pullback from Treasury bonds.

5-Year Returns Are In: SigFig Takes Top Spot

For the first time, we can report 5-year return data for various robo advisors. SigFig, which maintained its 4-year top performer spots for total portfolio and equity performance, has also claimed the same prize over the 5-year trailing period. SigFig returned a healthy 10.41% annually overall and its equity returned 13.24% annually.

For the first time, we can report 5-year return data. SigFig has claimed the prize - returning 10.41% annually.

SigFig has performed well for a few reasons. First, it holds a large portion of its equities in total U.S. stock market ETFs, which are tilted towards large-cap stocks. Over the past five years, large caps have propelled the broader market higher and outperformed small-cap and mid-cap stocks. On the international front, it holds a higher than average percentage of its foreign holdings in emerging markets rather than developed. Emerging markets have had superior returns over the period. Lastly, its fixed income is heavily investment-grade, with allocations to TIPS and high-quality domestic corporate bonds. These two areas of fixed income have performed well, especially over the past year, and made SigFig the second-best fixed-income performer over the 5-year trailing period.

Schwab claims the top fixed-income performance spot. Compared to most other robo advisors, Schwab holds a broad mix of fixed income, holding mid-duration TIPS, emerging market bonds, municipals, and high-yield corporates. Over the last five years, emerging market bonds and corporate bonds did better at the beginning of the period when markets were calmer and riskier debt was under less duress, while the mid-duration TIPS have done well over the past year as investors shifted into U.S. government bonds and worries of inflation have spiked due to the massive stimulus packages.

SRI Performance Remains a Bright Spot for Robos

SRI or ESG investing remains a hot trend in the investment industry. At Backend Benchmarking, we compare the equity performance of the SRI/ESG options and the standard options at the same robo advisor to analyze their differences.

New to the *Report* this quarter is our M1 Finance SRI portfolio. It made a strong initial impression, placing first over the fourth quarter for total portfolio performance compared to the Normalized Benchmark. It was also fourth for equity-only performance over the quarter. Many of our SRI portfolios hold a blend of standard and ESG-themed ETFs, while M1's SRI portfolio holds entirely ESG-themed ETFs.

Backend Benchmarking also holds standard and SRI portfolios at the following eight providers: Betterment, E*Trade, Ellevest, Merrill Edge, Morgan Stanley, TD Ameritrade, TIAA, and Wealthsimple. When analyzing SRI portfolios, it is best to focus on the equity holdings, as many of the SRI-themed portfolios do not hold SRI-specific bond funds. Over the 2-year trailing period, the equity holdings in every SRI portfolio except E*Trade's outperformed the standard counterpart at the same provider. The widest margin of outperformance was at Wealthsimple, whose SRI portfolio saw its equity holdings outperform the standard option by over 7% annually. The reason for this is that the standard option has minimum volatility funds that have a value tilt while the SRI option is more neutral.

Over the 2-year trailing period, nearly all SRI portfolios outperformed their counterpart.

It is difficult to pinpoint exactly why SRI is outperforming. One factor is that SRI often excludes fossil fuel and many energy companies, which have lagged over the past two years, and has more exposure to technology companies that often fall under the SRI umbrella. Additionally, the equities in the SRI portfolios we track tend to be modestly tilted more towards growth than their standard counterpart. Six of the SRI portfolios hold between 3% and 5% more growth equities than their counterparts. Growth has significantly outperformed value over both the 1-year and 2-year periods making even this slight tilt towards growth a component of recent outperformance.

Over the 2-year trailing period, SRI portfolios are filling up the leaderboards. Wealthsimple SRI and Merrill Edge SRI placed first and second, respectively, for performance compared to the Normalized Benchmark. For equity-only performance, Morgan Stanley SRI placed first and Wealthsimple SRI placed second.

Half a Decade In Review

Backend Benchmarking has now been tracking the robo advice space for half a decade. In that time, there has been a large amount of growth and change but one thing is clear: robo advisors are here to stay. For those who were skeptical about the ability of an algorithm to manage money, the data suggests that robo advisors can produce strong returns at a much lower cost than traditional advisors. Over the past five years, the average robo has returned 11.90% annually on its equity holdings and 4.38% annually on its fixed income. However, even robo advisors realize that performance is not enough, which is why they have incorporated live advisor options, banking features, and digital tools to help customers.

The past five years have also shown us that robo advisors are not a monolith; there are real differences in portfolio construction that lead to disparate outcomes in returns. There are differences of over 2% to 3% annually in the returns for both equity and fixed-income performance among the best-performing and worst-performing portfolios. That sort of difference will have significant impacts on the long-term growth of an account, and so it is important for clients to carefully select providers.

Robo Advisor Average Returns

	Q4 2020	1-Year	2-Year	3-Year	4-Year	5-Year
Equity	15.90%	14.90%	20.49%	9.40%	12.28%	11.90%
Fixed Income	1.44%	6.30%	6.97%	4.56%	4.48%	4.38%
Total Portfolio	10.33%	12.40%	15.54%	7.79%	9.55%	9.23%

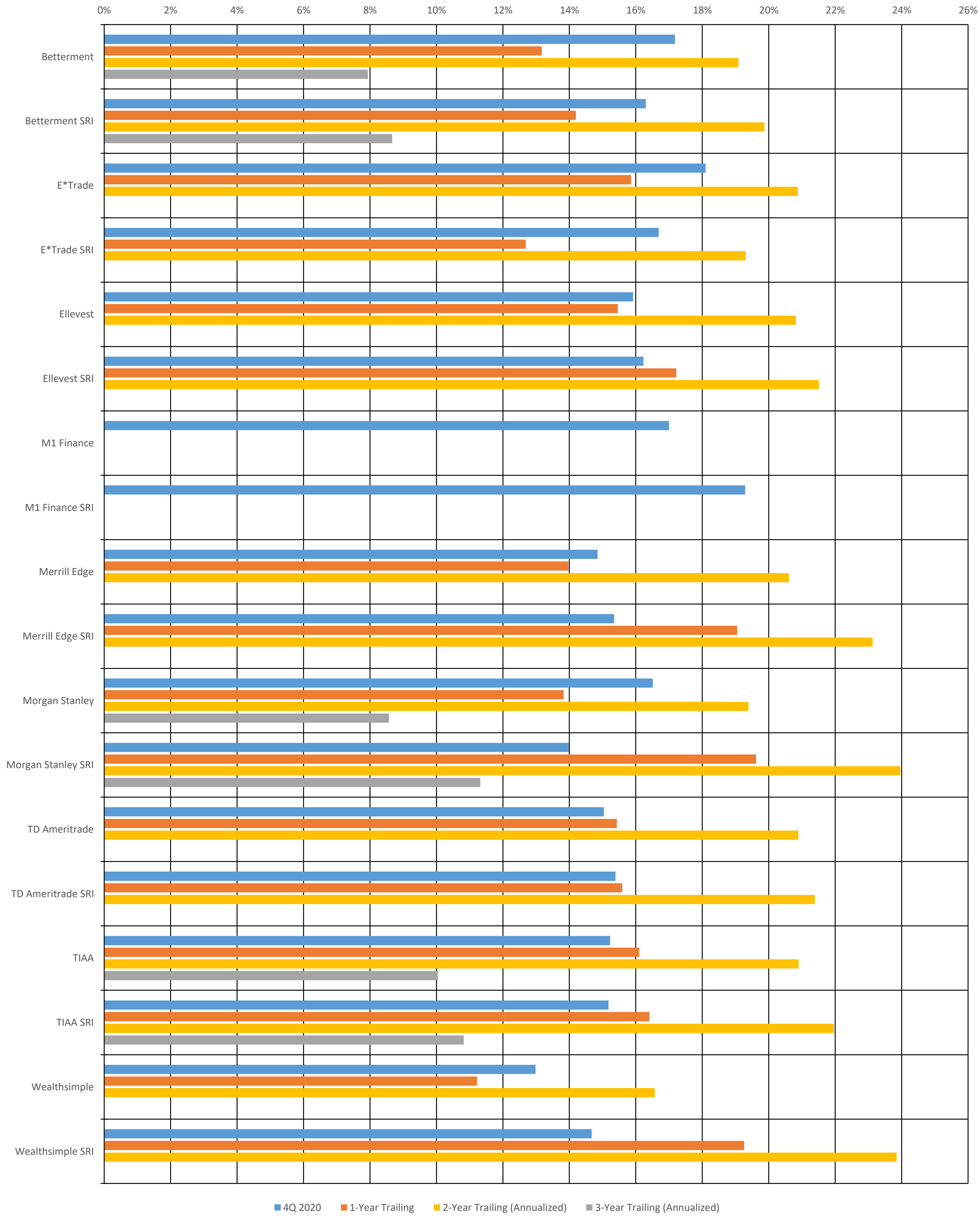
Returns are net of fees and are as of 12/31/2020. All returns for periods longer than one year are annualized. Produced by Backend Benchmarking for BackendB.com

Index Returns

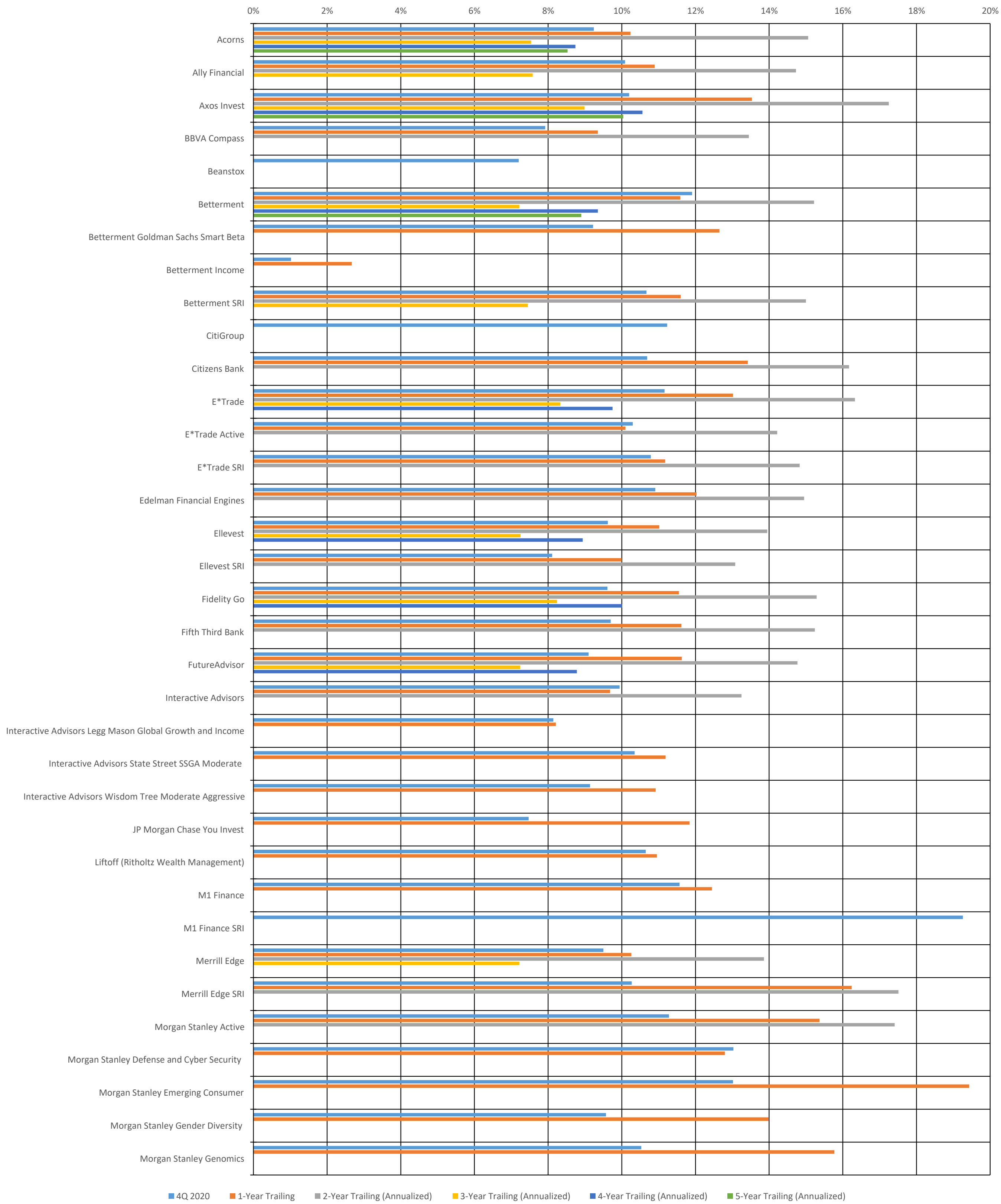
	Index	3-Year Return
Domestic	Russell 3000	14.44%
International Emerging Markets	MSCI Emerging Markets	6.52%
International Developed Markets	MSCI EAFE	4.86%
Value	Russell 3000 Value	5.86%
Growth	Russell 3000 Growth	22.43%
Large Cap	Russell 1000	14.77%
Small Cap	Russell 2000	10.19%
U.S. Aggregate Bond	Barclays U.S. Aggregate	5.33%
Intermediate Corporate Bonds	Barclays Intermediate Corp.	5.68%
Municipal Bonds	Barclays Municipal	4.63%

Returns are as of 12/31/2020. All returns for periods longer than one year are annualized. *Produced by Backend Benchmarking for BackendB.com*

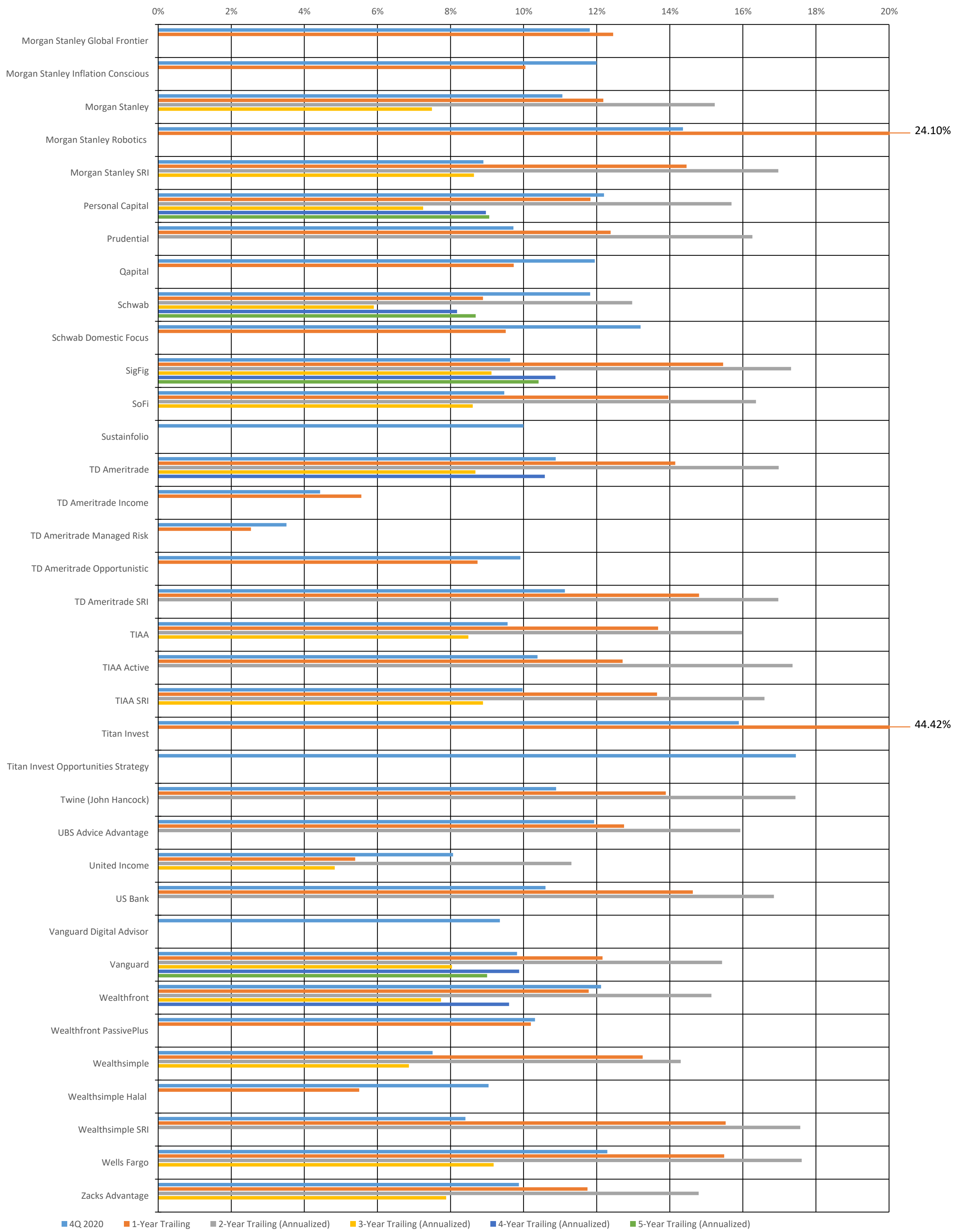
SRI Account Equity-Only Performance



Taxable Account Performance



Taxable Account Performance (continued from previous page)



Industry Trends and Outlook: A Year in Review

- *Big industry shake-ups include Motif closing its doors while Personal Capital and TD Ameritrade get acquired in landmark transactions*
- *Incumbent firms launch free financial planning apps, democratizing the financial plan for all investors. Bank of America sees a big response*
- *Walmart announces partnership with Ribbit Capital that has the potential to reach millions of new investors*
- *Direct indexing involved in major transactions; is it the next trend?*

A Year of Change

2020 was another significant year in the continued evolution of the robo advisor industry. Once defined by a handful of fintech start-ups, robo advice is now ubiquitous after years of acquisitions, closures, and product launches. This year saw the acquisition of Personal Capital and the closure of Motif, further slimming the landscape of independent robo advisors. Multiple acquisitions of direct indexing technologies have primed the industry for a wider application of this technology. Walmart announced a partnership with Ribbit Capital that may represent a significant step forward in the democratization of professional management.

Once defined by a handful of fintech start-ups, robo advice is now ubiquitous.

The launch of financial planning tools by three major firms will help more Americans form some kind of financial plan. We look forward to what innovations will arrive in 2021, specifically in the areas of direct indexing, Environmental, Social, and Governance (ESG) investing, smart-cash management, and financial planning as each of these become more widely available and accessible to all investors.

Is Direct Indexing the Next Evolution?

Over the year, there were several significant transactions that included direct indexing technology. Charles Schwab acquired Motif's technology stack in June, Goldman Sachs acquired Folio in September, Morgan Stanley acquired Eaton Vance—including its Parametric business—in October, and BlackRock acquired Aperio in November. In light of the Motif acquisition, Schwab's chief digital officer, Neesha Hathi, explained that "We are thrilled to bring transformative technology to Schwab to help our clients navigate their investment needs in a more personal way." Similarly, Folio's fractional shares technology furthers Goldman's abilities to offer direct indexing. Parametric has been a pioneer in the direct indexing space for well over two decades through its "Custom Core" SMA, which now belongs to juggernaut Morgan Stanley. Lastly, BlackRock purchasing Aperio underscores this trend. In BlackRock's press release, it described Aperio as innovating capabilities that "embrace the uniqueness of each investor and enhance after-tax performance," and that it has "pioneered individually customized ESG portfolios."

The use of models and automation has allowed robo advisors to offer professional asset management that has greatly reduced costs through scalable business models. The scalability of these platforms comes at the cost of portfolio customization. In the next decade, direct indexing may break this mold and give financial advisors the ability to provide both scalable and customizable asset management. While it is still unclear how direct indexing will be implemented at these firms and for which client segments, it may have profound consequences in ESG investing, tax optimization, and thematic investing.

Direct indexing may break the mold and give the ability to provide both scalable and customizable asset management.

The Democratization of the Financial Plan

Throughout the year, incumbent financial institutions introduced a surge of free digital financial planning apps. Bank of America launched Life Plan, Schwab launched Schwab Plan, and Fidelity launched Fidelity Spire. Each planning tool is accessible without signing up directly for the firm's managed portfolio solution. However, each has its benefits maximized when a user decides to invest. Schwab Plan is the most detailed of the group, allowing a user to thoroughly map out their retirement goal through a robust planner built with MoneyGuidePro technology. Fidelity Spire is focused on the younger generation, offering a simple app that lets investors model their relevant planning goals, make educated decisions on spending, and get bite-sized educational content along the way. Fidelity Spire and Bank of America's Life Plan both focus on offering users a variety of financial goals that can either be achieved with a cash solution or a managed investment account.

These apps are part of the "freemium" business model that independent robos pioneered. Personal Capital and Wealthfront have long offered free financial planning tools as part of a funnel that leads to a formal relationship. Interestingly, Bank of America recently shared that users created approximately 475,000 customized plans in less than a month with the Life Plan. That number is a substantially larger one than most independent robo advisors' total number of accounts. Wealthfront, for example, has just over 350,000 total accounts according to its latest ADV. Through the creation of this free planning app, Bank of America is able to tie together clients' personal cash management with their long-term investing accounts, deepening client relationships and value propositions. This is a win for the user as they can better plan for their future, and it's a win for the investment firm as they can cross-sell their investment products to banking clients through the use of the app. In the future, we expect to see more of these free planning applications developed and released.

Bank of America recently shared that users created approximately 475,000 customized plans in less than a month with Life Plan.

Robo Bankers

One trend that continued to be prominent during 2020 is the addition of cash management features at independent robo advisors. Betterment Everyday, Wealthfront Cash, Wealthsimple Cash, and Ellevest's Money Membership are all examples of independent robos expanding their offering beyond investment management and towards a more complete financial service model. With the decline of interest rates, high-yield cash accounts have lost some of their initial luster, but the trend has already been established. We anticipate independent robos to continue to expand their traditional banking services. This includes lending as well as innovative services like automated cash management.

Socially Responsible Expansion

Over the course of the year, digital-advice platforms continued to expand their Socially Responsible Investing (SRI) options. Firms such as Ellevest, E*Trade, Morgan Stanley, Betterment, and Wealthsimple have long offered clients the option to choose an SRI-themed portfolio. One of the most surprising elements of this trend is its magnitude. For example, US SIF studies showed that SRI assets grew approximately 40% between 2016 and 2018. After launching

One of the most surprising elements of this (SRI) trend is its magnitude.

three new SRI portfolio options in October last year, Betterment shared that year-to-date SRI assets under management grew at six times the rate of assets in its traditional core portfolio. The trend is clear. Whether it is in new ETFs, robo offerings, or direct-indexing customization, the ability for clients to invest in a way that supports their values is rapidly expanding and will continue to do so.

Wealthsimple is also focusing on expanding its business through impact investing. In June, it launched two SRI ETFs on the Toronto Stock Exchange. While Wealthsimple already had an existing SRI-themed portfolio in 2016, it pushed further into the SRI investing industry by creating SRI ETFs.

Robo Investors Show COVID Resilience

The volatility of markets in 2020 provided early evidence that robo-advice clients are avoiding common behavioral traps that many individual investors fall victim to. Dalbar, the investment research firm, recently conducted a survey looking at investor sentiment in response to the coronavirus sell-off. According to the survey, 82% of participants were satisfied with their robo and 55% of investors with a digital account reported a "significant" increase in confidence after the crisis. The confidence was acted upon, as there was a rise in flows during the period. Bloomberg reported that TD Ameritrade's new account openings for its automated investment offering surged 150% compared to the same period last year, while Schwab told Bloomberg that March was one of the best months for flows it has ever had.

The volatility of markets in 2020 provided early evidence that robo-advice clients are avoiding common behavioral traps.

During the initial roll-out of robo accounts, many believed that a sharp sell-off would be a major headwind to investors that did not have the hand-holding of a human advisor. Early evidence suggests that this may not hold up to be true. It is not clear if this is because robo advisors inspire better behavior or because the type of investor that chooses a robo is anticipating downturns in a way closer to that of a self-directed investor.

Closures, Consolidations, and New Beginnings

Throughout 2020, the consolidation of robo advisors continued. Headlining the trend was Empower purchasing Personal Capital for approximately $1 billion. This acquisition was notable for Personal Capital's high valuation and the fact that the firm was a stand-out pioneer in the space. Positioning Personal Capital as a destination for clients leaving an employer-sponsored plan is designed to realize synergies between 401k providers and advice platforms for individuals. We anticipate continuing to see robo advice platforms being positioned to capture assets as they roll out of employer-sponsored plans.

Positioning Personal Capital as a destination for clients leaving an employer sponsored plan is designed to realize synergies.

Motif, known for its thematic investment platform, closed its doors in 2020. It sold off its technology to Schwab and its clients to Folio. This was surprising given that Motif, founded in 2010, was one of the earliest players in the latest wave of consumer fintech investing platforms. Both of these deals signify independent robo consolidation but are not the only notable ones this year.

The consolidation in financial services in 2020 went far beyond robo advice. Schwab purchased TD Ameritrade, which is a major landmark acquisition for the industry and one that again consolidated the number of robo advisors. TD's Essential Portfolios remains separate from Schwab's Intelligent Portfolios platform for the time being. Similarly, Morgan Stanley purchased E*Trade, which includes its Core Portfolios platform. It is yet to be seen how these firms will integrate their robos and what it means for investors on the acquired platform.

Betterment's CEO, Jon Stein, resigned from the firm that he founded in 2008. He was replaced by Sarah Kirshbaum Levy, a

Betterment's CEO, Jon Stein, resigned from the firm that he founded in 2008.

former executive of ViacomCBS. "The time has come for someone else to lead the company through its next stage of growth," Stein said in a statement. Levy told the Wall Street Journal that her focus is on growth and profitability. There is speculation that this may be a move to prepare Betterment for a potential IPO. Regardless, this marks the transition from Betterment's initial disruption phase towards a more long-term sustainable growth phase of its lifecycle.

Goldman Sachs announced that its long-anticipated robo advisor will be launched in 2021. There are questions as to what Goldman will do with Honest Dollar, a robo platform for IRAs that it acquired in 2016, and how it will integrate the robo platform, if at all, with Goldman Sachs Personal Financial Management, a renamed wealth management arm stemming from its acquisition of United Capital in 2019. Goldman is assembling a wealth management unit that forms a continuum of advice that we have grown accustomed to seeing.

Goldman Sachs announced that its long-anticipated robo advisor will be launched in 2021.

Looking forward, we expect that robos will play a larger role advising on employer-sponsored retirement plans, like 401ks. Although we don't expect each provider to develop an automatic process that can execute trades in the plan on behalf of clients like that of blooom, a pioneer in the space, we do expect robos to find ways to offer guidance on clients' employer-sponsored plans. Personal Capital, for example, offers an Employer Plan Analysis through a step on their Financial Roadmap. It prompts an investor to upload a list of fund options that they manually download first. Since the addition of these assets more completely reflects a client's situation and since this gives the robos more opportunity to offer advice, we expect this trend to continue in 2021 and beyond.

Financial planning is poised to take another large step towards democratization with Walmart's announcement that it will form a fintech startup in partnership with Ribbit Capital. Walmart already offers a suite of financial services including a credit card, money card, and money transfers. It remains to be seen what products will actually be offered as part of this partnership, although the potential for offering wealth management and financial planning to Walmart's roughly 265 million weekly customers globally is a staggering opportunity. This new partnership is an opportunity to greatly expand financial planning and wealth management services to a market that has been underserved by the traditional financial advice industry.

Financial planning is poised to take another large step towards democratization with Walmart forming a fintech startup.

Final Thoughts

Looking back on 2020, there was a continuation of consolidation in the digital-advice industry with the acquisition of Personal Capital, the closure of Motif, Morgan Stanley's purchase of E*Trade, and Schwab's purchase of TD Ameritrade. We also saw the rise of incumbent firms move towards new digital applications, whether Bank of America's Life Plan or Fidelity's Spire. These moves remind us how difficult the robo space can be to compete in as margins are low and differentiation is hard to establish. However, for the investors, this was a year that stressed-tested the robo experience and resulted in more confidence, not less, that these platforms and their users are built to weather a storm. Also, as both incumbents and independents innovate new features and planning services, the benefits add up to more users of all asset levels having access to the tools necessary for an effective investing experience.

Robo Interview with SoFi team

- *SoFi has experienced accelerating year-over-year member growth for the past six consecutive quarters*
- *In 2020, SoFi witnessed 300% growth in brokerage accounts*
- *Insight into the decision to go public through a SPAC*

For this issue of the *Robo Report*™, we spoke with the SoFi team about their platform and future growth plans. SoFi has emerged as one of the most ambitious fintech platforms and has rapidly grown its product offerings in recent years. Founded in 2011 as a platform for consolidating student debt, SoFi has steadily expanded the types of services it provides. Now SoFi offers lending, self-directed trading, managed accounts, financial planning, cryptocurrency trading, proprietary ETFs, and bank accounts. Following its recent announcement of going public, we thought it was a great time to catch up with the SoFi team to discuss its position in the market and its plans for future growth.

Who is the SoFi client? Which types of clients is SoFi having the most success attracting to the platform?

Our members are typically around 25 to 40 years of age, well educated, and relatively high earners who are not well served by the traditional financial service options. Many of them are at a point in their lives where they recognize the importance of investing and have a desire to get started but don't have as much hands-on experience, oftentimes because they've been held back by student loan debt.

Our members are typically around 25 to 40 years of age, well educated, and relatively high earners who are not well served by the traditional financial service options.

What do SoFi clients care about the most?

Their specific concerns depend on which stage of life they're in. Their goals are certainly individual, but on the whole, they want to pay off their debts. They want to secure their financial future, and they don't want money to stand in the way of their dreams, such as having a fulfilling career, buying a home, starting their own company, or starting a family.

SoFi recently announced an additional capital raise combined with going public. How will SoFi be using the funds from the most recent raise?

We've had accelerating year-over-year member growth for the past six consecutive quarters, but we believe we've just scratched the surface and are in the early stages of the digital transformation of financial services. As a result, we have a substantial opportunity to continue to grow our member base and increase the number of products members use on our platform. To complement these products and services, we believe in building vertically-integrated technology platforms designed to manage and deliver the suite of solutions to our members in a low-cost and differentiated manner.

We've had accelerating year-over-year member growth for the past six consecutive quarters, but we believe we've just scratched the surface.

What was behind the decision to use a SPAC as opposed to the traditional IPO route of going public?

Time efficiency in the process and the access to capital were both compelling reasons to pursue the SPAC route. Our business is complex. A SPAC process enabled us to spend sufficient time with investors to educate them on our mission, differentiation, strategy, and business units (vs 30-45 min roadshow meeting). Providing detailed forward financial projections is a critical element of getting a fair value for a growth company with three different businesses in different points in their lifecycle. The SPAC process allowed us to provide projections to credentialize our future growth.

SoFi has been rapidly expanding the products and features of its platform. What is next on the roadmap for SoFi regarding products and features?

Yes, in just the last few months, we've introduced Social Investing and launched the first-ever ETF—the SoFi Weekly Income ETF (TGIF)—to pay out income on a weekly basis. We will certainly continue to push the envelope to the extent we can provide features that are innovative and engaging to meet our members' needs.

Yes, in just the last few months, we've introduced Social Investing and launched the first-ever ETF–the SoFi Weekly Income ETF (TGIF)–to pay out income on a weekly basis.

I saw on a recent ADV that SoFi has a financial planning service that does not appear to be live yet. What can you share with me about what SoFi currently offers for financial planning, and what changes users can expect with any new financial planning services?

We currently offer all SoFi members complimentary personal financial planning sessions with Certified Financial Planners™, as well as complimentary career planning services through a partnership with Korn Ferry. We are always evaluating our offerings to ensure that they best meet the needs of our members.

SoFi offers many of its services for free. Currently, there are no commissions on trades, no management fees for managed accounts, SoFi's ETFs currently have the fee waived, and the bank accounts do not have fees. Do you expect that some of the free services now will have costs associated with them in the future?

We don't have anything to announce at this time in regard to future fee structures, but it's worth mentioning that we applied for a de novo national bank charter through the OCC in July of last year and received preliminary conditional approval that October. If and when we receive final approval and become a national bank, our lower cost of funding will ultimately be beneficial for our members, as we intend to pass those cost savings on.

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How does the SoFi platform differentiate itself in this crowded space amongst other fintech investing and finance platforms?

Certainly from an innovation standpoint, SoFi has distinguished itself in the marketplace in a relatively short period of time. We were the first major fintech firm to offer fractional-share trading, we debuted the industry's first zero-expense-ratio ETFs, and we introduced the first weekly income ETF.

Aside from that, our mission and the breadth of our financial services offerings differentiates us as well; we aim to help all our members achieve financial independence, and we don't see any single one of our products operating in isolation. Unlike a traditional asset manager or brokerage firm, we see our relationship with our members as a broader one in which we can help them at any stage of their financial lives, backed by the solutions they need at that moment.

Unlike a traditional asset manager or brokerage firm, we see our relationship with our members as a broader one in which we can help them at any stage of their financial lives.

SoFi has been quickly adding products and features to the platform. Has the launch and reception of different products met expectations? What products are you finding the most success with, self-directed trading, managed accounts, banking, proprietary ETFs, cryptocurrency, etc.?

The pandemic has accelerated the secular trend away from physical branches and toward digital financial services, and our platform was no exception. We saw tremendous growth in every sector of our investment offerings. In 2020, our number of brokerage accounts grew by over 300%. We also saw strong interest and performance in our ETFs; our SoFi Gig Economy ETF is up about 182% since market lows in March and our Weekly Income ETF is one of our fastest-growing funds, with strong interest even off of the SoFi platform. About 90% of the buys in TGIF have been from outside the SoFi platform.

In 2020, our number of brokerage accounts grew by over 300%.

What are the long-term effects fintech investing and banking platforms will have on the industry? What changes do you see happening to the consumer banking and investing industry over the next 5 to 10 years?

We've seen fintech companies have a tremendous impact already on driving a shift away from legacy infrastructures, democratizing finance, and disrupting some of the old assumptions about how a financial services company should do business. For our part, we hope to continue making sure that anyone who needs access to financial tools always has them, literally, at their fingertips.

Is there anything else you would like to share about the platform?

We are always evaluating our product and feature offerings and are committed to continuing to drive innovation in the investment industry. To that end, we have some exciting new projects we are working on, and we encourage anyone interested in learning about them to follow us on our social media or our blog.

Charts and Tables

Funding and AUM Statistics

Robo	Raised to Date (Millions)	Last Funding Amount (Millions)	Last Funding Date	Post-Money Valuation at Last Funding Round (Millions)	AUM (in millions)	Clients	Source of AUM and Clients Figures
Acorns	$207	$105	Jan, 2019	$860	$3,378	5,443,371	Recent ADV
Ally Invest Advisors	N/A	N/A	N/A	Acquired TradeKing for $294 million June, 2016	$277	32,933	Recent ADV
Axos Invest	N/A	N/A	N/A	Acquired WiseBanyan for undisclosed amount in Mar. 2019	$206	32,202	Recent ADV
blooom	$13	$9	Feb, 2017	Unknown	$5,028	24,144	Recent ADV
Betterment	$275	$70	Jul, 2017	$800	$18,065	502,478	Recent ADV
Ellevest	$91	$12	Nov, 2020	Unknown	$634	48,891	Recent ADV
FutureAdvisor	N/A	N/A	N/A	Acquired by BlackRock for $152 million August, 2015	$1,135	18,660	Recent ADV
M1	$98	$45	Oct, 2020	N/A	$3,000***	Unknown	News Media
Personal Capital	N/A	N/A	N/A	Acquired by Empower for $1 billion June, 2020	$16,000	26,000	Company Website
Qapital	$47	$30	Apr, 2018	Unknown	$12	21,894	Recent ADV
Schwab Digitally Advised Assets	N/A	N/A	N/A	N/A	$57,900	Unknown	Company Website
SigFig	$120	$50	June, 2018	Unknown	$835	16,530	Recent ADV
SoFi Invest	N/A	N/A	N/A	N/A	$203	40,453	Recent ADV
United Income	N/A	N/A	N/A	Acquired by Capital One for undisclosed amount in Aug. 2019	$1,199	1,606	Recent ADV
Vanguard Personal Advisor Services	N/A	N/A	N/A	N/A	$212,000	Unknown	Company Representative
Wealthfront	$205	$75	Jan, 2018	$500	$15,847	278,740	Recent ADV
Wealthsimple	$381 (CAD)	$114 (CAD)	Oct, 2020	Unknown	$8,400 CAD***	1,500,000 users	Company Website 2020

All funding, valuation, clients, accounts, and AUM amounts are estimates

Produced by Backend Benchmarking for BackendB.com

Sources: Crunchbase, Pitchbook, News Media, ADV Filings

Unless otherwise noted, AUM figures include discretionarily managed assets only

****AUM figure may include cash assets held in savings account products and assets on self-directed trading platform*

Taxable Returns: Total Performance

	Total Portfolio											
	4Q 2020	4Q 2020 Return vs. Benchmark	1-Year	1-Year Return vs. Benchmark	2-Year	2-Year Return vs. Benchmark	3-Year	3-Year Return vs. Benchmark	4-Year	4-Year Return vs. Benchmark	5-Year	5-Year Return vs. Benchmark
Acorns[1]	9.24%	-0.46%	10.24%	-3.94%	15.06%	-1.59%	7.54%	-1.24%	8.74%	-1.77%	8.53%	-1.28%
Ally Financial[9]	10.09%	0.52%	10.89%	-3.19%	14.73%	-1.77%	7.58%	-1.14%	-	-	-	-
Axos Invest[8]	10.20%	-0.06%	13.53%	-1.03%	17.25%	0.03%	8.99%	-0.01%	10.56%	-0.17%	10.04%	0.02%
BBVA Compass[7]	7.92%	-1.78%	9.35%	-5.26%	13.45%	-3.23%	-	-	-	-	-	-
Beanstox[42]	7.20%	-2.50%	-	-	-	-	-	-	-	-	-	-
Betterment[27]	11.91%	1.52%	11.59%	-3.06%	15.22%	-2.14%	7.22%	-1.84%	9.35%	-1.47%	8.90%	-1.21%
Betterment Goldman Sachs Smart Beta[32]	9.22%	-0.48%	12.65%	-1.53%	-	-	-	-	-	-	-	-
Betterment SRI[27]	10.67%	0.97%	11.60%	-2.58%	15.00%	-1.65%	7.45%	-1.33%	-	-	-	-
CitiGroup[40]	11.23%	1.11%	-	-	-	-	-	-	-	-	-	-
Citizens Bank[7]	10.69%	0.43%	13.42%	-1.14%	16.17%	-1.05%	-	-	-	-	-	-
E*Trade[21]	11.16%	1.46%	13.02%	-1.16%	16.33%	-0.32%	8.33%	-0.45%	9.75%	-0.62%	-	-
E*Trade Active[23]	10.30%	0.46%	10.10%	-4.17%	14.22%	-2.57%	-	-	-	-	-	-
E*Trade SRI[23]	10.79%	0.95%	11.18%	-3.09%	14.83%	-1.96%	-	-	-	-	-	-
Edelman Financial Engines[4]	10.91%	0.24%	12.03%	-2.80%	14.95%	-2.75%	-	-	-	-	-	-
Ellevest[38]	9.62%	0.46%	11.02%	-2.77%	13.95%	-2.12%	7.25%	-1.29%	8.94%	-1.30%	-	-
Ellevest SRI[38]	8.11%	0.32%	10.00%	-2.21%	13.08%	-1.99%	-	-	-	-	-	-
Fidelity Go[33]	9.61%	-0.23%	11.55%	-2.72%	15.29%	-1.50%	8.24%	-0.59%	10.01%	-0.45%	-	-
Fifth Third Bank[7]	9.70%	0.00%	11.62%	-2.56%	15.24%	-1.41%	-	-	-	-	-	-
FutureAdvisor[3]	9.10%	-0.18%	11.63%	-2.24%	14.77%	-1.35%	7.24%	-1.37%	8.78%	-1.33%	-	-
Interactive Advisors[24]	9.94%	1.06%	9.68%	-3.90%	13.25%	-2.53%	-	-	-	-	-	-
Interactive Advisors Legg Mason Global Growth and Income[24]	8.14%	-2.81%	8.21%	-6.79%	-	-	-	-	-	-	-	-
Interactive Advisors State Street SSGA Moderate [24]	10.35%	0.65%	11.19%	-1.77%	-	-	-	-	-	-	-	-
Interactive Advisors Wisdom Tree Moderate Aggressive[24]	9.14%	-0.15%	10.92%	-3.02%	-	-	-	-	-	-	-	-
JP Morgan Chase You Invest[7]	7.47%	-0.86%	11.84%	-1.33%	-	-	-	-	-	-	-	-
Liftoff (Ritholtz Wealth Management)[3]	10.65%	0.95%	10.95%	-3.23%	-	-	-	-	-	-	-	-
M1 Finance[34]	11.57%	1.04%	12.45%	-2.29%	-	-	-	-	-	-	-	-

Returns are net of fees and are as of 12/31/2020. All returns for periods longer than one year are annualized.

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Taxable Returns: Total Performance *(continued from previous page)*

	Total Portfolio											
	4Q 2020	4Q 2020 Return vs. Benchmark	1-Year	1-Year Return vs. Benchmark	2-Year	2-Year Return vs. Benchmark	3-Year	3-Year Return vs. Benchmark	4-Year	4-Year Return vs. Benchmark	5-Year	5-Year Return vs. Benchmark
Merrill Edge[31]	9.50%	-0.34%	10.26%	-3.94%	13.86%	-2.26%	7.22%	-1.46%	-	-	-	-
Merrill Edge SRI[31]	10.27%	0.15%	16.24%	1.29%	17.51%	0.56%	-	-	-	-	-	-
Morgan Stanley Active[3]	11.28%	1.02%	15.37%	0.81%	17.41%	0.19%	-	-	-	-	-	-
Morgan Stanley Defense and Cyber Security[7]	13.03%	1.94%	12.80%	-2.42%	-	-	-	-	-	-	-	-
Morgan Stanley Emerging Consumer[7]	13.02%	2.07%	19.43%	4.43%	-	-	-	-	-	-	-	-
Morgan Stanley Gender Diversity[7]	9.57%	-0.27%	13.98%	-0.42%	-	-	-	-	-	-	-	-
Morgan Stanley Genomics[7]	10.53%	1.51%	15.77%	1.85%	-	-	-	-	-	-	-	-
Morgan Stanley Global Frontier[7]	11.81%	0.86%	12.45%	-2.68%	-	-	-	-	-	-	-	-
Morgan Stanley Inflation Conscious[7]	12.00%	1.74%	10.05%	-4.88%	-	-	-	-	-	-	-	-
Morgan Stanley[12]	11.06%	0.80%	12.18%	-2.50%	15.23%	-2.10%	7.49%	-1.55%	-	-	-	-
Morgan Stanley Robotics[7]	14.36%	3.27%	24.10%	8.88%	-	-	-	-	-	-	-	-
Morgan Stanley SRI[7]	8.90%	-0.39%	14.46%	0.58%	16.97%	0.48%	8.64%	0.00%	-	-	-	-
Personal Capital[4]	12.20%	0.70%	11.83%	-3.51%	15.69%	-2.79%	7.25%	-2.23%	8.97%	-2.54%	9.06%	-1.71%
Prudential[26]	9.72%	0.02%	12.38%	-1.80%	16.26%	-0.39%	-	-	-	-	-	-
Qapital[30]	11.95%	1.28%	9.73%	-5.10%	-	-	-	-	-	-	-	-
Schwab[5]	11.82%	2.53%	8.89%	-4.39%	12.97%	-3.43%	5.90%	-2.66%	8.18%	-2.26%	8.69%	-1.12%
Schwab Domestic Focus[5]	13.20%	3.36%	9.51%	-4.20%	-	-	-	-	-	-	-	-
SigFig[6]	9.63%	-0.35%	15.46%	1.09%	17.32%	0.39%	9.12%	0.23%	10.87%	0.32%	10.41%	0.56%
SoFi[17]	9.47%	-0.23%	13.96%	-0.22%	16.36%	-0.29%	8.61%	-0.21%	-	-	-	-
Sustainfolio[7]	10.00%	0.57%	-	-	-	-	-	-	-	-	-	-
TD Ameritrade[10]	10.88%	-0.21%	14.15%	-1.12%	16.98%	-0.98%	8.68%	-0.65%	10.58%	-0.52%	-	-
TD Ameritrade Opportunistic[10]	9.91%	1.17%	8.74%	-5.13%	-	-	-	-	-	-	-	-
TD Ameritrade SRI[10,C]	11.13%	0.18%	14.80%	-0.81%	16.97%	-1.07%	-	-	-	-	-	-
TIAA[7]	9.56%	-0.28%	13.68%	-0.59%	15.99%	-0.80%	8.49%	-0.34%	-	-	-	-
TIAA Active[7]	10.38%	0.54%	12.71%	-1.56%	17.36%	-0.29%	-	-	-	-	-	-
TIAA SRI[7]	9.97%	0.27%	13.65%	-0.53%	16.59%	-0.06%	8.89%	0.11%	-	-	-	-

Returns are net of fees and are as of 12/31/2020. All returns for periods longer than one year are annualized. *Produced by Backend Benchmarking for BackendB.com*

Taxable Returns: Total Performance *(continued from previous page)*

	Total Portfolio											
	4Q 2020	**4Q 2020 Return vs. Benchmark**	**1-Year**	**1-Year Return vs. Benchmark**	**2-Year**	**2-Year Return vs. Benchmark**	**3-Year**	**3-Year Return vs. Benchmark**	**4-Year**	**4-Year Return vs. Benchmark**	**5-Year**	**5-Year Return vs. Benchmark**
Twine (John Hancock)[3]	10.89%	-0.06%	13.89%	-1.11%	17.44%	-0.48%	-	-	-	-	-	-
UBS Advice Advantage[7]	11.93%	0.84%	12.75%	-2.95%	15.93%	-2.25%	-	-	-	-	-	-
United Income[16]	8.07%	-1.50%	5.39%	-8.69%	11.31%	-5.19%	4.83%	-3.89%	-	-	-	-
US Bank[28]	10.60%	1.31%	14.63%	0.75%	16.85%	0.45%	-	-	-	-	-	-
Vanguard Digital Advisor[7]	9.35%	-0.08%	-	-	-	-	-	-	-	-	-	-
Vanguard[4,A]	9.82%	0.12%	12.16%	-2.02%	15.43%	-1.22%	8.04%	-0.74%	9.88%	-0.49%	9.00%	-0.68%
Wealthfront[22,B]	12.12%	1.73%	11.78%	-2.87%	15.14%	-2.22%	7.74%	-1.32%	9.60%	-1.22%	-	-
Wealthfront PassivePlus[22]	10.31%	1.15%	10.20%	-3.59%	-	-	-	-	-	-	-	-
Wealthsimple[11]	7.51%	-2.19%	13.26%	-0.92%	14.30%	-2.35%	6.86%	-1.92%	-	-	-	-
Wealthsimple SRI[11]	8.41%	-1.29%	15.53%	1.35%	17.57%	0.92%	-	-	-	-	-	-
Wells Fargo[14]	12.29%	2.17%	15.49%	1.03%	17.61%	0.53%	9.18%	0.23%	-	-	-	-
Zacks Advantage[29]	9.87%	0.17%	11.75%	-2.43%	14.79%	-1.86%	7.88%	-0.84%	-	-	-	-

Returns are net of fees and are as of 12/31/2020. All returns for periods longer than one year are annualized.

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Non 60/40 Target Allocation Taxable Returns

		Total				Equity		Fixed Income	
	% Equity Allocation	4Q 2020	4Q 2020 Return vs. Benchmark	1-Year	1-Year Return vs. Benchmark	4Q 2020	1-Year	4Q 2020	1-Year
Betterment Income[27]	0%	1.02%	-0.62%	2.67%	-4.07%	-	-	1.02%	2.67%
TD Ameritrade Income[35]	21%	4.43%	0.01%	5.56%	-4.14%	*^	*^	*^	*^
TD Ameritrade Managed Risk[35]	7%	3.51%	-0.11%	2.54%	-6.35%	*^	*^	*^	*^
M1 Finance SRI[34]	98%	19.26%	3.96%	-	-	19.29%	-	-	-
Titan Invest[3]	100%	15.89%	0.59%	44.42%	27.22%	15.95%	44.81%	-	-
Titan Invest Opportunities Strategy[3]	100%	17.45%	2.29%	-	-	17.53%	-	-	-
Wealthsimple Halal[11]	99%	9.04%	-6.26%	5.50%	-11.70%	9.11%	5.54%	-	-

Produced by Backend Benchmarking for BackendB.com

Returns are net of fees and are as of 12/31/2020. All returns for periods longer than one year are annualized.

**^These portfolios hold balanced funds. The nature of these funds limits our ability to accurately breakdown equity and fixed income performance individually.*

Taxable Returns: Equity and Fixed-Income Performance

	Equity						Fixed Income					
	4Q 2020	**1-Year**	**2-Year**	**3-Year**	**4-Year**	**5-Year**	**4Q 2020**	**1-Year**	**2-Year**	**3-Year**	**4-Year**	**5-Year**
Acorns[1]	15.11%	13.55%	20.34%	9.77%	11.84%	11.78%	0.54%	5.32%	7.20%	4.07%	3.71%	3.34%
Ally Financial[9]	17.09%	14.16%	19.92%	8.86%	-	-	0.47%	6.68%	7.68%	5.40%	-	-
Axos Invest[8]	15.20%	16.55%	21.88%	10.68%	13.52%	12.71%	1.73%	7.20%	8.72%	5.39%	4.97%	4.93%
BBVA Compass[7]	13.55%	8.77%	16.56%	-	-	-	0.57%	7.39%	7.69%	-	-	-
Beanstox[42]	11.35%	-	-	-	-	-	0.96%	-	-	-	-	-
Betterment[27]	17.18%	13.17%	19.09%	7.94%	11.35%	11.03%	2.22%	5.57%	6.96%	4.76%	4.63%	4.15%
Betterment SRI[27]	16.30%	14.20%	19.87%	8.67%	-	-	2.21%	5.36%	6.95%	4.74%	-	-
Betterment Goldman Sachs Smart Beta[32]	13.72%	14.83%	-	-	-	-	2.66%	7.38%	-	-	-	-
CitiGroup[40]	*^	-	-	-	-	-	*^	-	-	-	-	-
Citizens Bank[7]	15.64%	16.62%	20.94%	-	-	-	0.99%	6.84%	7.22%	-	-	-
E*Trade[21]	18.10%	15.86%	20.88%	9.67%	12.38%	-	1.27%	7.81%	9.36%	5.76%	5.38%	-
E*Trade Active[23]	15.85%	10.90%	18.25%	-	-	-	1.59%	4.90%	5.99%	-	-	-
E*Trade SRI[23]	16.69%	12.69%	19.31%	-	-	-	1.59%	4.89%	5.99%	-	-	-
Edelman Financial Engines[4]	16.93%	13.56%	18.90%	-	-	-	0.03%	5.64%	6.15%	-	-	-
Ellevest[38]	15.92%	15.46%	20.82%	9.69%	12.51%	-	1.67%	3.28%	4.58%	3.20%	3.44%	-
Ellevest SRI[38]	16.23%	17.22%	21.51%	-	-	-	1.36%	3.21%	4.46%	-	-	-
Fidelity Go[33]	14.91%	15.09%	21.19%	10.46%	13.38%	-	2.01%	3.14%	5.20%	3.67%	4.11%	-
Fifth Third Bank[7]	14.90%	15.57%	21.31%	-	-	-	2.04%	3.83%	5.47%	-	-	-
FutureAdvisor[3]	16.29%	13.79%	20.22%	8.71%	11.77%	-	0.79%	7.55%	7.82%	4.99%	4.57%	-
Interactive Advisors[24]	16.91%	9.60%	16.86%	-	-	-	1.90%	7.93%	8.16%	-	-	-
Interactive Advisors Legg Mason Global Growth and Income[24]	10.70%	8.05%	-	-	-	-	2.76%	9.96%	-	-	-	-
Interactive Advisors State Street SSGA Moderate [24]	14.81%	14.26%	-	-	-	-	3.25%	7.08%	-	-	-	-
Interactive Advisors Wisdom Tree Moderate Aggressive[24]	*^	*^	-	-	-	-	*^	*^	-	-	-	-
JP Morgan Chase You Invest[7]	14.03%	12.97%	-	-	-	-	0.51%	7.52%	-	-	-	-
Liftoff (Ritholtz Wealth Management)[3]	16.52%	12.75%	-	-	-	-	2.07%	4.02%	-	-	-	-
M1 Finance[34]	17.00%	14.93%	-	-	-	-	2.15%	8.46%	-	-	-	-
Merrill Edge[31]	14.85%	13.97%	20.61%	9.65%	-	-	1.58%	2.75%	4.94%	3.31%	-	-
Merrill Edge SRI[31]	15.35%	19.05%	23.13%	-	-	-	1.32%	4.97%	6.68%	-	-	-

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Taxable Returns: Equity and Fixed Income Performance *(continued from previous page)*

	Equity						Fixed Income					
	4Q 2020	1-Year	2-Year	3-Year	4-Year	5-Year	4Q 2020	1-Year	2-Year	3-Year	4-Year	5-Year
Morgan Stanley[12]	16.51%	13.83%	19.39%	8.57%	-	-	0.55%	6.28%	6.84%	4.67%	-	-
Morgan Stanley Active[3]	16.52%	18.11%	22.42%	-	-	-	1.10%	7.01%	7.71%	-	-	-
Morgan Stanley Defense and Cyber Security[7]	17.98%	14.11%	-	-	-	-	1.09%	7.07%	-	-	-	-
Morgan Stanley Emerging Consumer[7]	17.69%	22.89%	-	-	-	-	1.12%	6.91%	-	-	-	-
Morgan Stanley Gender Diversity[7]	14.67%	18.02%	-	-	-	-	0.79%	5.47%	-	-	-	-
Morgan Stanley Genomics[7]	17.89%	21.61%	-	-	-	-	1.06%	6.59%	-	-	-	-
Morgan Stanley Global Frontier[7]	16.27%	13.17%	-	-	-	-	1.06%	7.00%	-	-	-	-
Morgan Stanley Inflation Conscious[7]	18.36%	7.97%	-	-	-	-	1.25%	8.00%	-	-	-	-
Morgan Stanley Robotics[7]	19.32%	29.77%	-	-	-	-	1.08%	7.07%	-	-	-	-
Morgan Stanley SRI[7]	13.98%	19.62%	23.96%	11.32%	-	-	0.80%	5.50%	6.21%	4.11%	-	-
Personal Capital[4]	16.53%	13.41%	18.93%	8.38%	10.79%	10.85%	1.90%	5.92%	6.49%	3.68%	3.65%	3.90%
Prudential[26]	14.67%	14.06%	21.06%	-	-	-	1.87%	6.35%	7.81%	-	-	-
Qapital[30]	16.92%	10.06%	-	-	-	-	1.95%	7.06%	-	-	-	-
Schwab[5]	19.74%	9.91%	16.85%	6.79%	10.17%	10.96%	2.28%	7.21%	7.97%	5.01%	5.39%	5.72%
Schwab Domestic Focus[5]	20.48%	11.55%	-	-	-	-	1.90%	6.50%	-	-	-	-
SigFig[6]	15.42%	17.27%	22.03%	10.64%	13.91%	13.24%	1.24%	9.14%	8.81%	5.59%	5.32%	5.41%
SoFi[17]	14.40%	19.65%	23.50%	11.04%	-	-	1.42%	4.75%	5.59%	4.38%	-	-
Sustainfolio[7]	17.04%	-	-	-	-	-	0.83%	-	-	-	-	-
TD Ameritrade[10]	15.04%	15.43%	20.89%	9.70%	12.97%	-	1.00%	6.36%	7.10%	4.53%	4.21%	-
TD Ameritrade Opportunistic[10]	17.06%	9.47%	-	-	-	-	2.23%	5.23%	-	-	-	-
TD Ameritrade SRI[10,C]	15.39%	15.59%	21.39%	-	-	-	1.01%	6.46%	7.28%	-	-	-
TIAA[7]	15.23%	16.10%	20.90%	10.04%	-	-	1.01%	6.93%	7.48%	5.02%	-	-
TIAA Active[7]	15.90%	13.11%	20.33%	-	-	-	1.79%	7.95%	8.82%	-	-	-
TIAA SRI[7]	15.18%	16.41%	21.96%	10.82%	-	-	2.41%	6.96%	7.59%	5.09%	-	-
Twine (John Hancock)[3]	15.20%	16.42%	21.58%	-	-	-	1.82%	6.04%	7.67%	-	-	-
UBS Advice Advantage[7]	15.83%	13.21%	19.28%	-	-	-	2.38%	4.91%	6.31%	-	-	-
United Income[16]	12.61%	5.76%	14.88%	5.34%	-	-	1.33%	3.79%	5.53%	3.31%	-	-
US Bank[28]	17.11%	21.43%	23.66%	-	-	-	1.99%	4.62%	7.07%	-	-	-

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Taxable Returns: Equity and Fixed Income Performance *(continued from previous page)*

	Equity						Fixed Income					
	4Q 2020	**1-Year**	**2-Year**	**3-Year**	**4-Year**	**5-Year**	**4Q 2020**	**1-Year**	**2-Year**	**3-Year**	**4-Year**	**5-Year**
Vanguard Digital Advisor[7]	15.31%	-	-	-	-	-	0.86%	-	-	-	-	-
Vanguard[4,A]	15.26%	17.06%	21.94%	10.54%	13.59%	12.72%	1.49%	4.68%	5.51%	3.99%	4.02%	3.21%
Wealthfront[22,B]	17.19%	12.61%	18.73%	8.46%	11.49%	-	1.86%	6.25%	6.80%	4.90%	4.84%	-
Wealthfront PassivePlus[22]	16.36%	17.07%	-	-	-	-	1.78%	6.16%	-	-	-	-
Wealthsimple[11]	12.98%	11.22%	16.57%	6.68%	-	-	-0.48%	14.75%	10.23%	6.59%	-	-
Wealthsimple SRI[11]	14.67%	19.26%	23.85%	-	-	-	-0.63%	8.25%	7.79%	-	-	-
Wells Fargo[14]	17.98%	19.94%	23.24%	11.65%	-	-	2.85%	6.18%	8.25%	4.73%	-	-
Zacks Advantage[29]	15.79%	16.46%	21.75%	10.94%	-	-	0.77%	3.39%	4.84%	3.15%	-	-

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Retirement Returns: Total Performance

	Total Portfolio									
	4Q 2020	4Q 2020 Return vs. Benchmark	1-Year	1-Year Return vs. Benchmark	2-Year	2-Year Return vs. Benchmark	3-Year	3-Year Return vs. Benchmark	4-Year	4-Year Return vs. Benchmark
Ally Financial IRA[9]	16.27%	1.96%	14.09%	-2.30%	19.17%	-1.64%	8.79%	-1.41%	-	-
Axos Invest IRA[25]	14.20%	0.04%	15.89%	-0.43%	20.50%	-0.16%	9.99%	-0.16%	12.83%	-0.05%
Betterment IRA[27]	14.98%	1.55%	13.17%	-2.75%	17.94%	-1.98%	8.19%	-1.69%	11.03%	-1.40%
blooom[41]	13.24%	-0.04%	-	-	-	-	-	-	-	-
E*Trade IRA[21]	17.98%	2.93%	15.59%	-1.17%	20.54%	-0.99%	9.45%	-1.01%	12.14%	-1.28%
Fidelity Go IRA[33]	12.68%	-0.45%	14.90%	-0.85%	19.55%	-0.07%	9.96%	0.19%	12.24%	0.00%
Honest Dollar (Goldman Sachs) IRA[3]	14.92%	-0.28%	13.47%	-3.36%	19.65%	-2.02%	-	-	-	-
Merrill Edge IRA[31]	13.99%	-0.17%	13.13%	-3.51%	18.65%	-1.76%	8.66%	-1.45%	-	-
Morgan Stanley IRA[7]	13.44%	1.19%	13.16%	-2.06%	17.07%	-1.64%	8.04%	-1.39%	-	-
Personal Capital IRA[4]	15.64%	0.89%	13.13%	-3.48%	18.43%	-2.80%	8.28%	-2.07%	10.70%	-2.54%
Principal SimpleInvest IRA[7]	14.80%	-0.25%	12.63%	-4.13%	-	-	-	-	-	-
Schwab IRA[20]	18.47%	4.01%	8.24%	-8.23%	15.17%	-5.78%	5.91%	-4.35%	9.14%	-3.92%
SigFig IRA[6]	13.95%	-0.07%	12.43%	-3.81%	18.34%	-2.17%	8.24%	-1.86%	11.69%	-1.10%
SoFi IRA[18]	14.38%	-0.97%	19.66%	2.76%	23.50%	1.68%	11.34%	0.79%	-	-
T Rowe Price IRA[13]	16.88%	1.53%	18.85%	1.95%	22.80%	0.98%	11.39%	0.84%	-	-
TD Ameritrade IRA[10]	13.23%	0.25%	14.96%	-0.70%	19.41%	-0.06%	9.38%	-0.34%	11.91%	-0.21%
TIAA IRA[7]	13.41%	-0.16%	15.59%	-0.41%	19.36%	-0.71%	9.66%	-0.28%	-	-
United Income IRA[16]	11.43%	-3.77%	5.90%	-10.93%	14.39%	-7.28%	4.97%	-5.54%	-	-
Wealthsimple IRA[2]	9.99%	-2.41%	13.03%	-2.28%	15.87%	-2.99%	7.14%	-2.35%	-	-
Wells Fargo IRA[14]	17.73%	3.71%	18.12%	1.88%	20.76%	0.25%	9.76%	-0.34%	-	-
Zack's Advantage IRA[4]	14.54%	-0.22%	15.07%	-1.49%	19.64%	-1.26%	9.18%	-1.08%	-	-

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Retirement Returns: Equity and Fixed Income Returns

	Equity					Fixed Income				
	4Q 2020	1-Year	2-Year	3-Year	4-Year	4Q 2020	1-Year	2-Year	3-Year	4-Year
Ally Financial IRA[9]	17.34%	14.18%	19.90%	8.90%	-	0.75%	6.27%	7.45%	5.35%	-
Axos Invest IRA[25]	15.37%	16.50%	21.51%	10.32%	13.49%	2.16%	8.60%	9.40%	5.74%	5.41%
Betterment IRA[27]	16.71%	12.79%	18.86%	8.21%	11.63%	1.95%	6.81%	7.85%	5.10%	4.87%
blooom[41]	15.33%	-	-	-	-	0.61%	-	-	-	-
E*Trade IRA[21]	18.28%	15.85%	20.87%	9.62%	12.38%	-	-	-	-	-
Fidelity Go IRA[33]	14.88%	15.67%	21.48%	10.65%	13.50%	0.62%	7.51%	7.85%	5.04%	4.60%
Honest Dollar (Goldman Sachs) IRA[3]	15.18%	13.67%	19.94%	-	-	-	-	-	-	-
Merrill Edge IRA[31]	15.29%	14.03%	20.45%	9.37%	-	1.53%	-4.87%	1.94%	0.41%	-
Morgan Stanley IRA[7]	16.65%	14.20%	19.60%	8.76%	-	0.57%	6.17%	6.74%	4.54%	-
Personal Capital IRA[4]	16.52%	13.48%	19.00%	8.50%	11.00%	2.44%	6.64%	6.91%	3.54%	3.70%
Principal SimpleInvest IRA[7]	15.07%	13.18%	-	-	-	-	-	-	-	-
Schwab IRA[20]	19.83%	8.70%	16.23%	6.27%	9.74%	-	-	-	-	-
SigFig IRA[6]	14.93%	13.33%	19.45%	8.67%	12.43%	5.08%	4.18%	9.24%	4.50%	5.30%
SoFi IRA[18]	14.39%	19.69%	23.53%	11.20%	-	-	-	-	-	-
T Rowe Price IRA[13]	16.88%	18.88%	22.82%	11.40%	-	-	-	-	-	-
TD Ameritrade IRA[10]	15.31%	16.64%	21.71%	10.31%	13.45%	1.27%	5.84%	7.12%	4.23%	4.01%
TIAA IRA[7]	15.26%	16.25%	21.00%	10.10%	-	1.06%	7.05%	7.62%	4.95%	-
United Income IRA[16]	11.60%	5.28%	14.29%	4.86%	-	-	-	-	-	-
Wealthsimple IRA[2]	12.79%	10.58%	16.51%	6.68%	-	-1.00%	21.58%	12.70%	8.44%	-
Wells Fargo IRA[14]	18.99%	18.67%	21.81%	10.11%	-	3.08%	1.98%	6.71%	3.53%	-
Zack's Advantage IRA[4]	15.63%	16.04%	20.93%	9.84%	-	-	-	-	-	-

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Taxable Accounts Facts

Portfolio	Account Minimum	Advisory Fee	Weighted Average Expense Ratio	Initial Target Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Current Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Initial Domestic/ International Equity Split	Current Domestic/ International Equity Split	Tax Efficiency Ratio (% Muni Bonds of Overall Fixed Income)
Acorns	No minimum	$1/month for Acorns Invest; $3/month for Invest + Acorns Later + Acorns Spend; $5/mo for Acorns Family (includes family services). For balances above $1 million contact Acorns directly	0.05%	61%/39%/0%/0%	63%/37%/0%/0%	84%/16%	70%/30%	0%
Ally Financial	$100	0.30% annually; Also offers 'cash-enhanced' portfolio with 30% invested in cash and no management fee	0.06%	59%/39%/0%/2%	61%/36%/0%/3%	59%/41%	59%/41%	0%
Axos Invest	$500	0.24% annually	0.09%	64%/36%/0%/0%	65%/35%/0%/0%	62%/38%	62%/38%	0%
BBVA Compass	$10,000	0.75% annually	0.12%	57%/39%/3%/1%	58%/37%/3%/3%	63%/37%	62%/38%	0%
Beanstox	$100	$5/month	0.15%	60%/40%/0%/0%	62%/37%/0%/1%	84%/16%	82%/18%	50%
Betterment	Digital: No minimum; Premium: $100,000	Digital: 0.25%; Premium: 0.40% (unlimited chat and calls with advisor), 0.10% discount on balances above $2M	0.09%	65%/35%/0%/0%	66%/34%/0%/0%	49%/51%	58%/42%	40%
Betterment Goldman Sachs Smart Beta	Digital: No minimum; Premium: $100,000	Digital: 0.25%; Premium: 0.40% (unlimited chat and calls with advisor), 0.10% discount on balances above $2M	0.12%	60%/40%/0%/0%	62%/38%/0%/0%	57%/43%	71%/29%	33%
Betterment Income	Digital: No minimum; Premium: $100,000	Digital: 0.25%; Premium: 0.40% (unlimited chat and calls with advisor), 0.10% discount on balances above $2M	0.19%	0%/100%/0%/0%	0%/100%/0%/0%	N/A	N/A	0%
Betterment SRI	Digital: No minimum; Premium: $100,000	Digital: 0.25%; Premium: 0.40% (unlimited chat and calls with advisor), 0.10% discount on balances above $2M	0.15%	60%/40%/0%/0%	61%/39%/0%/0%	50%/50%	50%/50%	59%
CitiGroup	$1,500	0.55% annually	0.17%	61%/36%/0%/3%	65%/33%/0%/2%	72%/28%	82%/18%	1%
Citizens Bank	$2,000	0.50% annually	0.07%	64%/36%/0%/1%	69%/29%/0%/2%	54%/46%	57%/43%	0%
E*Trade	$500	0.30% annually	0.05%	60%/39%/0%/1%	61%/38%/0%/1%	75%/25%	65%/35%	0%
E*Trade Active	$500	0.30% annually	0.12%	61%/35%/0%/3%	64%/34%/0%/2%	65%/35%	66%/34%	100%
E*Trade SRI	$500	0.30% annually	0.15%	61%/35%/0%/4%	64%/35%/0%/1%	65%/35%	65%/35%	100%

Current allocations as of 12/31/2020. Due to rounding, may not add to 100%.
Weighted average expense ratio calculations exclude cash holdings from the portfolio.

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Taxable Accounts Facts *(continued from previous page)*

Portfolio	Account Minimum	Advisory Fee	Weighted Average Expense Ratio	Initial Target Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Current Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Initial Domestic/ International Equity Split	Current Domestic/ International Equity Split	Tax Efficiency Ratio (% Muni Bonds of Overall Fixed Income)
Edelman Financial Engines	$5,000	1.75% annually on accounts under $400,000. Lower at different tiers over $400,000	0.13%	67%/30%/0%/3%	68%/30%/0%/2%	80%/20%	76%/24%	1%
Ellevest	Digital: No minimum; Private Client: $1 million	$1/mo, $5/mo, $9/mo - all of which offer investing, debit card, and increased access to discounts for coaching and financial planning based on tier level	0.07%	62%/36%/0%/2%	59%/39%/0%/2%	71%/29%	61%/39%	95%
Ellevest SRI	Digital: No minimum; Private Client: $1 million	$1/mo, $5/mo, $9/mo - all of which offer investing, debit card, and increased access to discounts for coaching and financial planning based on tier level	0.17%	56%/43%/0%/1%	46%/52%/0%/1%	63%/37%	63%/37%	84%
Fidelity Go	Digital Only: No Minimum; Personalized Planning & Advice: $25,000	Digital Only: for balances less than $10,000 there is no fee, for balances between $10,000 - $49,999.99 it is $3/mo, for balances $50,000 and above it is 0.35% annually. Personalized Planning & Advice: 0.50% annually	0.00%	61%/39%/0%/0%	60%/39%/0%/1%	71%/29%	70%/30%	100%
Fifth Third Bank	$5,000	0.50% annually	0.19%	60%/40%/0%/1%	59%/40%/0%/1%	70%/30%	68%/32%	100%
FutureAdvisor	$5,000	0.50% annually	0.06%	58%/41%/0%/1%	55%/45%/0%/0%	49%/51%	73%/27%	0%
Interactive Advisors	$100 minimum. Some portfolio selections require a higher minimum	Fee between 0.08% - 1.5% annually depending on portfolio selection	0.13%	54%/46%/0%/0%	57%/42%/0%/2%	55%/45%	54%/46%	31%
Interactive Advisors Legg Mason Global Growth and Income	$100 minimum. Some portfolio selections require a higher minimum	Fee between 0.08% - 1.5% annually depending on portfolio selection	0.47%	69%/29%/0%/2%	69%/29%/0%/2%	79%/21%	70%/30%	0%
Interactive Advisors State Street SSGA Moderate	$100 minimum. Some portfolio selections require a higher minimum	Fee between 0.08% - 1.5% annually depending on portfolio selection	0.25%	64%/31%/2%/3%	64%/26%/3%/6%	66%/34%	64%/36%	0%

Current allocations as of 12/31/2020. Due to rounding, may not add to 100%.
Weighted average expense ratio calculations exclude cash holdings from the portfolio.

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Taxable Accounts Facts *(continued from previous page)*

Portfolio	Account Minimum	Advisory Fee	Weighted Average Expense Ratio	Initial Target Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Current Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Initial Domestic/ International Equity Split	Current Domestic/ International Equity Split	Tax Efficiency Ratio (% Muni Bonds of Overall Fixed Income)
Interactive Advisors Wisdom Tree Moderate Aggressive	$100 minimum. Some portfolio selections require a higher minimum	Fee between 0.08% - 1.5% annually depending on portfolio selection	0.25%	54%/30%/14%/2%	53%/39%/3%/5%	62%/38%	63%/37%	1%
JP Morgan Chase You Invest	$500	0.35% annually. JP Morgan ETF expenses will be rebated or offset against the advisory fee	0.11%	50%/48%/0%/2%	54%/43%/0%/3%	55%/45%	61%/39%	1%
Liftoff (Ritholtz Wealth Management)	No minimum	0.50% annually	0.08%	60%/40%/0%/0%	62%/37%/0%/0%	57%/43%	56%/44%	37%
M1 Finance	$100 minimum for taxable accounts, $500 minimum for retirement accounts	No management fee	0.05%	66%/34%/0%/0%	66%/32%/0%/2%	61%/39%	63%/37%	0%
M1 Finance SRI	$100 minimum for taxable accounts, $500 minimum for retirement accounts	No management fee	0.39%	100%/0%/0%/0%	98%/0%/0%/2%	69%/31%	70%/30%	0%
Merrill Edge	Guided Investing: $5,000; Guided Investing with an Advisor: $20,000	Guided Investing: 0.45% annually (digital only); Guided Investing with an Advisor: 0.85% annually	0.07%	60%/39%/0%/1%	63%/32%/0%/5%	66%/34%	75%/25%	75%
Merrill Edge SRI	Guided Investing: $5,000; Guided Investing with an Advisor: $20,000	Guided Investing: 0.45% annually (digital only); Guided Investing with an Advisor: 0.85% annually	0.25%	59%/37%/0%/4%	67%/29%/0%/4%	65%/35%	75%/25%	6%
Morgan Stanley Active	$5,000	0.35% annually	0.40%	64%/35%/0%/1%	69%/30%/0%/1%	44%/56%	51%/49%	0%
Morgan Stanley Defense and Cyber Security	$5,000	0.35% annually	0.45%	64%/29%/0%/8%	73%/26%/0%/1%	58%/42%	59%/41%	0%
Morgan Stanley Emerging Consumer	$5,000	0.35% annually	0.49%	64%/29%/0%/8%	74%/24%/0%/1%	57%/43%	38%/62%	0%
Morgan Stanley Gender Diversity	$5,000	0.35% annually	0.44%	60%/37%/0%/3%	66%/34%/0%/1%	68%/32%	68%/32%	9%
Morgan Stanley Genomics	$5,000	0.35% annually	0.43%	49%/45%/0%/6%	60%/39%/0%/1%	56%/44%	60%/40%	0%
Morgan Stanley Global Frontier	$5,000	0.35% annually	0.59%	66%/29%/0%/5%	73%/27%/0%/1%	40%/60%	42%/58%	0%
Morgan Stanley Inflation Conscious	$5,000	0.35% annually	0.45%	58%/30%/3%/9%	66%/31%/3%/1%	63%/37%	62%/38%	0%

Current allocations as of 12/31/2020. Due to rounding, may not add to 100%.
Weighted average expense ratio calculations exclude cash holdings from the portfolio.

Produced by Backend Benchmarking for BackendB.com

Taxable Accounts Facts *(continued from previous page)*

Portfolio	Account Minimum	Advisory Fee	Weighted Average Expense Ratio	Initial Target Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Current Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Initial Domestic/ International Equity Split	Current Domestic/ International Equity Split	Tax Efficiency Ratio (% Muni Bonds of Overall Fixed Income)
Morgan Stanley	$5,000	0.35% annually	0.08%	65%/30%/0%/5%	69%/29%/0%/2%	45%/55%	48%/52%	0%
Morgan Stanley Robotics	$5,000	0.35% annually	0.49%	66%/28%/0%/5%	75%/23%/0%/1%	52%/48%	56%/44%	0%
Morgan Stanley SRI	$5,000	0.35% annually	0.49%	64%/35%/0%/1%	64%/36%/0%/1%	56%/44%	64%/36%	9%
Personal Capital	$100,000	0.89% annually for the first $1 million; lower at different tiers over $1 million	0.10%	69%/25%/5%/1%	73%/23%/4%/1%	70%/30%	71%/29%	0%
Prudential	$1,000	0.79% annually for first $100K; lower at different tiers above $100K	0.07%	60%/38%/0%/2%	64%/33%/0%/2%	80%/20%	79%/21%	0%
Qapital	$10	Complete: $6 per month; Master: $12 per month for additional non-investing features	0.14%	67%/29%/0%/4%	68%/29%/0%/3%	70%/30%	70%/30%	0%
Schwab	Intelligent Portfolios: $5,000; Intelligent Portfolios Premium: $25,000	Intelligent Portfolios: No fee (digital only); Intelligent Portfolios Premium: $300 initial planning fee, $30/month subscription	0.18%	61%/23%/5%/10%	58%/30%/2%/10%	51%/49%	52%/48%	55%
Schwab Domestic Focus	Intelligent Portfolios: $5,000; Intelligent Portfolios Premium: $25,000	Intelligent Portfolios: No fee (digital only); Intelligent Portfolios Premium: $300 initial planning fee, $30/month subscription	0.11%	65%/25%/0%/11%	63%/26%/0%/10%	78%/22%	75%/25%	60%
SigFig	$2,000	No fee for the first $10k; 0.25% annually for balance over $10k	0.07%	62%/37%/0%/1%	62%/37%/0%/1%	58%/42%	59%/41%	0%
SoFi	$1	No management fee	0.04%	52%/48%/0%/0%	64%/35%/0%/0%	67%/33%	70%/30%	65%
Sustainfolio	$5,000	0.50% annually	0.24%	58%/40%/0%/2%	60%/36%/0%/4%	71%/29%	73%/27%	0%
TD Ameritrade	Essential Portfolios: $5,000, or $500 if automatic recurring deposits are set up; Selective Portfolios: $25,000	Essential Portfolios: 0.30% annually; Selective Portfolios: tiered at a higher fee level depending on account balance and portfolio selected	0.05%	65%/33%/0%/1%	72%/26%/0%/1%	65%/35%	58%/42%	0%
TD Ameritrade Income	Essential Portfolios: $5,000, or $500 if automatic recurring deposits are set up; Selective Portfolios: $25,000	Essential Portfolios: 0.30% annually; Selective Portfolios: tiered at a higher fee level depending on account balance and portfolio selected	0.60%	21%/78%/0%/1%	21%/76%/0%/1%	72%/38%	55%/45%	0%

Current allocations as of 12/31/2020. Due to rounding, may not add to 100%.
Weighted average expense ratio calculations exclude cash holdings from the portfolio.

Produced by Backend Benchmarking for BackendB.com

Taxable Accounts Facts *(continued from previous page)*

Portfolio	Account Minimum	Advisory Fee	Weighted Average Expense Ratio	Initial Target Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Current Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Initial Domestic/ International Equity Split	Current Domestic/ International Equity Split	Tax Efficiency Ratio (% Muni Bonds of Overall Fixed Income)
TD Ameritrade Managed Risk	Essential Portfolios: $5,000, or $500 if automatic recurring deposits are set up; Selective Portfolios: $25,000	Essential Portfolios: 0.30% annually; Selective Portfolios: tiered at a higher fee level depending on account balance and portfolio selected	1.30%	9%/49%/41%/1%	7%/54%/38%/1%	29%/71%	28%/72%	0%
TD Ameritrade Opportunistic	Essential Portfolios: $5,000, or $500 if automatic recurring deposits are set up; Selective Portfolios: $25,000	Essential Portfolios: 0.30% annually; Selective Portfolios: tiered at a higher fee level depending on account balance and portfolio selected	0.13%	43%/53%/0%/4%	55%/43%/0%/1%	53%/47%	55%/45%	0%
TD Ameritrade SRI	Essential Portfolios: $5,000, or $500 if automatic recurring deposits are set up; Selective Portfolios: $25,000	Essential Portfolios: 0.30% annually; Selective Portfolios: tiered at a higher fee level depending on account balance and portfolio selected	0.26%	67%/29%/0%/3%	72%/27%/0%/2%	59%/41%	58%/42%	0%
TIAA	$5,000	0.30% annually	0.07%	61%/37%/0%/2%	61%/37%/0%/2%	71%/29%	62%/38%	0%
TIAA Active	$5,000	0.30% annually	0.64%	73%/26%/0%/1%	62%/37%/0%/2%	66%/34%	59%/41%	0%
TIAA SRI	$5,000	0.30% annually	0.34%	60%/39%/0%/1%	60%/38%/0%/2%	71%/29%	63%/37%	4%
Titan Invest	$100 minimum for Titan Flagship; $10,000 relationship minimum for Titan Opportunities	For deposits of $10,000 or more, 1% annually. For deposits less than $10,000, $5 monthly instead	0.03%	100%/0%/0%/0%	100%/0%/0%/0%	100%/0%	96%/4%	4%
Titan Invest Opportunities Strategy	$100 minimum for Titan Flagship; $10,000 relationship minimum for Titan Opportunities	For deposits of $10,000 or more, 1% annually. For deposits less than $10,000, $5 monthly instead	0.03%	99%/0%/0%/1%	100%/0%/0%/0%	100%/0%	100%/0%	4%
Twine (John Hancock)	$5	0.60% annually	0.07%	69%/29%/0%/2%	71%/27%/0%/3%	64%/36%	63%/37%	0%
UBS Advice Advantage	$5,000	0.75% annually	0.14%	68%/27%/0%/5%	70%/27%/0%/2%	59%/41%	58%/42%	80%

Current allocations as of 12/31/2020. Due to rounding, may not add to 100%.
Weighted average expense ratio calculations exclude cash holdings from the portfolio.

Produced by Backend Benchmarking for BackendB.com

Taxable Accounts Facts *(continued from previous page)*

Portfolio	Account Minimum	Advisory Fee	Weighted Average Expense Ratio	Initial Target Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Current Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Initial Domestic/ International Equity Split	Current Domestic/ International Equity Split	Tax Efficiency Ratio (% Muni Bonds of Overall Fixed Income)
United Income	No minimum	0.99% annually, lower at different tiers above $1 million	0.16%	59%/40%/0%/1%	60%/39%/0%/1%	51%/49%	58%/42%	0%
US Bank	$5,000	0.24% annually	0.15%	60%/39%/0%/1%	59%/40%/0%/1%	59%/41%	69%/31%	93%
Vanguard Digital Advisor	$3,000	Vanguard Personal Advisor Services 0.30% annually for the first $5 million; lower at different tiers over $5 million. Vanguard Digital Advisor combined fund and advisory fee is capped at 0.20%	0.05%	58%/38%/0%/4%	62%/36%/0%/3%	59%/41%	65%/35%	1%
Vanguard[A]	Vanguard Personal Advisor Services: $50,000; Vanguard Digital Advisor: $3,000	Vanguard Personal Advisor Services 0.30% annually for the first $5 million; lower at different tiers over $5 million. Vanguard Digital Advisor combined fund and advisory fee is capped at 0.20%	0.07%	60%/40%/0%/0%	62%/38%/0%/0%	60%/40%	68%/32%	100%
Wealthfront[B]	$500, some additional portfolio features require a higher minimum	0.25% annually	0.10%	65%/35%/0%/0%	69%/31%/0%/0%	67%/33%	66%/34%	100%
Wealthfront PassivePlus	$500, some additional portfolio features require a higher minimum	0.25% annually	0.14%	45%/35%/19%/0%	49%/33%/18%/0%	60%/40%	61%/39%	100%
Wealthsimple	Basic: No minimum; Black: $100,000	Basic: 0.50% fee on accounts less than $100k; Black: 0.40% on accounts greater than $100k	0.11%	60%/40%/0%/0%	62%/36%/2%/0%	66%/34%	40%/60%	0%
Wealthsimple Halal	Basic: No minimum; Black: $100,000	Basic: 0.50% fee on accounts less than $100k; Black: 0.40% on accounts greater than $100k	0.00%	100%/0%/0%/0%	99%/0%/0%/1%	58%/42%	55%/45%	0%

Current allocations as of 12/31/2020. Due to rounding, may not add to 100%.
Weighted average expense ratio calculations exclude cash holdings from the portfolio.

Produced by Backend Benchmarking for BackendB.com

Taxable Accounts Facts *(continued from previous page)*

Portfolio	Account Minimum	Advisory Fee	Weighted Average Expense Ratio	Initial Target Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Current Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Initial Domestic/ International Equity Split	Current Domestic/ International Equity Split	Tax Efficiency Ratio (% Muni Bonds of Overall Fixed Income)
Wealthsimple SRI	Basic: No minimum; Black: $100,000	Basic: 0.50% fee on accounts less than $100k; Black: 0.40% on accounts greater than $100k	0.13%	60%/40%/0%/0%	62%/35%/2%/0%	69%/31%	44%/56%	0%
Wells Fargo	$5,000	0.35% annually; discounted to 0.30% if subscribed to other specific Wells Fargo products	0.13%	63%/34%/0%/3%	63%/33%/0%/3%	77%/23%	76%/24%	0%
Zacks Advantage	$25,000	0.70% on accounts less than $100K; 0.50% on accounts between $100K and $250K; 0.35% on accounts $250K and above	0.08%	57%/34%/0%/9%	64%/33%/0%/4%	72%/28%	83%/17%	94%

Current allocations as of 12/31/2020. Due to rounding, may not add to 100%.
Weighted average expense ratio calculations exclude cash holdings from the portfolio.

Produced by Backend Benchmarking for BackendB.com

Retirement Account Facts

Portfolio	Account Minimum	Advisory Fee	Weighted Average Expense Ratio	Initial Target Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Current Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Initial Domestic/ International Equity Split	Current Domestic/ International Equity Split
Ally Financial IRA	$100	0.30% annually; Also offers 'cash-enhanced' portfolio with 30% invested in cash and no management fee	0.05%	93%/5%/0%/2%	95%/3%/0%/2%	60%/40%	61%/39%
Axos Invest IRA	$500	0.24% annually	0.05%	92%/8%/0%/0%	91%/8%/0%/1%	60%/40%	60%/40%
Betterment IRA	Digital: No minimum; Premium: $100,000	Digital: 0.25%; Premium: 0.40% (unlimited chat and calls with advisor), 0.30% above $2M	0.06%	87%/13%/0%/0%	89%/11%/0%/0%	47%/53%	57%/43%
blooom	No minimum	Essentials: $45/year; Standard: $120/year; Unlimited: $250/year	0.07%	86%/14%/0%/0%	85%/15%/0%/0%	65%/35%	64%/36%
E*Trade IRA	$500	0.30% annually	0.07%	98%/0%/0%/2%	99%/0%/0%/1%	75%/25%	65%/35%
Fidelity Go IRA	Digital Only: No Minimum; Personalized Planning & Advice: $25,000	Digital Only: for balances less than $10,000 there is no fee, for balances between $10,000 - $49,999.99 it is $3/mo, for balances $50,000 and above it is 0.35% annually. Personalized Planning & Advice: 0.50% annually	0.00%	85%/14%/0%/1%	86%/14%/0%/0%	71%/29%	71%/29%
Honest Dollar (Goldman Sachs) IRA	$1,000	0.25% annually	0.05%	99%/0%/0%/1%	98%/0%/0%/2%	68%/32%	72%/28%
Merrill Edge IRA	Guided Investing: $5,000; Guided Investing with an Advisor: $20,000	Guided Investing: 0.45% annually (digital only); Guided Investing with an Advisor: 0.85% annually	0.05%	89%/9%/0%/2%	92%/3%/0%/5%	64%/36%	72%/28%
Morgan Stanley IRA	$5,000	0.35% annually	0.07%	79%/15%/0%/6%	82%/16%/0%/2%	47%/53%	49%/51%
Personal Capital IRA	$100,000	0.89% annually for the first $1 million; lower at different tiers over $1 million	0.09%	91%/3%/2%/4%	94%/3%/3%/1%	69%/31%	71%/29%
Principal SimpleInvest IRA	$1,000	0.40% annually. Combined fee between fund fees and advisory fee capped at 0.85%	0.48%	98%/0%/0%/2%	98%/0%/0%/2%	64%/36%	65%/35%
Schwab IRA	Intelligent Portfolios: $5,000; Intelligent Portfolios Premium: $25,000	Intelligent Portfolios: No fee (digital only); Intelligent Portfolios Premium: $300 initial planning fee, $30/month subscription	0.19%	94%/0%/0%/6%	93%/0%/0%/7%	54%/46%	52%/48%
SigFig IRA	$2,000	No fee for the first $10k; 0.25% annually for balance over $10k	0.08%	91%/9%/0%/0%	90%/9%/0%/1%	45%/55%	46%/54%
SoFi IRA	$1	No management fee	0.02%	100%/0%/0%/0%	100%/0%/0%/0%	66%/34%	70%/30%

Current allocations as of 12/31/2020. Due to rounding, may not add to 100%.
Weighted average expense ratio calculations exclude cash holdings from the portfolio.

Produced by Backend Benchmarking for BackendB.com

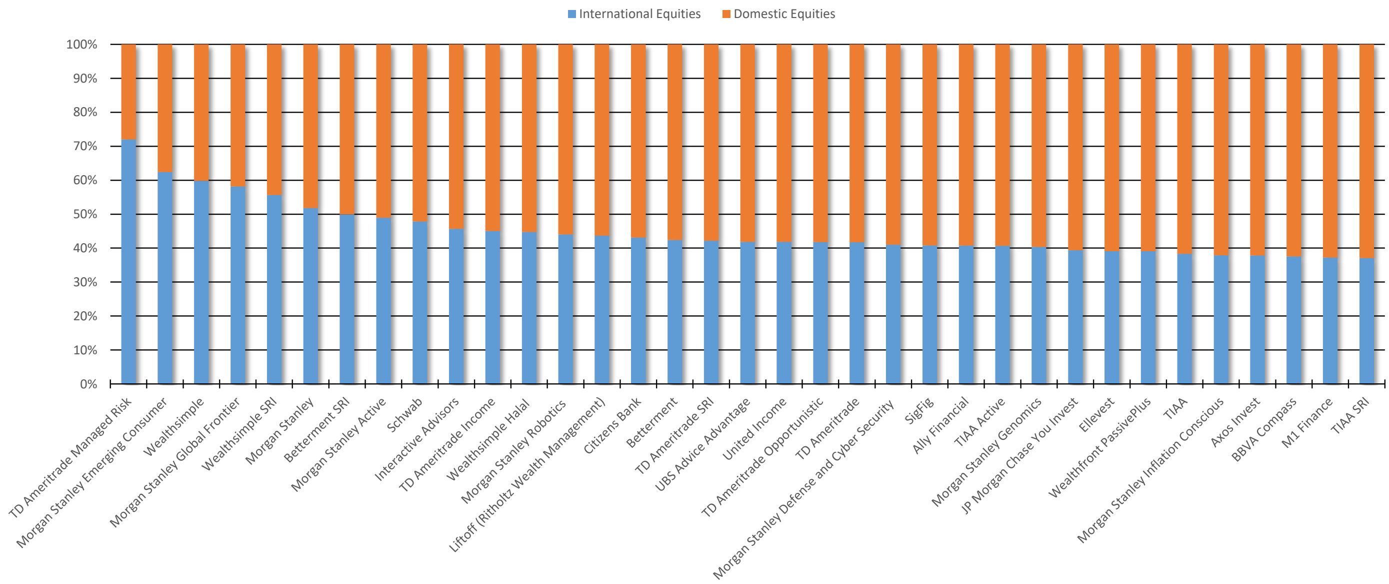
Retirement Account Facts *(continued from previous page)*

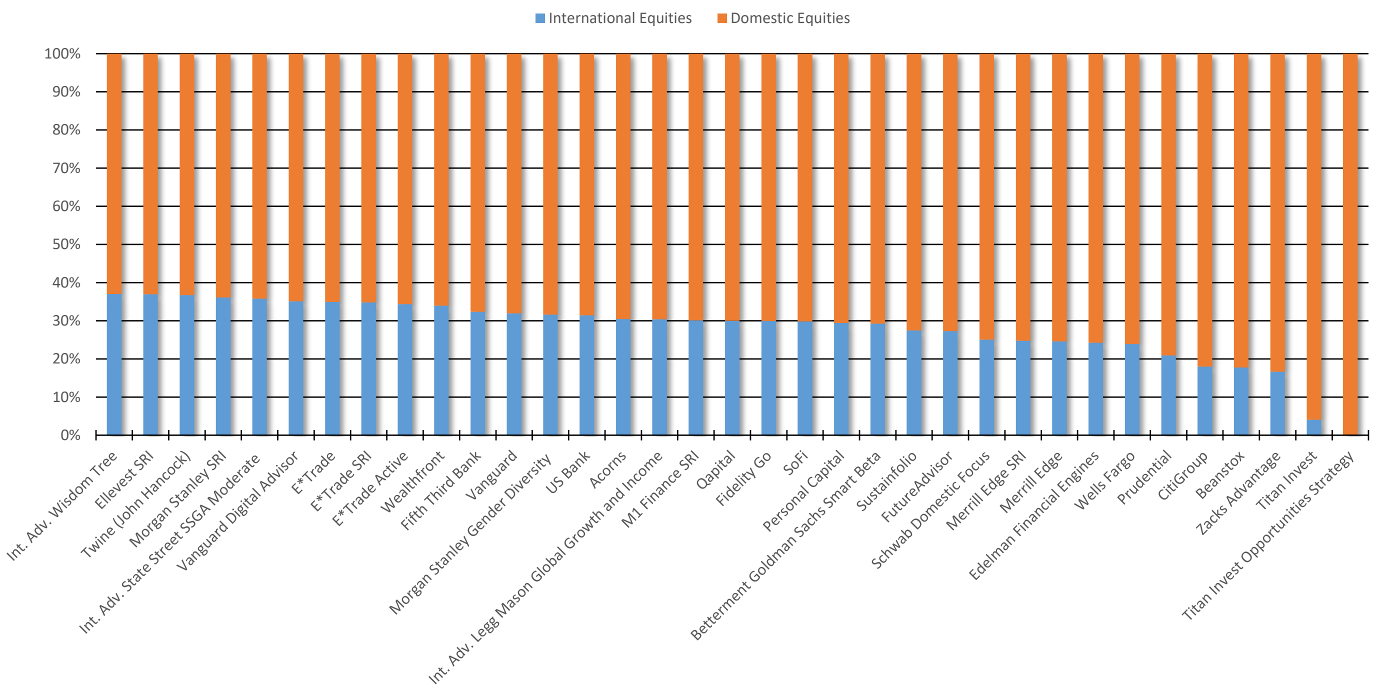
Portfolio	Account Minimum	Advisory Fee	Weighted Average Expense Ratio	Initial Target Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Current Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Initial Domestic/ International Equity Split	Current Domestic/ International Equity Split
T Rowe Price IRA	$50,000	No management fee	0.80%	100%/0%/0%/0%	100%/0%/0%/0%	63%/37%	66%/34%
TD Ameritrade IRA	Essential Portfolios: $5,000, or $500 if automatic recurring deposits are set up; Selective Portfolios: $25,000	Essential Portfolios: 0.30% annually; Selective Portfolios: tiered at a higher fee level depending on account balance and portfolio selected	0.05%	83%/15%/0%/1%	86%/12%/0%/1%	65%/35%	60%/40%
TIAA IRA	$5,000	0.30% annually	0.06%	88%/11%/0%/1%	88%/10%/0%/2%	72%/28%	61%/39%
United Income IRA	No minimum	0.99% annually, lower at different tiers above $1 million	0.21%	99%/0%/0%/1%	98%/0%/0%/2%	51%/49%	56%/44%
Wealthsimple IRA	Basic: No minimum; Black: $100,000	Basic: 0.50% fee on accounts less than $100k; Black: 0.40% on accounts greater than $100k	0.11%	80%/20%/0%/0%	81%/16%/2%/0%	66%/34%	41%/59%
Wells Fargo IRA	$5,000	0.35% annually; discounted to 0.30% if subscribed to other specific Wells Fargo products	0.12%	91%/7%/0%/2%	91%/7%/0%/2%	67%/33%	67%/33%
Zack's Advantage IRA	$25,000	0.70% on accounts less than $100K; 0.50% on accounts between $100K and $250K; 0.35% on accounts $250K and above	0.09%	93%/0%/0%/7%	93%/0%/1%/5%	62%/38%	83%/17%

Current allocations as of 12/31/2020. Due to rounding, may not add to 100%.
Weighted average expense ratio calculations exclude cash holdings from the portfolio.

Produced by Backend Benchmarking for BackendB.com

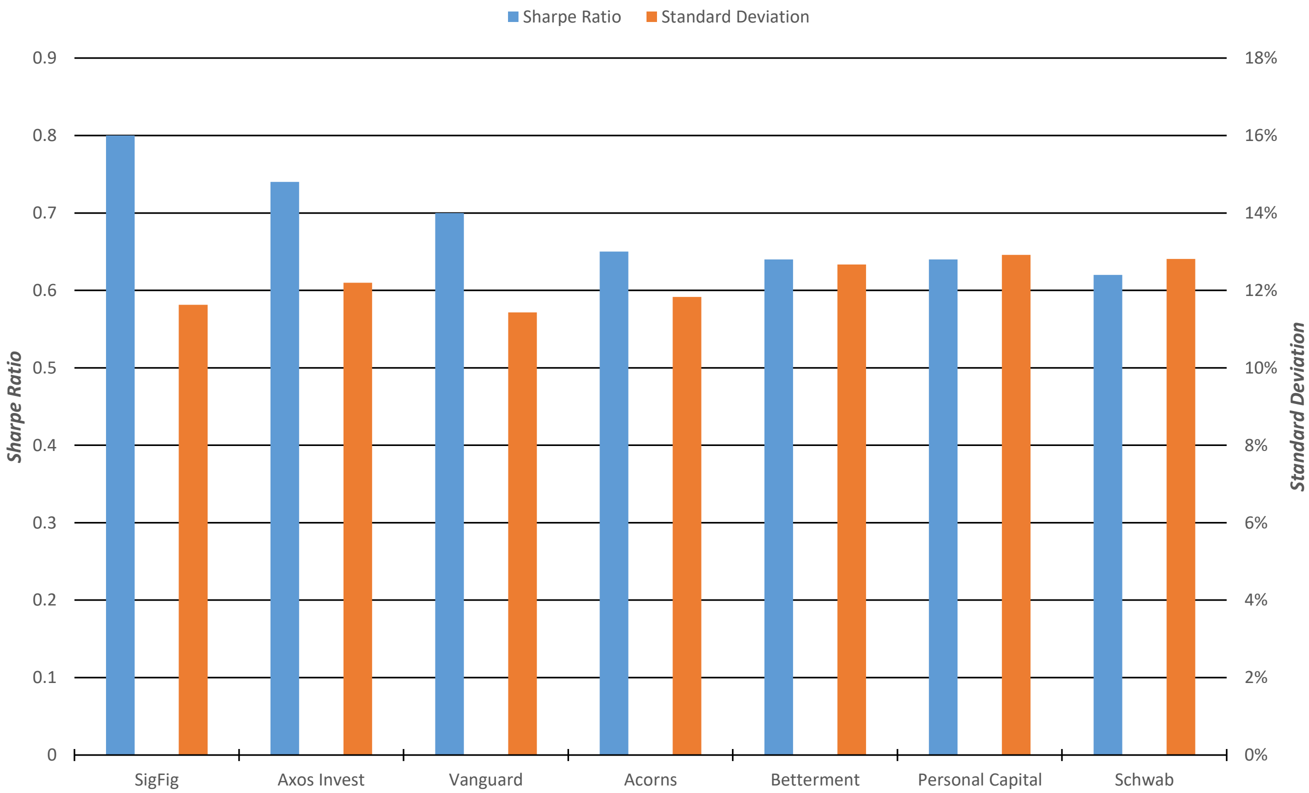
International Allocation of Total Equity for Taxable Robos





Taxable Risk/Return Charts and Tables

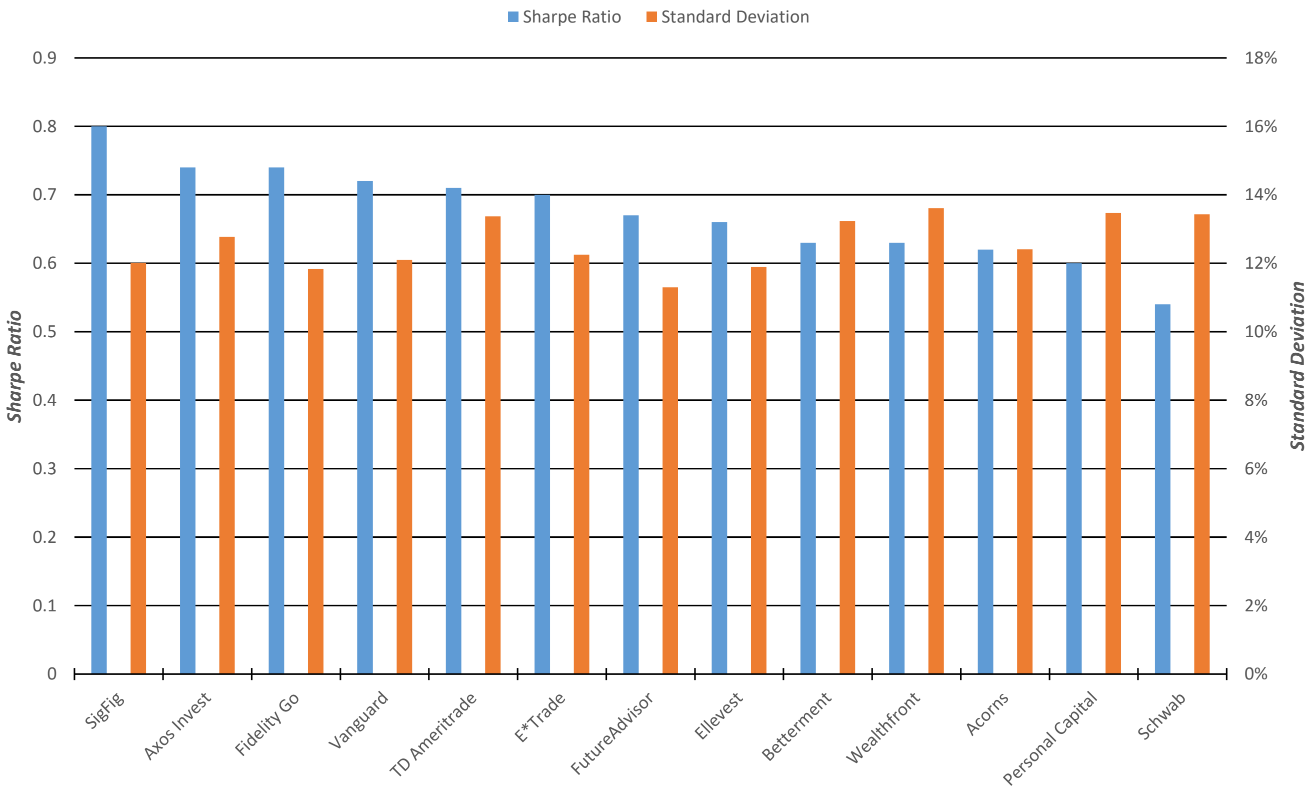
5-Year Risk/Return Statistics of Taxable Robos



	Acorns	Axos Invest	Betterment	Personal Capital	Schwab	SigFig	Vanguard
Standard Deviation	11.83%	12.20%	12.67%	12.92%	12.81%	11.63%	11.43%
Sharpe Ratio	0.65	0.74	0.64	0.64	0.62	0.80	0.70

This analysis was produced by Backend Analytics with the help of Markov Process International, Inc.

4-Year Risk/Return Statistics of Taxable Robos

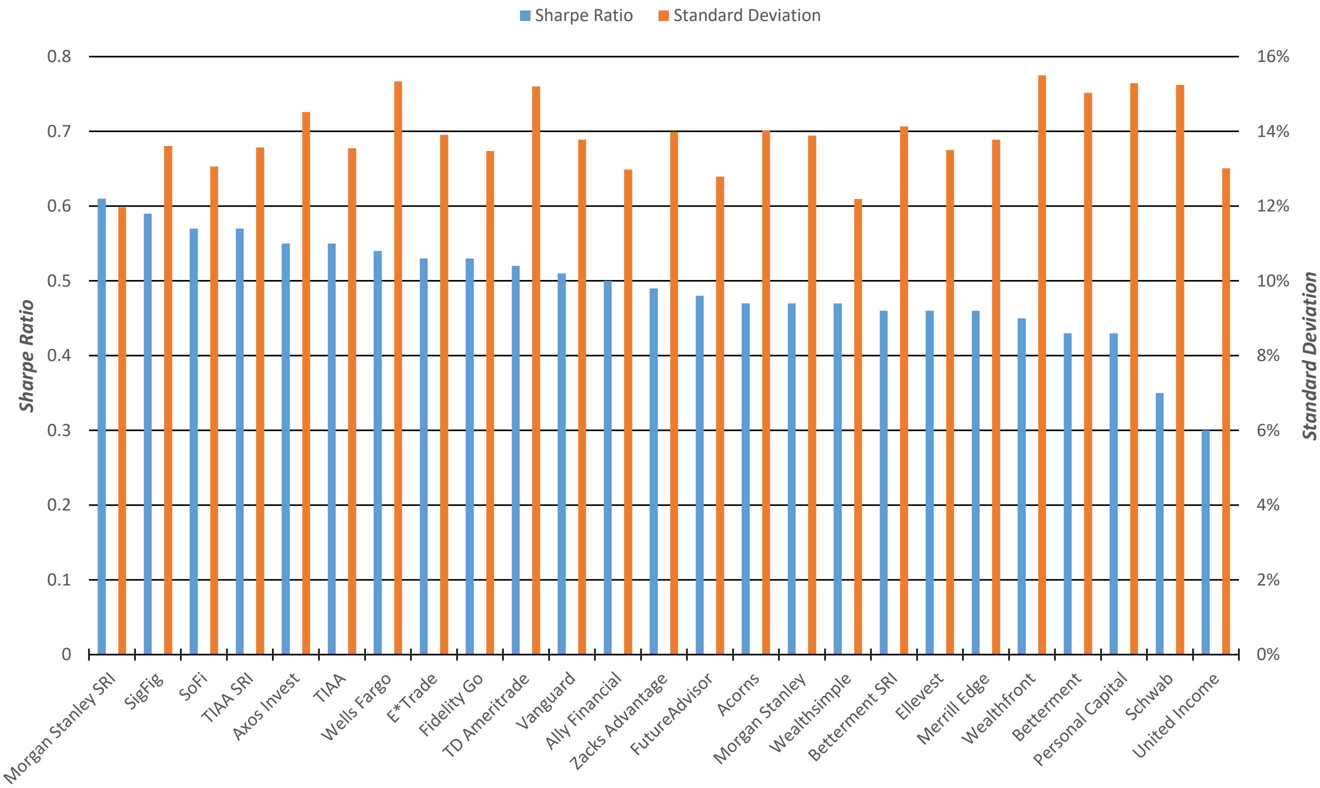


	Acorns	Axos Invest	Betterment	E*Trade	Ellevest	Fidelity Go	FutureAdvisor	Personal Capital
Standard Deviation	12.41%	12.77%	13.23%	12.25%	11.89%	11.83%	11.30%	13.47%
Sharpe Ratio	0.62	0.74	0.63	0.70	0.66	0.74	0.67	0.60

	Schwab	SigFig	TD Ameritrade	Vanguard	Wealthfront
Standard Deviation	13.43%	12.01%	13.37%	12.10%	13.61%
Sharpe Ratio	0.54	0.80	0.71	0.72	0.63

This analysis was produced by Backend Analytics with the help of Markov Process International, Inc.

3-Year Risk/Return Statistics of Taxable Robos



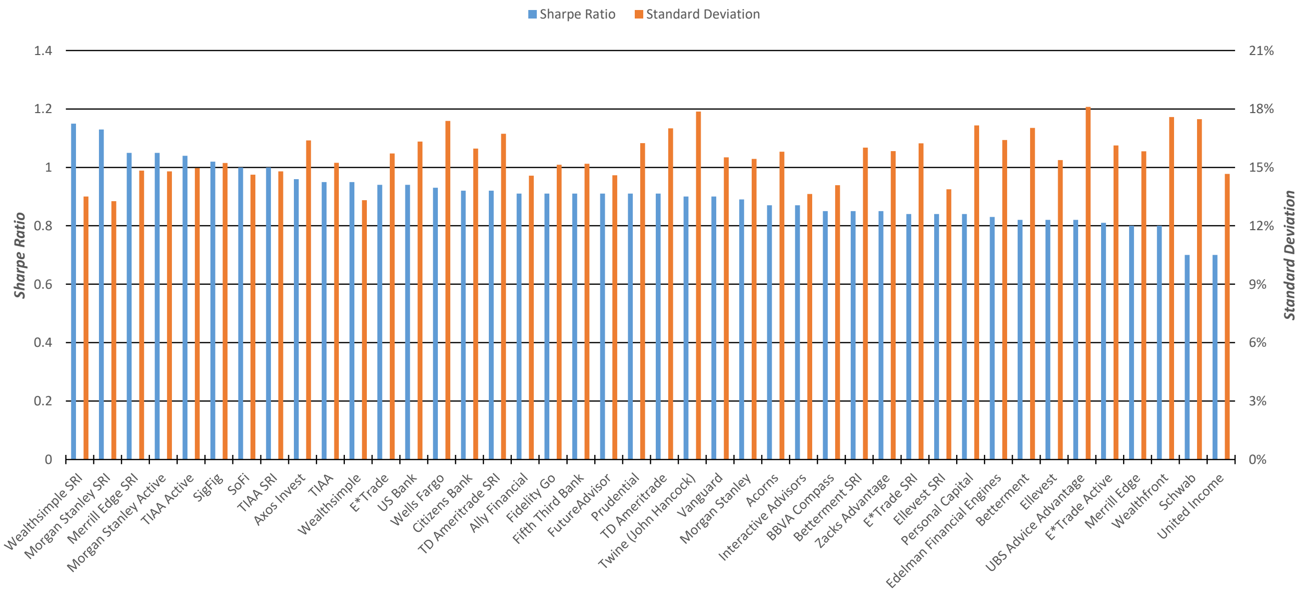
	Acorns	Ally Financial	Axos Invest	Betterment	Betterment SRI	E*Trade	Ellevest	Fidelity Go
Standard Deviation	14.03%	12.98%	14.52%	15.03%	14.13%	13.91%	13.50%	13.47%
Sharpe Ratio	0.47	0.50	0.55	0.43	0.46	0.53	0.46	0.53

	FutureAdvisor	Merrill Edge	Morgan Stanley	Morgan Stanley SRI	Personal Capital	Schwab	SigFig	SoFi
Standard Deviation	12.79%	13.78%	13.89%	11.97%	15.29%	15.24%	13.61%	13.06%
Sharpe Ratio	0.48	0.46	0.47	0.61	0.43	0.35	0.59	0.57

	TD Ameritrade	TIAA	TIAA SRI	United Income	Vanguard	Wealthfront	Wealthsimple	Wells Fargo	Zacks Advantage
Standard Deviation	15.20%	13.55%	13.57%	13.01%	13.78%	15.50%	12.19%	15.34%	13.99%
Sharpe Ratio	0.52	0.55	0.57	0.30	0.51	0.45	0.47	0.54	0.49

This analysis was produced by Backend Analytics with the help of Markov Process International, Inc.

2-Year Risk/Return Statistics of Taxable Robos



	Acorns	Ally Financial	Axos Invest	BBVA Compass	Betterment	Betterment SRI	Citizens Bank	E*Trade
Standard Deviation	15.81%	14.58%	16.39%	14.08%	17.03%	16.02%	15.97%	15.72%
Sharpe Ratio	0.87	0.91	0.96	0.85	0.82	0.85	0.92	0.94

	E*Trade Active	E*Trade SRI	Edelman Financial Engines	Ellevest	Ellevest SRI	Fidelity Go	Fifth Third Bank	FutureAdvisor
Standard Deviation	16.13%	16.24%	16.41%	15.38%	13.87%	15.14%	15.19%	14.60%
Sharpe Ratio	0.81	0.84	0.83	0.82	0.84	0.91	0.91	0.91

	Interactive Advisors	Merrill Edge	Merrill Edge SRI	Morgan Stanley Active	Morgan Stanley	Morgan Stanley SRI	Personal Capital	Prudential
Standard Deviation	13.63%	15.83%	14.84%	14.80%	15.44%	13.26%	17.16%	16.25%
Sharpe Ratio	0.87	0.80	1.05	1.05	0.89	1.13	0.84	0.91

	Schwab	SigFig	SoFi	TD Ameritrade	TD Ameritrade SRI	TIAA	TIAA Active	TIAA SRI
Standard Deviation	17.48%	15.23%	14.63%	17.01%	16.73%	15.24%	14.97%	14.80%
Sharpe Ratio	0.70	1.02	1.00	0.91	0.92	0.95	1.04	1.00

This analysis was produced by Backend Analytics with the help of Markov Process International, Inc

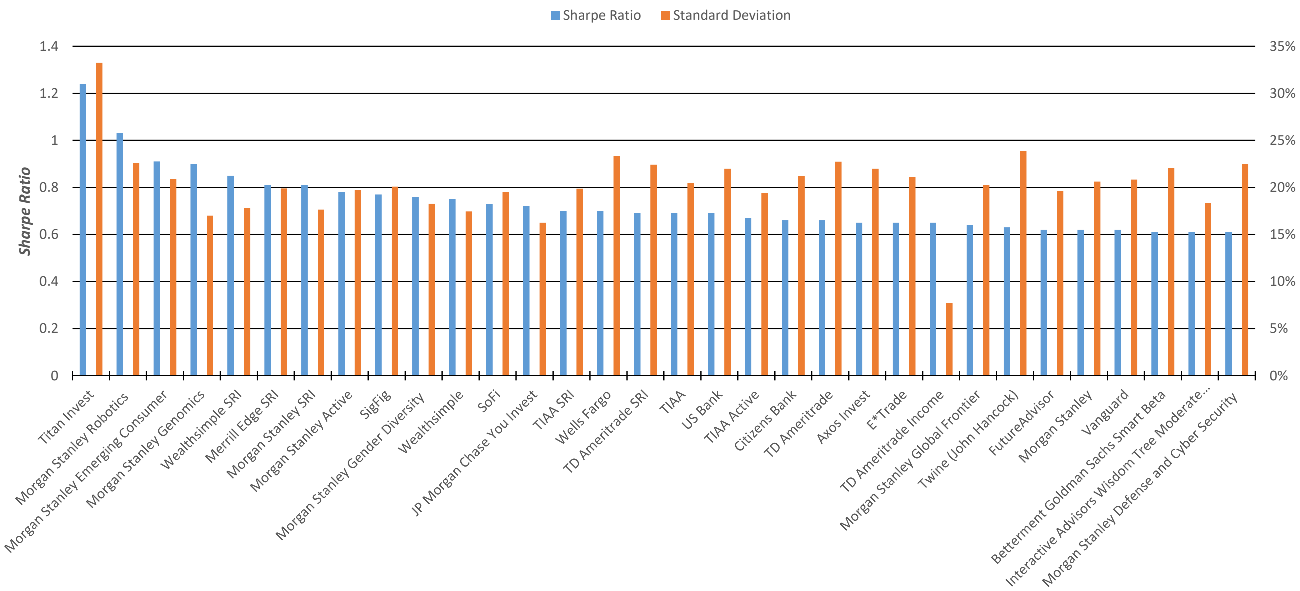
2-Year Risk/Return Statistics of Taxable Robos *(continued from previous page)*

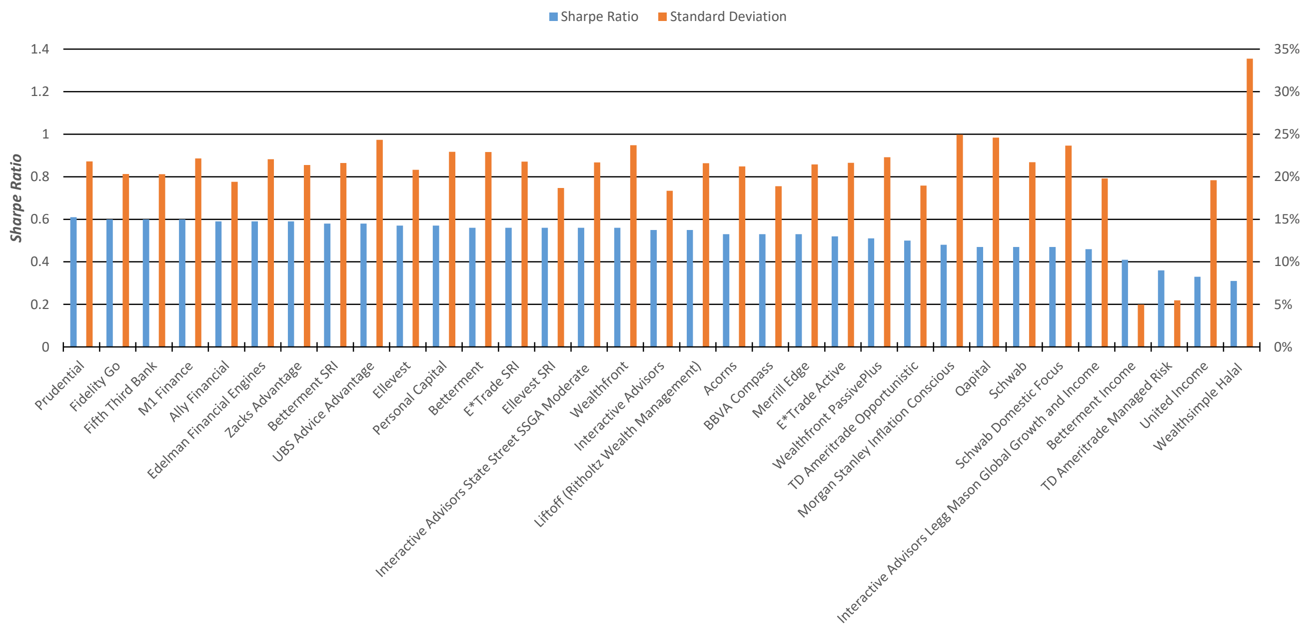
	Twine (John Hancock)	UBS Advice Advantage	United Income	US Bank	Vanguard	Wealthfront	Wealthsimple	Wealthsimple SRI
Standard Deviation	17.87%	18.11%	14.67%	16.33%	15.52%	17.59%	13.31%	13.50%
Sharpe Ratio	0.90	0.82	0.70	0.94	0.90	0.80	0.95	1.15

	Wells Fargo	Zacks Advantage
Standard Deviation	17.39%	15.84%
Sharpe Ratio	0.93	0.85

This analysis was produced by Backend Analytics with the help of Markov Process International, Inc

1-Year Risk/Return Statistics of Taxable Robos





1-Year Risk/Return Statistics of Taxable Robos *(continued from previous page)*

	Acorns	Ally Financial	Axos Invest	BBVA Compass	Betterment	Betterment Goldman Sachs Smart Beta	Betterment Income	Betterment SRI
Standard Deviation	21.22%	19.40%	21.99%	18.89%	22.90%	22.06%	4.99%	21.61%
Sharpe Ratio	0.53	0.59	0.65	0.53	0.56	0.61	0.41	0.58

	Citizens Bank	E*Trade	E*Trade Active	E*Trade SRI	Edelman Financial Engines	Ellevest	Ellevest SRI	Fidelity Go
Standard Deviation	21.20%	21.08%	21.63%	21.77%	22.07%	20.81%	18.68%	20.32%
Sharpe Ratio	0.66	0.65	0.52	0.56	0.59	0.57	0.56	0.60

	Fifth Third Bank	FutureAdvisor	Interactive Advisors	Interactive Advisors Legg Mason Global Growth and Income	Interactive Advisors State Street SSGA Moderate	Interactive Advisors Wisdom Tree Moderate Aggressive	JP Morgan Chase You Invest	Liftoff (Ritholtz Wealth Management)
Standard Deviation	20.31%	19.64%	18.35%	19.80%	21.69%	18.32%	16.26%	21.60%
Sharpe Ratio	0.60	0.62	0.55	0.46	0.56	0.61	0.72	0.55

	M1 Finance	Merrill Edge	Merrill Edge SRI	Morgan Stanley Active	Morgan Stanley Defense and Cyber Security	Morgan Stanley Emerging Consumer	Morgan Stanley Gender Diversity	Morgan Stanley Genomics
Standard Deviation	22.16%	21.44%	19.89%	19.73%	22.50%	20.92%	18.26%	17.00%
Sharpe Ratio	0.60	0.53	0.81	0.78	0.61	0.91	0.76	0.90

	Morgan Stanley Global Frontier	Morgan Stanley Inflation Conscious	Morgan Stanley	Morgan Stanley Robotics	Morgan Stanley SRI	Personal Capital	Prudential	Qapital
Standard Deviation	20.23%	24.95%	20.62%	22.59%	17.65%	22.94%	21.81%	24.60%
Sharpe Ratio	0.64	0.48	0.62	1.03	0.81	0.57	0.61	0.47

	Schwab	Schwab Domestic Focus	SigFig	SoFi	TD Ameritrade	TD Ameritrade Income	TD Ameritrade Managed Risk	TD Ameritrade Opportunistic
Standard Deviation	21.72%	23.65%	20.08%	19.50%	22.74%	7.68%	5.47%	18.95%
Sharpe Ratio	0.47	0.47	0.77	0.73	0.66	0.65	0.36	0.50

	TD Ameritrade SRI	TIAA	TIAA Active	TIAA SRI	Titan Invest	Twine (John Hancock)	UBS Advice Advantage	United Income
Standard Deviation	22.41%	20.44%	19.42%	19.88%	33.25%	23.90%	24.33%	19.59%
Sharpe Ratio	0.69	0.69	0.67	0.70	1.24	0.63	0.58	0.33

	US Bank	Vanguard	Wealthfront	Wealthfront PassivePlus	Wealthsimple	Wealthsimple Halal	Wealthsimple SRI	Wells Fargo	Zacks Advantage
Standard Deviation	21.99%	20.83%	23.70%	22.29%	17.46%	33.88%	17.82%	23.35%	21.38%
Sharpe Ratio	0.69	0.62	0.56	0.51	0.75	0.31	0.85	0.70	0.59

This analysis was produced by Backend Analytics with the help of Markov Process International, Inc.

Retirement Risk/Return

4-Year Risk/Return Statistics of Retirement Robos

	Axos Financial IRA	Betterment IRA	E*Trade IRA	Fidelity Go IRA	Personal Capital IRA	Schwab IRA	SigFig IRA	TD Ameritrade IRA
Standard Deviation	17.75%	17.07%	19.56%	16.16%	18.09%	18.54%	17.67%	16.57%
Sharpe Ratio	0.69	0.61	0.61	0.70	0.57	0.49	0.63	0.67

This analysis was produced by Backend Analytics with the help of Markov Process International, Inc.

3-Year Risk/Return Statistics of Retirement Robos

	Ally Financial IRA	Axos Invest IRA	Betterment IRA	E*Trade IRA	Fidelity Go IRA	Merrill Edge IRA	Morgan Stanley IRA	Personal Capital IRA
Standard Deviation	21.02%	20.16%	19.38%	22.19%	18.38%	20.03%	17.05%	20.55%
Sharpe Ratio	0.43	0.49	0.42	0.44	0.52	0.43	0.44	0.41

	Schwab IRA	SigFig IRA	SoFi IRA	T Rowe Price IRA	TD Ameritrade IRA	TIAA IRA	United Income IRA	Wealthsimple IRA
Standard Deviation	21.02%	20.02%	20.71%	22.67%	18.83%	19.16%	21.54%	15.60%
Sharpe Ratio	0.30	0.41	0.54	0.52	0.48	0.49	0.26	0.42

	Wells Fargo IRA	Zack's Advantage IRA
Standard Deviation	20.95%	21.17%
Sharpe Ratio	0.47	0.44

This analysis was produced by Backend Analytics with the help of Markov Process International, Inc.

2-Year Risk/Return Statistics of Retirement Robos

	Ally Financial IRA	Axos Invest IRA	Betterment IRA	E*Trade IRA	Fidelity Go IRA	Honest Dollar (Goldman Sachs) IRA	Merrill Edge IRA	Morgan Stanley IRA
Standard Deviation	23.69%	22.55%	21.78%	24.88%	20.54%	24.74%	22.57%	18.98%
Sharpe Ratio	0.79	0.87	0.79	0.81	0.89	0.78	0.80	0.84

	Personal Capital IRA	Schwab IRA	SigFig IRA	SoFi IRA	T Rowe Price IRA	TD Ameritrade IRA	TIAA IRA	United Income IRA
Standard Deviation	23.15%	23.90%	22.42%	22.78%	24.98%	20.99%	21.39%	24.03%
Sharpe Ratio	0.78	0.65	0.79	0.97	0.88	0.87	0.86	0.62

2-Year Risk/Return Statistics of Retirement Robos *(continued from previous page)*

	Wealthsimple IRA	Wells Fargo IRA	Zack's Advantage IRA
Standard Deviation	16.94%	23.64%	23.81%
Sharpe Ratio	0.86	0.85	0.80

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1-Year Risk/Return Statistics of Retirement Robos

	Ally Financial IRA	Axos Invest IRA	Betterment IRA	E*Trade IRA	Fidelity Go IRA	Honest Dollar (Goldman Sachs) IRA	Merrill Edge IRA	Morgan Stanley IRA
Standard Deviation	31.56%	30.01%	29.08%	33.04%	27.40%	32.98%	30.12%	25.28%
Sharpe Ratio	0.55	0.61	0.54	0.58	0.61	0.52	0.53	0.58

	Personal Capital IRA	Principal SimpleInvest IRA	Schwab IRA	SigFig IRA	SoFi IRA	T Rowe Price IRA	TD Ameritrade IRA	TIAA IRA
Standard Deviation	31.02%	30.28%	32.02%	29.92%	29.89%	33.25%	27.86%	28.50%
Sharpe Ratio	0.53	0.52	0.39	0.52	0.72	0.66	0.61	0.62

	United Income IRA	Wealthsimple IRA	Wells Fargo IRA	Zack's Advantage IRA
Standard Deviation	31.90%	22.05%	31.49%	31.87%
Sharpe Ratio	0.32	0.63	0.66	0.58

This analysis was produced by Backend Analytics with the help of Markov Process International, Inc.

Normalized Benchmark

Equity Portfolio

Category	Asset Type	Ticker	Name	Current Taxable Benchmark Weight	Current Retirement Benchmark Weight
Equity	Domestic	VTI	Vanguard Total Stock Market ETF	65%	62%
Equity	International	VXUS	Vanguard Total International Stock ETF	35%	38%

Produced by Backend Benchmarking for BackendB.com

Benchmark weights updated at the end of each calendar year. Benchmark updates do not affect performance prior to update.

Bond Portfolio

Category	Asset Type	Ticker	Name	Current Taxable Benchmark Weight	Current Retirement Benchmark Weight
Fixed Income	Multi-Sector US	AGG	iShares Core US Aggregate Bond ETF	29%	24%
Fixed Income	Investment-Grade Corporates	LQD	iShares iBoxx $ Investment Grade Corporate Bond ETF	10%	3%
Fixed Income	High-Yield Corporates	JNK	SPDR Bloomberg Barclays High Yield Bond ETF	2%	5%
Fixed Income	International Developed	IGOV	iShares International Treasury Bond ETF	6%	4%
Fixed Income	International Emerging Markets	EMB	iShares J.P. Morgan USD Emerging Markets Bond ETF	4%	7%
Fixed Income	Municipals	MUB	iShares National Muni Bond ETF	26%	0%
Fixed Income	TIPS	TIP	iShares TIPS Bond ETF	5%	6%
Fixed Income	Short-Term Treasuries (0-3 Year Maturity)	VGSH	Vanguard Short-Term Treasury ETF	4%	0%
Fixed Income	Intermediate-Term Treasuries (3-10 Year Maturity)	VGIT	Vanguard Intermediate-Term Treasury ETF	4%	4%
Fixed Income	Long-Term Treasuries (10+ Year Maturity)	VGLT	Vanguard Long-Term Treasury ETF	1%	4%
Fixed Income	Securitized	VMBS	Vanguard Mortgage-Backed Securities ETF	1%	1%
Fixed Income	Cash	FDRXX	Fidelity® Government Cash Reserves	8%	42%

Produced by Backend Benchmarking for BackendB.com

Benchmark weights updated at the end of each calendar year. Benchmark updates do not affect performance prior to update.

Taxable Normalized Benchmark Returns

	4Q 2020	1-Year	2-Year	3-Year	4-Year	5-Year
Acorns Normalized Benchmark	9.70%	14.18%	16.65%	8.78%	10.51%	9.81%
Ally Financial Normalized Benchmark	9.57%	14.08%	16.50%	8.72%	-	-
Axos Invest Normalized Benchmark	10.26%	14.56%	17.22%	9.00%	10.73%	10.02%
BBVA Compass Normalized Benchmark	9.70%	14.61%	16.68%	-	-	-
Beanstox Normalized Benchmark	9.70%	-	-	-	-	-
Betterment Normalized Benchmark	10.39%	14.65%	17.36%	9.06%	10.82%	10.11%
Betterment Goldman Sachs Smart Beta Normalized Benchmark	9.70%	14.18%	-	-	-	-
Betterment Income Normalized Benchmark	1.64%	6.74%	-	-	-	-
Betterment SRI Normalized Benchmark	9.70%	14.18%	16.65%	8.78%	-	-
CitiGroup Normalized Benchmark	10.12%	-	-	-	-	-
Citizens Bank Normalized Benchmark	10.26%	14.56%	17.22%	-	-	-
E*Trade Normalized Benchmark	9.70%	14.18%	16.65%	8.78%	10.37%	-
E*Trade Active Normalized Benchmark	9.84%	14.27%	16.79%	-	-	-
E*Trade SRI Normalized Benchmark	9.84%	14.27%	16.79%	-	-	-
Edelman Financial Engines Normalized Benchmark	10.67%	14.83%	17.70%	-	-	-
Ellevest Normalized Benchmark	9.16%	13.79%	16.07%	8.54%	10.24%	-
Ellevest SRI Normalized Benchmark	7.79%	12.21%	15.07%	-	-	-
Fidelity Go Normalized Benchmark	9.84%	14.27%	16.79%	8.83%	10.46%	-
Fifth Third Bank Normalized Benchmark	9.70%	14.18%	16.65%	-	-	-
FutureAdvisor Normalized Benchmark	9.28%	13.87%	16.12%	8.61%	10.11%	-
Interactive Advisors Normalized Benchmark	8.88%	13.58%	15.78%	-	-	-
Interactive Advisors Legg Mason Global Growth and Income Normalized Benchmark	10.95%	15.00%	-	-	-	-
Interactive Advisors State Street SSGA Moderate Normalized Benchmark	9.70%	12.96%	-	-	-	-
Interactive Advisors Wisdom Tree Moderate Aggressive Normalized Benchmark	9.29%	13.94%	-	-	-	-
JP Morgan Chase You Invest Normalized Benchmark	8.33%	13.17%	-	-	-	-
Liftoff (Ritholtz Wealth Management) Normalized Benchmark	9.70%	14.18%	-	-	-	-
M1 Finance Normalized Benchmark	10.53%	14.74%	-	-	-	-
M1 Finance SRI Normalized Benchmark	15.30%	-	-	-	-	-
Merrill Edge Normalized Benchmark	9.84%	14.20%	16.12%	8.68%	-	-
Merrill Edge SRI Normalized Benchmark	10.12%	14.95%	16.95%	-	-	-
Morgan Stanley Active Normalized Benchmark	10.26%	14.56%	17.22%	-	-	-
Morgan Stanley Defense and Cyber Security Normalized Benchmark	11.09%	15.22%	-	-	-	-
Morgan Stanley Emerging Consumer Normalized Benchmark	10.95%	15.00%	-	-	-	-
Morgan Stanley Gender Diversity Normalized Benchmark	9.84%	14.40%	-	-	-	-
Morgan Stanley Genomics Normalized Benchmark	9.02%	13.92%	-	-	-	-
Morgan Stanley Global Frontier Normalized Benchmark	10.95%	15.13%	-	-	-	-
Morgan Stanley Inflation Conscious Normalized Benchmark	10.26%	14.93%	-	-	-	-
Morgan Stanley Normalized Benchmark	10.26%	14.68%	17.33%	9.04%	-	-

Returns are net of fees and are as of 12/31/2020. All returns for periods longer than one year are annualized. *Produced by Backend Benchmarking for BackendB.com*

Taxable Normalized Benchmark Returns *(continued from previous page)*

	4Q 2020	1-Year	2-Year	3-Year	4-Year	5-Year
Morgan Stanley Robotics Normalized Benchmark	11.09%	15.22%	-	-	-	-
Morgan Stanley SRI Normalized Benchmark	9.29%	13.88%	16.49%	8.64%	-	-
Personal Capital Normalized Benchmark	11.50%	15.34%	18.48%	9.48%	11.51%	10.77%
Prudential Normalized Benchmark	9.70%	14.18%	16.65%	-	-	-
Qapital Normalized Benchmark	10.67%	14.83%	-	-	-	-
Schwab Normalized Benchmark	9.29%	13.28%	16.40%	8.56%	10.44%	9.81%
Schwab Domestic Focus Normalized Benchmark	9.84%	13.71%	-	-	-	-
SigFig Normalized Benchmark	9.98%	14.37%	16.93%	8.89%	10.55%	9.85%
SoFi Normalized Benchmark	9.70%	14.18%	16.65%	8.82%	-	-
Sustainfolio Normalized Benchmark	9.43%	-	-	-	-	-
TD Ameritrade Normalized Benchmark	11.09%	15.27%	17.96%	9.33%	11.10%	-
TD Ameritrade Income Normalized Benchmark	4.42%	9.70%	-	-	-	-
TD Ameritrade Managed Risk Normalized Benchmark	3.62%	8.89%	-	-	-	-
TD Ameritrade Opportunistic Normalized Benchmark	8.74%	13.87%	-	-	-	-
TD Ameritrade SRI Normalized Benchmark	10.95%	15.61%	18.04%	-	-	-
TIAA Normalized Benchmark	9.84%	14.27%	16.79%	8.83%	-	-
TIAA Active Normalized Benchmark	9.84%	14.27%	17.65%	-	-	-
TIAA SRI Normalized Benchmark	9.70%	14.18%	16.65%	8.78%	-	-
Titan Invest Normalized Benchmark	15.30%	17.20%	-	-	-	-
Titan Invest Opportunities Strategy Normalized Benchmark	15.16%	-	-	-	-	-
Twine (John Hancock) Normalized Benchmark	10.95%	15.00%	17.92%	-	-	-
UBS Advice Advantage Normalized Benchmark	11.09%	15.70%	18.18%	-	-	-
United Income Normalized Benchmark	9.57%	14.08%	16.50%	8.72%	-	-
US Bank Normalized Benchmark	9.29%	13.88%	16.40%	-	-	-
Vanguard Digital Advisor Normalized Benchmark	9.43%	-	-	-	-	-
Vanguard Normalized Benchmark	9.70%	14.18%	16.65%	8.78%	10.37%	9.68%
Wealthfront Normalized Benchmark	10.39%	14.65%	17.36%	9.06%	10.82%	-
Wealthfront PassivePlus Normalized Benchmark	9.16%	13.79%	-	-	-	-
Wealthsimple Normalized Benchmark	9.70%	14.18%	16.65%	8.78%	-	-
Wealthsimple Halal Normalized Benchmark	15.30%	17.20%	-	-	-	-
Wealthsimple SRI Normalized Benchmark	9.70%	14.18%	16.65%	-	-	-
Wells Fargo Normalized Benchmark	10.12%	14.46%	17.08%	8.95%	-	-
Zacks Advantage Normalized Benchmark	9.70%	14.18%	16.65%	8.72%	-	-

Returns are net of fees and are as of 12/31/2020. All returns for periods longer than one year are annualized. *Produced by Backend Benchmarking for BackendB.com*

Retirement Normalized Benchmark Returns

	4Q 2020	1-Year	2-Year	3-Year	4-Year
Ally Invest IRA Normalized Benchmark	14.31%	16.39%	20.81%	10.20%	-
Axos Invest IRA Normalized Benchmark	14.16%	16.32%	20.66%	10.15%	12.88%
Betterment IRA Normalized Benchmark	13.43%	15.92%	19.92%	9.88%	12.43%
blooom Normalized Benchmark	13.28%	-	-	-	-
E*Trade IRA Normalized Benchmark	15.05%	16.76%	21.53%	10.46%	13.42%
Fidelity Go IRA Normalized Benchmark	13.13%	15.75%	19.62%	9.77%	12.24%
Honest Dollar (Goldman Sachs) IRA Normalized Benchmark	15.20%	16.83%	21.67%	-	-
Merrill Edge IRA Normalized Benchmark	14.16%	16.64%	20.41%	10.11%	-
Morgan Stanley IRA Normalized Benchmark	12.25%	15.22%	18.71%	9.43%	-
Personal Capital IRA Normalized Benchmark	14.75%	16.61%	21.23%	10.35%	13.24%
Principal SimpleInvest IRA Normalized Benchmark	15.05%	16.76%	-	-	-
Schwab IRA Normalized Benchmark	14.46%	16.47%	20.95%	10.26%	13.06%
SigFig IRA Normalized Benchmark	14.02%	16.24%	20.51%	10.10%	12.79%
SoFi IRA Normalized Benchmark	15.35%	16.90%	21.82%	10.55%	-
T Rowe Price IRA Normalized Benchmark	15.35%	16.90%	21.82%	10.55%	-
TD Ameritrade IRA Normalized Benchmark	12.98%	15.66%	19.47%	9.72%	12.12%
TIAA IRA Normalized Benchmark	13.57%	16.00%	20.07%	9.94%	-
United Income IRA Normalized Benchmark	15.20%	16.83%	21.67%	10.51%	-
Wealthsimple IRA Normalized Benchmark	12.40%	15.31%	18.86%	9.49%	-
Wells Fargo IRA Normalized Benchmark	14.02%	16.24%	20.51%	10.10%	-
Zack's Advantage IRA Normalized Benchmark	14.76%	16.56%	20.90%	10.26%	-

Returns are net of fees and are as of 12/31/2020. All returns for periods longer than one year are annualized. *Produced by Backend Benchmarking for BackendB.com*

Robo Ranking Methodology

How We Rank the Robos

The robo advisors are ranked on a comprehensive set of criteria. The final robo score is made up of a qualitative score of their services, platform, and features, and 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 looking at the qualitative aspects of the service, we focus on six categories: financial planning, user interface and customer experience, product features, access to live advisors, transparency and conflicts of interest, and minimum investment.

Below, we give examples of what earned points in each category.

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. In this issue of the *Ranking*, points were awarded if their planning tools had specific functionality. For example, if the single-goal planning tool could: One, model future account values or spending; two, accept a user's input of an account value or spending goal; and three, show either a likelihood of success or changes to improve goal outcomes, then all points were awarded. If only some of these features were present, then partial points were awarded. Note that half points were awarded instead of full points if any of the following criteria were met: if the financial planning feature was only made available at a higher tier, for an additional cost, or if the financial planning feature was not integrated with the digital portal.

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 the 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 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, tax location strategies, smart dividend reinvestment, ability to trade fractional shares, cash management features, 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 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 or becoming a client, and further points if they also published the performance of their models publically 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. Advisors need to be able to advise or provide financial planning guidance on customer-specific questions to score points. Live customer service and operational support are not sufficient for us to consider it a live-advice relationship. Robos earned more points if there was a dedicated live-advisor option, if they required their advisors to hold CFPs, and the minimums at which live advisors are made available. Partial points were awarded to firms that had products or programs with live advisors if those programs were not part of the digital advice product suite, if they are offered at a higher service tier or for additional cost, or if live advice options require a high minimum account balance.

Account Minimum:

Robos earned points for having lower investment minimums.

Costs:

We scored costs on the sum of the management fee and average-weighted expense ratio rather than scoring these two components separately. This method better reflects the true cost incurred by clients. Additionally, we consider a cash allocation as a cost if the cash holding is earning less than a competitive rate which is set based on prevailing market rates for each ranking. 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 the 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 explained in detail in the Normalized Benchmarking section on the website. The performance time period analyzed is consistent across all robos in each ranking.

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.

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Last updated: 7/1/2020

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Disclosures

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 flat dollar fee up to $1,000,000. Because the fee is a flat dollar amount, a higher account balance would have the result of increasing reflected performance, while a lower account balance would have the result of decreasing reflected performance. In December of 2018 a $1 fee was not recorded. Performance has been updated to include this fee as of Q1 2019.

2 This account has no minimum required to establish an account, but 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.

3 These accounts were funded with more than the minimum amount required to establish an account. There is no fee schedule; all accounts are charged the same asset-based fee. Therefore, performance is not affected by the account's asset level.

4 This account was funded with the minimum or more than the minimum amount required to establish an account at the time of opening. 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. Tax-loss harvesting may result in better or worse performance compared to similarly positioned accounts that are not enrolled in tax-loss harvesting. This account is enrolled in their digital only "Intelligent Portfolios", thus it is not charged an advisory fee. If one were to upgrade to "Intelligent Advisory" which introduces access to live advisors, a subscription fee would be levied, which would decrease reflected performance.

6 These accounts were funded with the minimum amount required to establish an account. At balances less than $10,000, there is no advisory fee. Had the account been funded with $10,000 or more, an asset-based advisory fee would be levied, which would decrease reflected performance.

7 These accounts were funded with the minimum amount required to establish an account at the time of opening. There is no fee schedule; all accounts are charged the same asset-based fee. Therefore, performance is not affected by the account's asset level.

8 These accounts have no minimum required to establish an account. There is no advisory fee on these accounts. Had additional service packages, such as tax-loss harvesting, been added, the lesser of an asset-based fee or flat dollar fee would have been assessed. These fees would decrease the reflected performance.

9 This account was funded with the minimum investment amount at the time. At the time of opening, the account had a 0.25% management fee. Due to changes in the service at the end of the 1st quarter 2017, new accounts are charged a 0.30% management fee. The fee on our account was grandfathered in and remains at 0.25%. The higher advisory fee would have the result of decreasing reflected performance.

10 These accounts were funded with the minimum amount required to establish an account. This account is enrolled in their digital only "Essential Portfolios" and is charged an asset-based advisory fee. If one were to upgrade to "Selective Portfolios" which introduces access to live advisors, a higher asset-based advisory fee schedule would apply, which would decrease reflected performance.

11 This account has no minimum required to establish an account, but 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. A special request was made for an allocation of 60% equities and 40% fixed income or close to it, but this allocation was not one of the standard models at the time of account opening. At the time of account opening the closest standard models offered were in the range of 50/50 or 75/25 equity to fixed income split.

12 These accounts were funded with more than the minimum amount required to establish an account. Due to the asset based advisory fee, performance is not affected by the accounts' asset levels. In previous reports we reported the performance of two accounts that were combined to achieve a 60/40 allocation. Due to our introduction of Normalized Benchmarking we are no longer reporting the combined account, but just the account with the closest to a 60/40 allocation as we could achieve at this provider.

13 These accounts were funded with less than the minimum investment through an agreement between BackEnd Benchmarking and the provider. There is no advisory fee levied regardless of the amount of assets invested.

14 This account was funded with the minimum amount required to establish an account. A flat, asset-based advisory fee is levied on the account. Had we subscribed to additional, specific, provider products the account would be eligible for a lower asset-based advisory fee. A lower advisory fee would have the result of increasing 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 asset-based advisory fee. The higher advisory fee would have the result of decreasing reflected performance.

16 This account is enrolled in the Self Service plan. If the account was enrolled in the Full Service Plan, the fee would be higher or lower depending on the level of assets in the account. The higher/lower advisory fee would have the result of decreasing/increasing reflected performance. Recently, this provider changed its fee schedule, but our account was grandfathered in at the previous, lower fee for the size of the account. New accounts would be subject to the new fee schedule, which would decrease reflected performance at most account size levels.

17 This account was funded with more than the minimum amount required to establish an account. This account will not be charged an advisory fee through 2019. In previous reports we reported the performance of two accounts that were combined to achieve a 60/40 allocation. Due to our introduction of Normalized Benchmarking we are no longer reporting the combined account, but only the account with the closest to a 60/40 allocation as we could achieve at this provider.

18 This account was funded with more than the minimum amount required to establish an account. This account will not be charged an advisory fee through 2019.

20 This account was funded with the minimum required to establish an account. This account is enrolled in their digital only "Intelligent Portfolios", thus it is not charged an advisory fee. If one were to upgrade to "Intelligent Advisory" which introduces access to live advisors, a subscription fee would be levied, which would decrease reflected performance.

21 These accounts were funded with more than the minimum amount required to establish an account. There is no fee schedule; all accounts are charged the same asset-based fee. Therefore, performance is not affected by the account's asset level. Fee was waived for the first year. Had a fee been levied, reflected performance would have been lower.

22 These accounts were funded with more than the minimum amount required to establish an account. There is currently no fee schedule; all accounts are charged the same asset-based fee. Therefore, performance is not affected by the account's asset level. Previously, the fee was only assessed on balances in excess of $10,000.

23 These accounts were funded with the minimum amount required to establish an account. There is no fee schedule; all accounts are charged the same asset-based fee. Therefore, performance is not affected by the account's asset level. Fee was waived for an initial promotional period. Had a fee been levied, reflected performance would have been lower.

24 Interactive Advisors is registered as an advisor under the name of Covestor Ltd. and is part of the Interactive Brokers Group. This account was funded with the minimum required to open an account and is invested in their Asset Allocation portfolio. It is charged an asset-based fee. There is no fee schedule on this account; therefore performance is not affected by the account's asset levels. Previously, the account was charged a lower asset-based fee; the increase took effect starting March 2019. Interactive Advisors offers multiple strategies with different sets of fees, including Smart Beta, index-tracking and model ETF portfolios, in addition to the Asset Allocation portfolios. Interactive Advisors also offers a marketplace for actively managed portfolios for which it charges higher fees (0.5-1.5%), part of which it remits to the portfolio managers supplying the data underlying those strategies.

25 Originally, there was no advisory fee on these accounts. Had additional service packages, such as tax-loss harvesting, been added, the lesser of an asset-based fee or flat dollar fee would have been assessed. In June 2018, one package was activated, resulting in a fee on these accounts. This fee decreases the reflected performance.

26 This account was enrolled in Prudential's Strategic Portfolios. It was funded with the minimum required to open 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. Prudential also offers Reserve Portfolios for short-term investing, which have a lower account minimum and fee. However, the Reserve Portfolios do not allow asset-allocation customization based on individual demographic and risk tolerance.

27 This account has no minimum required to establish an account and is enrolled in the Digital Only plan. If more was invested, the account would be assessed a lower asset-based fee, which would increase reflected performance. If the account was enrolled in the premium service with access to live advisors, there would be a higher asset-based advisory fee. The higher advisory fee would have the result of decreasing reflected performance. All balances above $2 million are charged a lower asset-based advisory fee. A lower advisory fee would have the result of increasing reflected performance. The 2018 end-of-year statement for Betterment did not include dividends received near the end of 2018, these dividends first appeared on the March 31st, 2019 statement. These dividends are reflected as of the Q1 2019 Robo Report™ but were not reflected in performance reported in the Q4 2018 Robo Report™. In Q2 2020 a dividend was misattributed to the cash asset class instead of income causing the equity performance of the main Betterment account to be slightly underrepresented.

28 These accounts were funded with the minimum amount required to establish an account. There is no fee schedule; all accounts are charged the same asset-based fee. Therefore, performance is not affected by the account's asset level. Fee was waived for an initial promotional period. Had a fee been levied, reflected performance would have been lower. As of March 27, 2019, the management fee has been lowered. The lower advisory fee will increase reflected performance.

29 This account was funded with the minimum or more than the minimum amount required to establish an account at the time of opening. 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. After opening, this provider changed its fee schedule, raising the fee for the asset level of the account, but our account was grandfathered in at the previous, lower fee. New accounts would be subject to the new fee schedule, which may change reflected performance.

30 These accounts were funded with more than the minimum amount required to establish an account. The account is charged a flat dollar fee subscription at its service level. Had the accounts been enrolled in different service packages, they could be assessed a higher subscription fee. Because the fee is a flat dollar amount, a higher account balance would have the result of increasing reflected performance, while a lower account balance would have the result of decreasing reflected performance.

31 These accounts were funded with the minimum amount required to establish an account at the time of opening.This account is enrolled in their digital only "Guided Investing" and is charged an asset-based advisory fee. If one were to upgrade to "Guided Investing with an Advisor" which introduces access to live advisors, a higher asset-based advisory fee schedule would apply, which would decrease reflected performance.

32 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 asset-based advisory fee. The higher advisory fee would have the result of decreasing reflected performance. All balances above $2 million are charged a lower asset-based advisory fee. A lower advisory fee would have the result of increasing reflected performance.

33 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 asset-based advisory fee. The higher advisory fee would have the result of decreasing reflected performance. Prior to August 2020, this account was assessed a 0.35% annual management fee As of August 2020, the provider changed the fee structure such that accounts under $10,000 are not charged a management fee. Our account is under this threshold and will therefore not be charged a management fee starting in August of 2020. This will have the result of increasing reflected performance.

34 This account was funded with more than the minimum required to establish an account, There is no management fee levied. Therefore, performance is not affected by the account's asset level. This platform has numerous different portfolio strategies. We chose the "moderately aggressive" strategy. Different portfolio strategies have different allocations which could increase or decrease reflected performance.

35 These accounts were funded with the minimum amount required to establish an account. This account is enrolled in their "Selective Portfolios" and is charged an asset-based advisory fee. These specific portfolios are only offered at the "Selective Portfolios" level, which charges a higher asset-based advisory fee due to access to live advisors than the "Essential Portfolios." Additionally, these portfolios hold balanced funds. Due to the nature of these funds and limits in our portfolio management system, we cannot accurately track equity and fixed income performance individually at the portfolio level. Total portfolio performance is unaffected by holding balanced funds.

36 These accounts were funded with more than the minimum amount required to establish an account. There is no fee schedule; all accounts are charged the same asset-based fee. Therefore, performance is not affected by the account's asset level. This platform has numerous different portfolio strategies. We chose the "60/40 classic" option. Different portfolio strategies have different allocations which could increase or decrease reflected performance.

37 These accounts were funded with the minimum amount required to establish an account. This account is enrolled in their "Selective Portfolios" and is charged an asset-based advisory fee. These specific portfolios are only offered at the "Selective Portfolios" level, which charges a higher asset-based advisory fee due to access to live advisors than the "Essential Portfolios."

38 These accounts were opened when the provider charged 0.25% annual management fee. Recently, the fee structure changed to be a flat monthly fee. However, our account was grandfathered into the old fee structure. This change may have the result of increasing/decreasing reflected performance based on account size.

39 This account charges a 0.15% annual management fee and caps the underlying fund fees at 0.05% so that the all-in fee never exceeds 0.20% annually. The same fee is charged at all asset levels.

40 This account charges 0.55% annually. However, those with a Citi Gold or Priority account (required balances of $50,000 and $200,000 respectively) will not be charged a management fee, which would increase reflected performance.

41 This account is enrolled in the "Standard" pricing plan for $120 a year which is paid by an outside bank account. This account was opened with a $5,000 initial deposit. We assess the fee on the account as though it was opened with a $50,000 initial deposit. We assess a $1 monthly, $12 a year, management fee on this account. A flat dollar fee pricing structure means the level of assets in the account will affect net-of-fee performance.

42 These accounts were funded with more than the minimum amount required to establish an account. The account is charged a flat dollar fee subscription. Because the fee is a flat dollar amount, a higher account balance would have the result of increasing reflected performance, while a lower account balance 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.

B In the 1st Quarter of 2018 Wealthfront liquidated the positions in the account used for the 4th Quarter 2017 and previous editions of this report. A different account was used for this report and is labeled "Wealthfront (Risk 4.0)". The performance numbers from the previous account are available in the addendum labeled as "Wealthfront (Risk 3.0)". The risk scores and thus allocations of the two accounts are different and labeled as such. Asset type and allocation between the two accounts at the time of the switch were close but not identical. The difference of equity allocation between the accounts on 12/31/2017 was approximately 5.4%.

C Due to the down market in December 2018, this account engaged in repeated tax loss harvesting on one of its asset types. All alternative securities were exhausted for this asset type, so to prevent a wash sale, the entire position, representing approximately 31% of the portfolio, was liquidated and held as cash for a 1 month period, during which time the market experienced a large upswing. Because this portfolio missed the market upswing, its performance versus the normalized benchmark is lower.

In previous reports the initial target asset allocation was calculated as the asset allocation at the end of the first month after the account was opened. In the Q3 2018 report we adjusted our method to calculate the initial target asset allocation as of the end of the trading day after all initial trades were placed in the accounts. This adjustment has caused some portfolio's initial target allocation to be updated from previous reports. These updates did not change any initial target allocations of equity, fixed income, cash, or other by more than 1%.

Prior to Q3 2018, due to technological limitations of our portfolio management system, some accounts which contained fractional shares had misstated the quantity of shares when transactions quantities were smaller than 1/1000th of a share in a position as a result of purchases, sales, or dividend reinvestments. This had a marginal effect on historical performance of the accounts. The rounding of position quantities caused by this limitation has been resolved, and quantities have been adjusted to reflect the full position to the 1/1,000,000th of a share as of the end of Q3 2018. Therefore, this rounding of fractional shares will not be necessary in the future.

At certain custodians a combination of the custodian providing us a limited number of digits on fractional share and fractional cent transactions rounding errors are introduced into our tracking. At quarter end starting 3/31/2020 we implemented a process to enter small transactions to eliminate any rounding errors that have built up to more than a full cent. These transactions are small and do not have an appreciable effect on performance

Sharpe ratios and standard deviations are calculated with the assumption of 250 trading days in a year.

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 holds a position in Schwab, JP Morgan Chase and Goldman Sachs in one of the strategies used in many of their discretionary accounts. As of 12/31/2020 the total size of the position was 38,373 shares of Schwab common stock, 17,799 shares of JP Morgan Chase common stock, and 5,892 shares of Goldman Sachs common stock. As of 12/31/2020 accounts discretionarily managed by Condor Capital Management held bonds issued by the following companies: Morgan Stanley, Bank of America, Goldman Sachs, Wells Fargo, E*Trade, Citi Group, JP Morgan Chase, Citizens Financial Group, Ally Financial, Charles Schwab, and Capital One.

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