

THE RANKING EDITION

The Robo Report

Bringing Transparency to Robo Investing



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Welcome to The Robo Report & Robo Ranking

Condor Capital Wealth Management is proud to publish the 28th edition of the Robo Report®, covering the second quarter of 2023, and the 11th 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

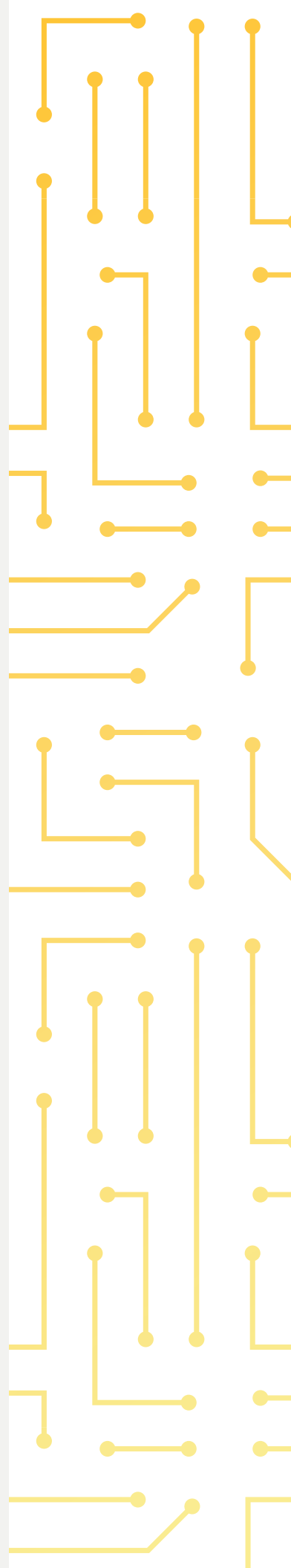
- The Winner of Best Overall Robo, Schwab, provides an impressive yet simple digital experience and affords an impressive financial planning experience at the premium level.
- The winners of Best Robo for Digital Financial Planning, Empower and Wealthfront, serve as an example of simple yet effective online planning.
- SoFi won Best Robo for First-Time Investors because of its low fees, and its ability to manage many areas of one's financial life on a single platform including debt consolidation, career coaching, and live financial planning.
- Large cap growth has dominated market returns year-to-date.
- Nimble management of duration was a major factor in determining the performance of fixed income portfolios over the past three years.
- Allocations to domestic and value equities supported the performance over the prior 3-year and 5-year periods.

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All supporting data can be found online at condorcapital.com/the-robo-report/data/

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Executive Summary

This edition of the Robo Report, published by [Condor Capital Wealth Management](#), tracks 42 accounts at 27 different providers. The Robo Report continues to evolve, and this quarter, we bring you our usual data, which can be found online at [condorcapital.com/the-robo-report/data/](#), as well as performance commentary for the quarter.

The Robo Ranking

Schwab Intelligent Portfolios and Merrill Edge Guided Investing have topped our ranking for Best Overall Robo Advisor. Full details and score for our ranking can be found in the Robo Ranking section of this report.

Condor Capital Wealth Management has unveiled the 11th edition of the Robo Ranking®, a premier evaluation of robo advisors based on over 45 metrics, including real performance data. This ranking underscores the rising prominence of robo advisors, which are becoming increasingly popular due to their affordability and minimal investment requirements. The Robo Report's objective is to provide transparency in the digital advice landscape, helping investors identify top-notch services tailored to their needs. Notably, this edition has updated its scoring methodology. Changes include differentiating between base and premium/hybrid tiers, emphasizing pre-onboarding transparency, and refining portfolio customization criteria.

Market Overview

2023 has seen more stability for global investors than the previous year. The domestic S&P 500 soared by 16.88%, with the tech sector, bolstered by AI advancements, leading the charge. The consumer discretionary sector flourished, while value stocks, such as consumer staples and utilities, lagged. Internationally, developed markets couldn't match U.S. performance, with the MSCI EAFE Index growing by 12.16%. Notably, the European Central Bank and the Bank of England both hiked rates four times.

Fixed income markets remained steady. The U.S. Federal Reserve raised rates slightly in May but hinted at a slowdown in hikes, considering positive economic signals. The evolving

rate environment accentuates the importance of managing duration in robo account investments. See page 16 for more.

Industry Update

The robo sector has witnessed upheavals. FutureAdvisor, under Blackrock since 2015, is transitioning to Ritholtz Wealth Management. Bloom, a 401(k) centric robo advisor, shuttered in 2022. UBS's unexpected attempt to acquire Wealthfront in 2022, valued at \$1.4 billion, fell through, leading them to purchase Credit Suisse for \$3.25 billion.

Betterment encountered challenges, introducing a \$4 monthly fee for smaller accounts and settling with the SEC over software issues. Schwab was fined \$187 million by the SEC for cash allocation disclosures and has since compensated clients. Vanguard improved its Digital Advisor offering, countering past criticisms and solidifying its leading position.

The looming question for 2023 is the role of AI in the industry. AI already revolutionizes areas like account rebalancing and back-office tasks in robo-advisors. However, entrusting the delivery of financial advice solely to AI poses risks due to potential breaches of fiduciary duty. Firms are now eyeing AI not as a replacement but as an augmentation tool for human advisors. It can enhance the quality of advice, help in creating financial plans, analyze customer behavior, and streamline communications. As companies like Morgan Stanley delve into AI's potential in wealth management, regulatory bodies face the challenge of adapting to this evolving landscape. See page 23 for more.

The Robo Ranking

Condor Capital Wealth Management is excited to publish the 11th 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 the Robo Report. 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. Here at the Robo Report, our goal is to bring transparency to the digital advice industry to empower investors to seek the best products and services.

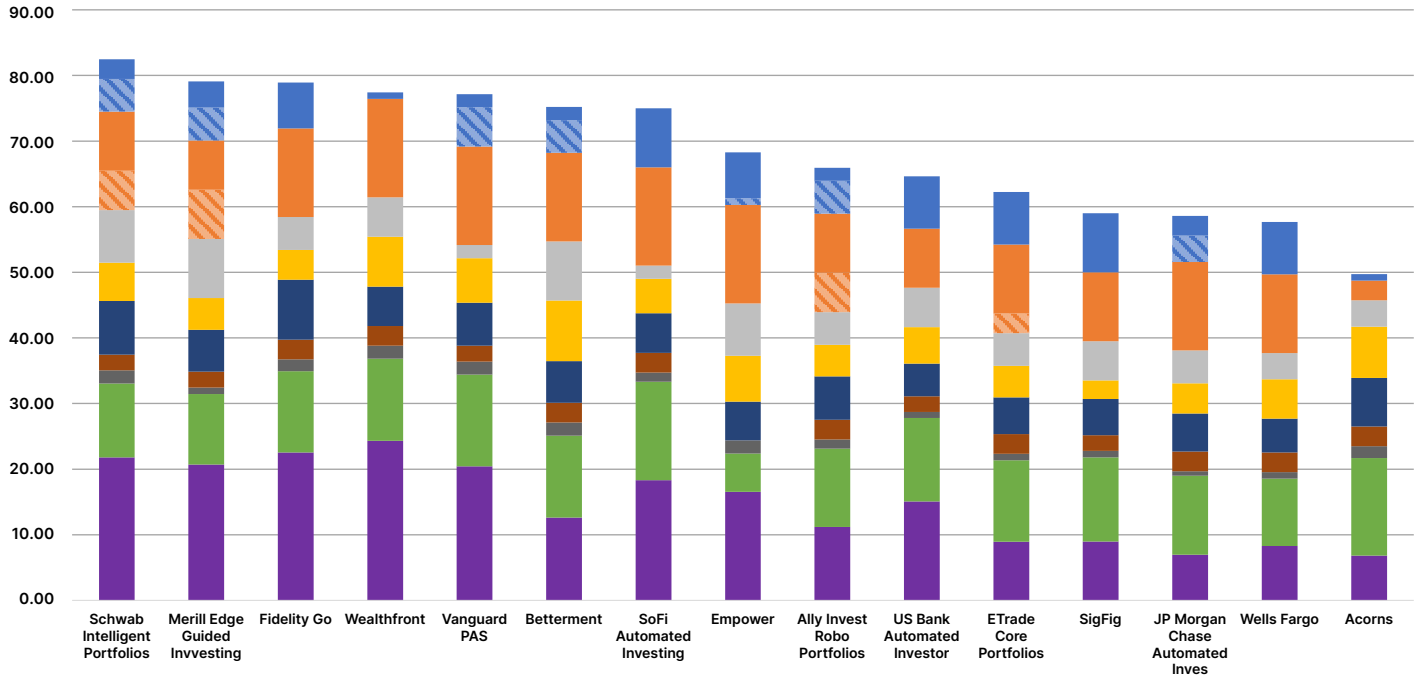
Introduction

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 details of how we created the scores and Ranking can also be found on our [website](#). 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 investors find a product that is right for them, we created sub-rankings to highlight 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 the Robo Report's innovative method to compare globally diversified portfolios called Normalized Benchmarking. A methodology of Normalized Benchmarking can be found on our [website](#).

For this edition of The Robo Ranking, we introduced some changes to the scoring methodology. We introduced the separation of the base tier from the premium or hybrid tiers in the

Access to Live Advisor and Financial Planning section. Total score represents services available at either the base service tier or the hybrid service tier, if it is separate. A breakdown of which points were earned at each service tier is available in the tables and graphs. There is also an additional point in the Access to Live Advisors section for whether robos have access to live operational support separate from the points available for those robos that offer licensed advisors, who can answer questions to an individual's specific situation. There were some changes to the transparency scores, such as portfolio asset class allocation models being available prior to the onboarding process, whereas previously the robos were given points for making models available during the onboarding process. Additional points are available if detailed models are published and available prior to filling out the onboarding questionnaire. We also changed the scoring of portfolio customization, no longer giving points for portfolio models being able to adjust to customer-specific holdings, instead giving points for the ability to customize the robo portfolio. Finally, there are no longer points being awarded for the onboarding process, which means that asking about feelings towards investing during the onboarding process is no longer a point available to earn. In its place, an extra point was added for the ability to chat. Further, rather than asking about whether or not an emergency fund is needed during onboarding, points are now awarded for planners having a goal specific to emergency savings.

Robo Ranking Scores



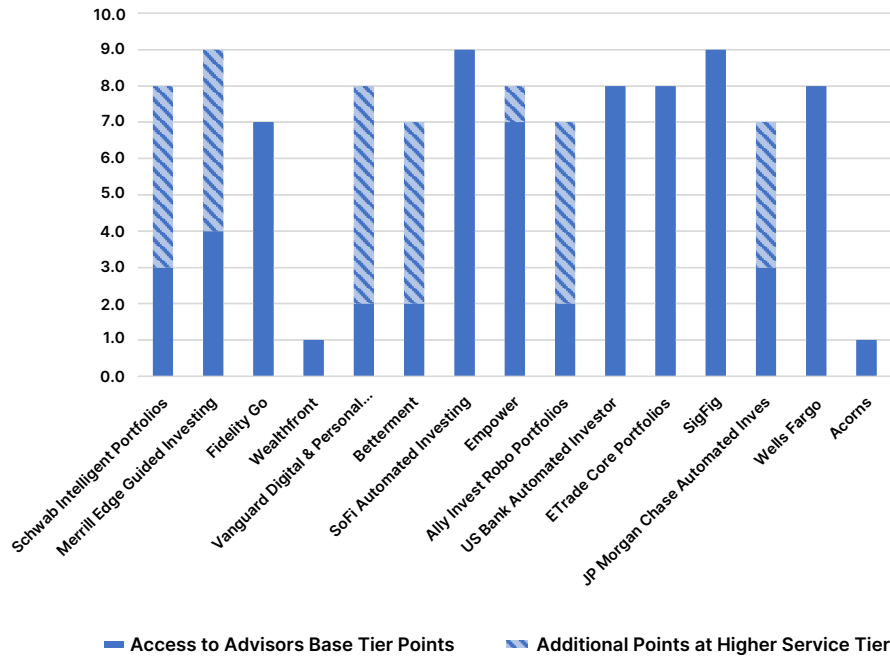
- Access to Advisors Base Tier Points
- ▨ Additional Points at Higher Service Tier
- Financial Planning Base Tier Points
- ▨ Additional Points at Higher Service Tier
- Transparency and Conflicts
- Features
- Customer Experience
- Minimum
- Size and Tenure
- Costs
- Performance

Robo Ranking Scores

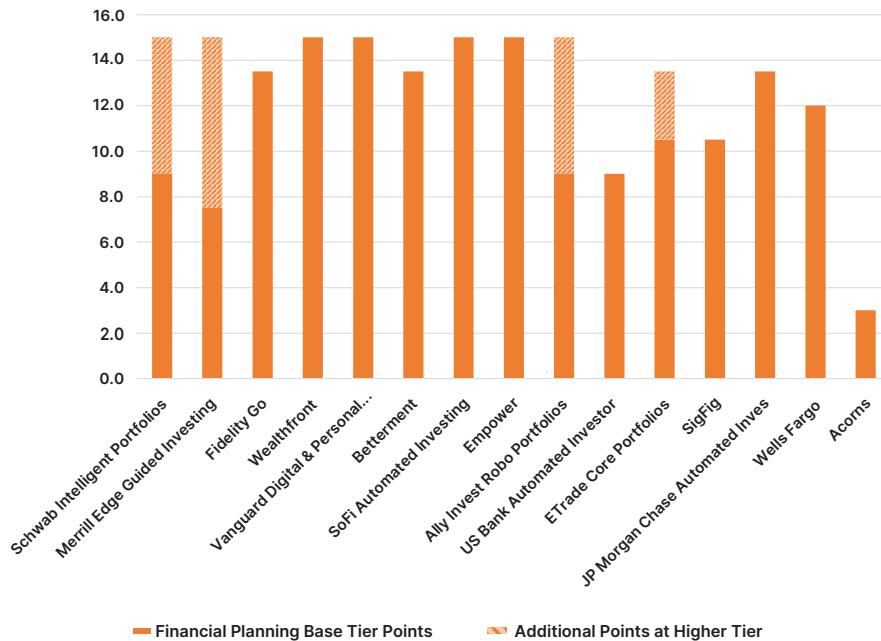
Robo Name	Access to Advisors	Financial Planning	Transparency and Conflicts	Features	Customer Experience	Minimum	Size and Tenure	Costs	Performance	Total
Schwab Intelligent Portfolios	8.00	15.00	8.00	5.83	8.18	2.40	2.00	11.27	21.79	82.47
Merrill Edge Guided Investing	9.00	15.00	9.00	4.86	6.38	2.40	1.00	10.72	20.72	79.08
Fidelity Go	7.00	13.50	5.00	4.55	9.14	3.00	1.80	12.39	22.54	78.91
Wealthfront	1.00	15.00	6.00	7.61	6.00	3.00	2.00	12.50	24.32	77.43
Vanguard Digital & Personal Advisor	8.00	15.00	2.00	6.78	6.58	2.40	2.00	13.96	20.44	77.15
Betterment	7.00	13.50	9.00	9.22	6.37	3.00	2.00	12.50	12.61	75.20
SoFi Automated Investing	9.00	15.00	2.00	5.25	6.04	3.00	1.40	15.00	18.32	75.01
Empower	8.00	15.00	8.00	7.00	5.90	0.00	2.00	5.82	16.56	68.27
Ally Invest Robo Portfolios	7.00	15.00	5.00	4.80	6.60	3.00	1.40	11.95	11.18	65.93
US Bank Automated Investor	8.00	9.00	6.00	5.55	4.98	2.40	0.92	12.70	15.09	64.64
ETrade Core portfolios	8.00	13.50	5.00	4.80	5.59	3.00	1.00	12.39	8.94	62.23
SigFig	9.00	10.50	6.00	2.80	5.52	2.40	1.00	12.81	8.98	59.01
JP Morgan Chase Automated Inves	7.00	13.50	5.00	4.60	5.80	3.00	0.67	12.06	6.96	58.58
Wells Fargo	8.00	12.00	4.00	6.00	5.13	3.00	1.00	10.26	8.29	57.69
Acorns	1.00	3.00	4.00	7.80	7.42	3.00	1.80	14.87	6.82	49.72
MAX	10.00	15.00	10.00	10.00	10.00	3.00	2.00	15.00	25.00	100.00

Access to Advisors and Planning

Access to Advisors



Financial Planning



Best Robo Advisors

→ The Winner of Best Overall Robo, Schwab, provides an impressive yet simple digital experience and affords an impressive financial planning experience at the premium level.

→ The winners of Best Robo for Digital Financial Planning, Empower and Wealthfront, serve as an example of simple yet effective online planning.

→ SoFi won Best Robo for First-Time Investors because of its low fees, and its ability to manage many areas of one's financial life on a single platform including debt consolidation, career coaching, and live financial planning.

Best Overall Robo Advisor

→ **Winner: Schwab Intelligent Portfolios**

→ **Runner-up: Merrill Edge Guided Investing**

Schwab Intelligent Portfolios Premium is our winner for Best Overall Robo in this year's Robo Ranking Summer Edition. While the base tier offering from Schwab is fairly standard compared to the broader robo universe, the premium tier provides a range of benefits to users that are among the best in class. The robo offers useful features such as tax loss harvesting, an ETF exclusion list should one not want to be invested in specific funds, and a "retirement paycheck" to assist in the financial transition from working life to retired life, all of which are available at the base level through an easy-to-use digital interface, and without a management fee. Schwab Intelligent Portfolios Premium offers one of the better planning suites around, allowing users to model multiple complex financial goals. While the base level of Schwab Intelligent Portfolios allows access to in person operational support, Schwab Intelligent Portfolios Premium affords users access to licensed financial advisors as well as Certified Financial Planners (CFPs).

Another area where Schwab was able to pick up meaningful points was in performance. Schwab Intelligent Portfolios was among the better performers among our robo portfolios, thanks in large part to its cash allocation. Schwab allocates a large portion of their robo portfolios to cash relative to other offerings. In our Schwab robo, the portfolio allocates over 10%

of the account to cash, and in the most aggressive portfolio options available, still allocates over 8% of the account to cash. It is important to note over longer periods, Schwab's cash allocation has been a drag on performance. However, with equities and fixed income both performing poorly in 2022, Schwab's cash position blunted the effects of the broader market sell-off, giving a boost to performance over the trailing 3-year period. Additionally, Schwab's tilt towards value, and the outperformance of the specific fundamentally weighted proprietary equity ETFs it holds helped its 3-year outperformance. Again, looking over a 5-year period where growth has outperformed value this value tilt has not helped performance. Overall, Schwab Intelligent Portfolios Premium is a fantastic product for investors seeking a robo advisor with \$25,000 or more to invest.

Our runner-up for Best Overall Robo is Merrill Edge Guided Investing. Merrill, like Schwab, offers two tiers of service, a digital only tier, Merrill Edge Guided investing, available to those with \$1,000 or more to invest, and a hybrid tier, Merrill Edge Guided Investing with an Advisor, available to those with \$20,000 or more to invest. Like Schwab, it is fairly standard in its offerings at the base tier, with access to live operational support, an ESG themed investment portfolio, and a single goal per account planning tool that can help you project your future account value and likelihood of achieving your goal. At the hybrid level, investors will get access to live advisors, including a dedicated advisor that will help with more complex

planning. This includes the ability to model multiple financial goals and view them within a single, holistic plan.

Performance was another driver of their ranking, with Merrill scoring in the top four of our tracked universe thanks in part to its relatively large allocation to municipal bonds on the fixed income side of the portfolio, as well as its bias towards large caps on the equity side. Over the trailing 3- and 5-year periods, the Russell 1000 Index has returned 14.07% and 11.89% annually on average versus returns of 10.79% and 4.17% for the Russell 2000 Index. Merrill is one of the more active portfolio managers and is a good choice for those seeking a more active approach to portfolio construction.

Best Robo for Performance at a Low Cost

→ **Winner: Wealthfront**

→ **Runner-up: Fidelity Go**

The Best Robo for Performance at a Low Cost category is designed for investors who seek out the best overall quantitative metrics, especially those related to returns and fees. Wealthfront was once again the top performer, followed by Fidelity Go, for the 3-year period ending June 30, 2023, a period that contained the post-Covid recovery, elevated inflation, rising geopolitical tensions, and a little over a year's worth of rapidly rising interest rates.

Wealthfront benefited from its dedicated energy holding, which was especially helpful during the prolonged period of elevated inflation and in the face of the disruption of energy markets following the Russian invasion of Ukraine. The energy sector greatly outperformed from the start of 2021 through year end 2022 with the Vanguard Energy ETF posting a return of nearly 60% on average per year, versus a return of just 2.6% annualized for the S&P 500 in that period. The value tilted energy sector's outperformance tracked with the overall trend of value outperforming growth over the past three years. During the 3-year trailing period ending June 30, 2023, the Russell 3000 Value Index outperformed the Russell 3000 Growth Index by about 1% per year on average. Modest allocations to domestic over international equities than the average portfolio we track also helped these portfolios outperform over the past three years.

Fidelity Go's equity positioning is typically market-neutral relative to its growth and value split. However, they do allocate more to large caps on average at 75% of the equity portfolio versus about 66% on average across all tracked robos over the trailing 3-year period. This greatly helped performance as large caps were the best performing size among equities over this period.

On the fixed income side, Fidelity Go allocates all our accounts fixed income holdings to municipal bonds, which has been one of the better performing fixed income classes over the past three years. On the fixed income side, Wealthfront also maintains holdings to municipals, as well as TIPS, which have performed well relative to other fixed income classes over the past three years.

Best Robo for First-Time Investors

→ **Winner: SoFi**

→ **Runner-up: Fidelity Go**

SoFi remains our top pick for first-time investors. For many, the true start of one's investing journey begins with paying down student loans, or some other form of debt. SoFi allows users a platform to explore options such as consolidating debt as a first step to their goals of saving for the long-term. They also have many tools available to first time investors outside of debt consolidation, such as access to career coaches and live financial planners. They also offer a strong budgeting tool in the form of SoFi Relay, which allows outside financial accounts to be tracked within SoFi's platform, helping to give a holistic view of one's budgeting. These abilities combined with SoFi's low fees make SoFi a top option for first time investors.

Fidelity Go earns the distinction of runner-up in this category due to a combination of low costs, an accessible digital platform, and impressive long-term returns. Fidelity Go users will benefit from low fees through a combination of no-cost Fidelity Flex funds, as well as no management fee on the first \$25,000 invested, making it especially attractive for investors with smaller amounts of money to start with. Further benefiting first-time investors, their mobile app, Spire, contains many short articles geared towards the younger generations, centering around topics such as wedding planning and retirement planning, while also allowing for users to monitor their accounts and goals in one place. This combined with strong

long-term performance due, in part, to their bias towards large cap equities makes them a great option for first-time investors.

Best Robo for Digital Financial Planning

- **Winner: Empower**
- **Runner-up: Wealthfront**

The most significant effect that robo advisors have exerted on the financial advice industry is the democratization of expertly managed portfolios. Robo advisors have not just facilitated widespread access to advised accounts, but they have also enabled high-caliber financial planning to become available to anyone equipped with an internet connection and the readiness to invest the time into building a plan. The winners of this category offer the best digital planners among the robos we track.

The two winners of this category, Empower (formerly known as Personal Capital) and Wealthfront offer their digital plans to anyone without the need for opening an account. These platforms offer the ability to build a holistic financial plan by combining multiple goals into a single plan, while also aggregating outside accounts so investors can get a view of their full financial picture. They make planning for the future easy by enabling users to model future life events, such as Social Security and other retirement income, as well as life events such as windfalls and other custom inputs, all while presenting it in an easy-to-use manner and offering it in the standard, free versions of their services.

Empower remains at the top of our list when it comes to financial planning tools. The robo enables users to plan for retirement, home purchase, education, and general saving among other goals with a plethora of in-depth tools. The retirement fee analyzer looks at your portfolio's holdings and estimates what portion of your portfolio will be lost to expense ratios, while the planner allows you to set up multiple spending goals along with projected future income and calculates a probability of success in the stated goals. The planner also allows you to map out a plan to pay down debt alongside your current savings, as well as an emergency fund. It will aggregate outside accounts and present you with a consolidated display of your monthly cash flows, overall net worth, and other views of your finances in a single dashboard. The robo offers a fea-

ture called Investment Checkup that explains how and why you should be rebalancing your portfolio, while taking into account your age, risk tolerance, and portfolio composition. Through its ability to aggregate outside accounts, it is also able to analyze positions held elsewhere. Overall, Empower continues to be our top pick for robos related to financial planning due to its in-depth planning tools offerings, including a multi-goal financial plan and the ability to customize inputs specific to the investor.

Wealthfront's digital planning tools are representative of their digital-first philosophy, eliminating the need for human advisors and the higher fees attached to them. The planning tool allows for goals specific to retirement, education, home buying, and travel, with the home buying module utilizing Redfin data. While it is a little more complex than Empower's, the planning tool comes with a high degree of customization like projecting retirement income such as Social Security, windfalls, real estate, and other details, allowing for users to build out complex plans. It also offers a feature called Self-Driving Money, which is a set of automated or semi-automated features that enable users to invest excess cash held in their bank accounts. This allows for users to integrate their spending and saving habits with their long-term goals. Wealthfront's planner continues to be a premier example of innovation among robo advisors.

Best Robo for Complex Financial Planning

- **Winner: Vanguard**
- **Runner-up: Empower**

While some digital planning tools do a good job modeling complex situations, those with complex planning needs may still benefit from access to live advisors alongside robo planning, or a hybrid model. Vanguard wins the title for Best Robo for Complex Financial Planning. Their hybrid advice model allows access to a live financial advisor at a minimum investment of \$50,000 for just 0.30% in management fees. For a \$500,000 investment, investors get access to a dedicated adviser, available for the same low fee. This allows investors to model multiple financial goals and get a comprehensive view of their assets at a price point far below the 1% management fee typically charged by a traditional financial advisor.

Empower, the runner-up for Complex Financial Planning combines access to a live planner with one of the best digital planning platforms on the market. Empower has a high minimum investment at \$100,000 and a high management fee at 0.89% but offers some stand out features. Aside from its planning tools, Empower offers investment options such as an SRI portfolio, and direct indexing, and for those with more than \$5,000,000 on the platform, alternative investments like private equity are also available. Empower also offers a feature called Smart Withdrawal which simplifies the process of determining where to withdraw retirement spending funds, and how to do so in a tax efficient manner. This feature can assist with more complex decisions, like whether tax gain harvesting should be considered, or if a Roth conversion may be beneficial. These features combine to make Empower one of the best robo options for complex financial planning, even with its higher fees.

Robo Ranking Facts

Robo Name	3-Year Annualized Return	3-Year Return Above/Below Normalized Benchmark	3-Year Sharpe Ratio	Account Minimum	Advisory Fee	Weighted Average Expense Ratio
Acorns ¹	4.73%	-1.29%	0.31	No minimum	\$3/month for Personal; \$5/month for Personal Plus	0.04%
Ally Invest Robo Portfolios ⁹	5.50%	-0.27%	0.39	\$100	0.30% annually; Also offers 'cash-enhanced' portfolio with 30% invested in cash and no management fee	0.06%
Betterment ²⁷	6.43%	-0.14%	0.42	Digital: No minimum; Premium: \$100,000	\$4/ month or 0.25% annually with \$20,000 in platform assets or \$250 monthly deposits; additional 0.15% annual fee for Premium	0.09%
E*Trade Core ²¹	5.37%	-0.73%	0.36	\$500	0.30% annually	0.05%
Fidelity Go ³³	7.41%	1.44%	0.58	\$10 minimum; access to live advisors requires a \$25,000 minimum	No Advisory fee on account balances under \$25,000; 0.35% on accounts with balances over \$25,000	0.00%
JP Morgan Chase Automated Investing ⁷	3.75%	-0.86%	0.26	JP Morgan Automated Investing: \$500; JP Morgan Personal Advisor: \$25,000	Automated Investing: 0.35% annually; Personal Advisor: 0.60%, discounted tiered pricing at higher asset levels; JP Morgan ETF expenses will be rebated or offset against the management fee	0.10%
Merrill Edge Guided Investing ³¹	7.16%	1.05%	0.54	Guided Investing: \$1,000; Guided Investing with an Advisor: \$20,000	Guided Investing: 0.45% annually (digital only); Guided Investing with an Advisor: 0.85% annually	0.06%

Robo Name	3-Year Annualized Return	3-Year Return Above/Below Normalized Benchmark	3-Year Sharpe Ratio	Account Minimum	Advisory Fee	Weighted Average Expense Ratio
Empower (Personal Capital)⁴	7.84%	0.02%	0.52	\$100,000	0.89% annually; discounted tiered pricing at higher asset levels	0.09%
Schwab⁵	6.88%	1.38%	0.55	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	0.17%
SigFig⁶	5.34%	-0.83%	0.37	\$2,000	No fee for the first \$10k; 0.25% annually for balance over \$10k	0.06%
SoFi⁷	6.78%	0.75%	0.49	\$1	No management fee	0.04%
US Bank Automated Investor²⁸	5.93%	0.53%	0.42	\$1,000	0.24% annually	0.08%
Vanguard Digital and Personal Advisor⁴³	6.92%	0.95%	0.54	Vanguard Personal Advisor Services: \$50,000; Vanguard Digital Advisor: \$3,000	Vanguard Personal Advisor Services 0.30% annually. Vanguard Digital Advisor combined underlying fund fees and management fees capped at 0.20%	0.07%
Wealthfront (Risk 4.0 ; 2016)⁴⁴	8.76%	2.32%	0.64	\$500, some additional portfolio features require a higher minimum	0.25% annually	0.09%
Wells Fargo Intuitive Investor¹⁴	5.50%	-0.71%	0.33	\$500	0.35% annually; discounted relationship pricing may be available	0.14%

Robo Report Top Performers

YTD Top Performers

	Best	2nd	3rd
Total Portfolio	Stash Smart Portfolio	SoFi	US Bank Automated Investor
Equity	Stash Smart Portfolio	SoFi	US Bank Automated Investor
Fixed Income	Betterment	Wells Fargo Intuitive Investor	Betterment Social Impact SRI

1-Year Trailing Top Performers

	Best	2nd	3rd
Total Portfolio	Fidelity Go	SoFi	Vanguard P.A.S.
Equity	Stash Smart Portfolio	SoFi	Fidelity Go
Fixed Income	UBS Advice Advantage	Fidelity Go	US Bank Automated Investor

3-Year Trailing Top Performers

	Best	2nd	3rd
Total Portfolio	Schwab Domestic Focus	Wealthfront (Risk 4.0 ; 2016)	Zacks Advantage
Equity	Schwab Domestic Focus	Wealthfront (Risk 4.0 ; 2016)	Zacks Advantage
Fixed Income	Fidelity Go	Zacks Advantage	Vanguard P.A.S.

5-Year Trailing Top Performers

	Best	2nd	3rd
Total Portfolio	Zacks Advantage	Wealthfront (Risk 4.0 ; 2016)	Fidelity Go
Equity	Zacks Advantage	Acorns	Merrill Edge Guided Investing
Fixed Income	Schwab	Wealthfront (Risk 4.0 ; 2018)	Zacks Advantage

Performance Commentary

- Nimble management of duration was a major factor in determining the performance of fixed income portfolios over the past three years, benefiting the active management decisions of Zacks Advantage and Merrill Edge.
- Large cap growth has dominated market returns year-to-date, benefitting SoFi, and US Bank Automated Investor, two of the few robo portfolios with dedicated growth exposure.

- Over the 3-year period domestic equities and a value tilt supported the outperformance of Schwab Domestic Focus and Wealthfront (vintage 2016).
- The domestic bias of Zacks, Wealthfront and Fidelity Go helped drive outperformance over the 5-year trailing period.

Backdrop

So far in 2023, investors around the globe enjoyed a reprieve from the tumultuous 2022. The domestic equity market demonstrated strong performance year-to-date 2023, with the S&P 500 increasing by 16.88%. A familiar narrative emerged as the technology sector led the charge, with the tech-heavy Nasdaq posting its best first half of a year since 1983. Tech giants once again dominated performance, while the surging interest in artificial intelligence (AI) helped fuel returns. The consumer discretionary sector also stood out, bolstered by solid performance from large retailers. This sector has benefited from robust consumer spending and a more resilient economy than some had expected. In contrast, value stocks underperformed during the year so far. The consumer staples, utilities, and energy sectors lagged, reflecting investors returning to a preference for growth over value.

Internationally, developed markets underperformed compared to their U.S. counterparts but remained in positive territory. The MSCI EAFE Index, which gauges the performance of developed markets outside North America, advanced by 12.16%, while the MSCI Emerging Markets Index, increased by 5.02%. The European Central Bank (ECB) raised rates four times during the year, in response to economic indicators. The Bank of England also adopted an aggressive approach, raising rates four times in the year, from 3.50% to 5.00%.

Fixed income markets exhibited relatively flat performance. Corporate bonds generally outpaced municipals, and investors seeking yield found solace in lower-rated debt, with high-yield bonds outperforming their investment-grade counterparts. However, the general sentiment in fixed income remained subdued in comparison to the difficult prior year. The U.S. Federal Reserve raised rates by another quarter point in May, bringing the benchmark rate range to 5% to 5.25%. Notably, signals from the Fed indicated that the cycle of rate hikes is nearing its end, shown by the Fed's decision not to raise rates in June for the first time in ten meetings. This comes as inflation, housing starts, and employment move in the right direction. Policymakers do still expect that they might need to raise rates again at some point to combat persistent inflation, though the central bank's new policy will be more focused on assessing how the economy is reacting to recent changes before making further adjustments. Such movements in interest rates over the past several years shows the importance of managing duration, which we notice is a key differentiator in the results of the fixed income performance for the tracked robo accounts.

Year-to-Date 7 Mega Cap Tech Names Vault Growth Tilted Portfolios to the Top

Year-to-date equity returns have been driven by a few mega-cap technology names. The 'big seven' tech names, Apple, Microsoft, Nvidia, Google, Amazon, Meta, and Tesla, now make up nearly 30% of the S&P 500. In the first half of the year these names made up 70% of the performance of the S&P 500. On June 6th of this year, without these names, the index would have been in negative territory. While 2022 was marked with the resurgence of value investing, in 2023 growth investing has come roaring back. The few robos with dedicated growth holdings have led the way year-to-date.

Stash, SoFi, and US Bank Automated Investor emerged as the top year-to-date performers in terms of total portfolio performance relative to their Normalized Benchmark, a methodology that compares each robo advisor's returns to a comparable asset allocation benchmark. This year the Russell 3000 Growth index delivered an impressive 28.05% return, while the Russell 3000 Value index lagged with a weaker return of 4.98%. SoFi, US Bank, and Stash had higher allocations to growth, with percentages ranging from 36% to 39%, surpassing the study group's average growth allocation of 33%. SoFi holds its proprietary SoFi Next 500 and Sofi Select 500 ETFs, which both track growth-oriented indices. US Bank also has a dedicated growth holding, as it holds the Vanguard Growth ETF. While other portfolios benefited from being overweight large cap holdings, SoFi and US Bank were closer to average and primarily benefitted from their specific growth holdings.

The top performers in the year-to-date (YTD) period tended to have higher domestic exposure than the average robo advisor. US Bank and SoFi, for instance, had domestic exposure percentages of 72% and 71% respectively, exceeding the average exposure of 67%. Stash stood out as an exception, with one of the lowest exposures to domestic equities at 56%. However, its small exposure to cryptocurrency supported its returns during the period, with a holding in Grayscale Bitcoin Trust earning a remarkable 131.48% return and its position in Grayscale Ethereum Trust showing a substantial 108.82% return.

For the year-to-date period ending June 30, 2023, corporate bonds outperformed municipals. For reference, whereas the Bloomberg Corporate Bond Index returned 3.21%, the Bloomberg Municipal Bond Index returned 2.67%, showing

modest outperformance for holders of corporates. Meanwhile, both asset classes were supported by high-yield issues. During the same period, high-yield corporate bonds returned 5.38%, whereas high-yield municipals returned 4.43%, showing that high-yield corporates also had some additional outperformance over high-yield municipals. Both asset classes, however, were supported by more credit exposure, namely that of lower-rated issues. The top fixed-income performers also exhibited higher duration as well as higher exposure to corporate credit.

Betterment, Wells Fargo, and Betterment Social Impact stood out as the top performers in fixed income. These accounts tended to have above-average duration and credit risk exposure. Wells Fargo had 21.66% of its fixed income portfolio in the iShares Broad US High Yield Corp Bond ETF (USHY), which was its best performing fixed income position, gaining 5.26% year-to-date. Betterment and Betterment Social Impact did not hold any dedicated high yield funds, but they both held iShares JPMorgan USD Emerging Markets Bond (EMB) and Vanguard Emerging Mkts Govt Bd ETF (VWOB), which have both boosted these Betterment accounts exposures to high yield, plus, both holdings have durations above 7.

Large Cap Growth Bolsters Equity Performance and Muni's Stem Fixed Income Losses Over 1-Year

Over the one-year period, Fidelity Go, SoFi, and Vanguard P.A.S. stood out as the top performers in total portfolio performance. Similar to the YTD performance, growth-oriented investments and large-cap stocks played a significant role in determining success. Fidelity Go, SoFi, and Vanguard P.A.S. had growth allocations ranging from 36% to 39% and large-cap exposure ranging from 71% to 75%, which were above average compared to their peers. This was at a time when the Russell 3000 growth index outperformed its value counterpart by over 15% and the Russell 1000 outperformed the Russell 2000 index by over 7%. It's worth noting that Vanguard P.A.S. holds passive market cap-based indexes so the account's tilt towards growth is more the nature of the index tracked than specific growth focused holdings.

International stocks have underperformed U.S. equities during the one-year period but have held up better than in previous years. The underperformance wasn't from international de-

veloped markets, as shown by the S&P 500 returning 19.56% during the period and the MSCI EAFE returning 19.53%. The recent underperformance of international was driven by underperformance in emerging markets, with the MSCI Emerging Markets Index returning only 5.02% year-to-date.

The top fixed income performers were UBS Advice Advantage, Fidelity Go, and US Bank Automated Investor. From a fixed-income perspective, the top robo advisors held high exposures to municipals, with US Bank and Fidelity Go's fixed income portfolios entirely allocated to municipals, and UBS Advice Advantage's fixed income portfolio allocated to 80% municipals. The importance of municipals for the trailing one-year period can be seen in the performance of the Bloomberg AMT-Free National Municipal Total Return index, which returned roughly 3% more than the Bloomberg U.S. Agg index.

The three fixed income winners for the trailing one-year period all had duration in line with the average robo, ranging from 5.67 and 5.85. Portfolios with low duration benefitted early in the period when long-term rates moved sharply upwards. Higher duration portfolios benefitted later in the period as longer maturity bonds moderated in yield. The effect of duration was not particularly significant unless managers made active choices to shorten or lengthen duration during the period.

Domestic Value Shines in 3-Year Period

In a reversal of both longer-term and nearer-term trends, value was an important component of outperformance in the three-year period. In this period, we also see the reemergence of domestic over international and the continued trend of outperformance of large cap.

For the trailing three-year period, Schwab Domestic Focus, Wealthfront (vintage 2016), and Zacks Advantage emerged as the top performers. The exposure to U.S. equities remained a key driver of performance during this period. The S&P 500 returned an annualized 14.58%, the MSCI EAFE returned an annualized 9.58%, and the MSCI Emerging Markets Index was further behind, returning only 2.66% on an annualized basis. Zacks had the highest exposure to domestic equities, with 81%, while Schwab and Wealthfront demonstrated high exposures at 75% and 73%, respectively.

The importance of a domestic tilt can be seen when comparing the Schwab Domestic Focus to the regular Schwab

robo account. The Schwab Domestic Focus, a frequent top performer, has 75% of its equity portfolio dedicated to U.S. stocks, while the Schwab account has one of the lowest allocations to U.S. equities, at only 52%.

Additionally, Schwab Domestic Focus and Wealthfront both exhibit distinct tilts towards value, holding 34% and 30% weightings towards value, respectively, compared with the average robo at just 27%. Schwab holds the Schwab Fundamental Large Company ETF and Wealthfront holds the Schwab US Dividend Equity ETF which outperformed the Russell Value 1000 by 4.21% and 1.56%, respectively.

Schwab's Domestic Focus strategy saw benefits from its family of fundamental weighted ETFs in more than just domestic large caps. These non-market-cap weighted funds consider fundamental attributes such as sales, dividends, buybacks, and retained operating cash flow which give these funds a value tilt. These funds outperformed their market-cap weighted counterparts, with the Fundamental U.S. Small Company Index ETF surpassing the Russell 2000 by over 7% annualized and the international large-cap version outperforming the MSCI EAFE by over 4% annually.

As has been documented in previous Reports, Wealthfront's dedicated allocation to the energy sector, a value sector, continued to support its performance. Despite recent underperformance in the energy sector, Wealthfront's position in VDE (Vanguard Energy ETF) returned an impressive 36.55% annualized return over the past three years which supported benchmark-beating returns.

In the fixed-income category, Fidelity Go, Zacks, and Vanguard P.A.S. were the top fixed-income performers. Their exposure to municipal bonds supported their performance during this period, with all three robos allocating the entirety of their fixed income portfolios to municipals. While the Bloomberg Aggregate Bond Index lost 3.96% on average annually over the three-year period, the Bloomberg AMT-Free National Municipal Index lost only .18%. As discussed below in more detail, Zacks has been particularly adept at navigating through changes in rates by actively managing its portfolio's duration.

Adept Management of Duration and Domestic Growth Bolster 5-Year Returns

Looking at the five-year period ending June 30, 2023, the top three performers compared to their Normalized Benchmark were Zacks, Wealthfront (2016), and Fidelity Go. A domestic bias characterized the performance of Zacks and Wealthfront, with approximately 81% and 73% of their equity portfolios allocated to U.S. stocks, respectively. Meanwhile, the average robo advisor in our five-year study group had a domestic allocation of 67%. The difference in domestic exposure played a significant role in performance, as the S&P 500 delivered an annualized return of 12.27%, compared to a 5.00% annualized return for the MSCI EAFE. Fidelity Go's exposure to domestic equities aligned with the average robo advisor and its portfolio benefited from a large allocation to large-cap stocks. Fidelity Go's average market capitalization was \$89 billion, while Wealthfront averaged \$81 billion, both of which were notably higher than the average robo for the period. For reference, the average market cap for robos in the five-year study group was \$63 billion.

Another important factor in equity performance is the allocation to growth and value. As we look back further beyond value's resurgence in 2022, growth has significantly outperformed. During the five-year period, growth outperformed value, with the Russell 3000 Growth Index returning an annualized 14.37%, compared to an annualized return of 7.75% for the Russell 3000 Value Index. Zacks Advantage's five-year performance was supported by swapping out some of its SPDR S&P 500 ETF for a position in the Vanguard Russell 1000 Growth ETF. This decision to tilt the portfolio more towards growth set up the portfolio to benefit from the outperformance of growth in 2021. Fidelity Go's five-year performance was also supported by its above average allocation to growth compared to the average robo in the five-year study group.

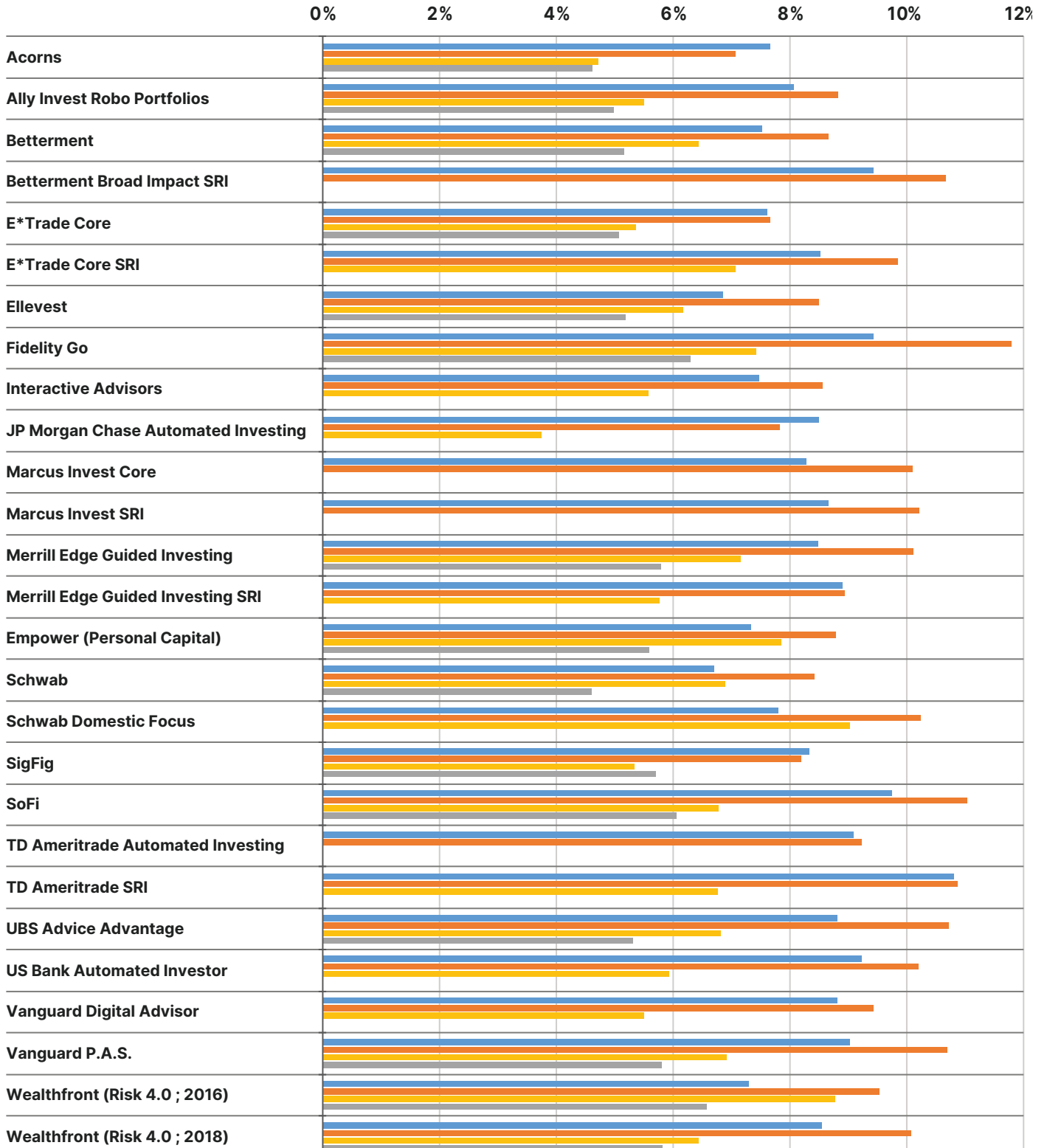
When reflecting on the role of fixed income over the last five years, it is important to consider the changing environment over this period. Over the last five years, the Fed Funds rate went from a range of between 1.75% and 2.0%, down to zero, then, by a historically rapid rate rising cycle starting in 2022, to a range of 5.00% to 5.25%, with the recent increases in rates resulting in a difficult period for bondholders. Some robo advisors were able to reduce the impact of this by dynamically shifting duration. For example, in Q1 2019, Zacks

had approximately 15% exposure to short-term bonds, and by the beginning of 2020, the portfolio had increased its allocation to 58%. This low duration was maintained for a few years and put the portfolio in a good position to withstand the increase in rates that happened in 2022. In the past year Zacks extended duration 0.5 years. Specifically, we see that on October 3, 2022, Zacks sold SUB, the iShares Short-Term National Muni ETF, and bought MUB, the intermediate version. This was right at the time the 10-year treasury briefly crested the 4% mark. By extending duration at that time, Zacks benefited from the resulting fall in interest rates. We are also interested in Merrill's timing of the interest rate moves as they extended duration by more than a year since mid-last year. Part of the move was executed in October of last year as they sold a short-term municipal fund and bought an intermediate municipal and treasuries fund. Now that we have seen the full cycle in rates falling to zero, increasing rapidly, and slightly cooling off, we think that these robos that added to duration in the late part of the rate rising cycle are in a good position to benefit further, as we exit the rate-hiking cycle.

The three top fixed-income performers, Schwab, Wealthfront and Zacks all have held significant allocations to municipals over the period which modestly outperformed corporates for the full five-year period. Zacks portfolio previously also held corporates but transitioned to all municipals near the start of 2020. While corporates outperformed in 2020 and 2021, this transition paid off in 2022 as municipals more than made up lost ground through the rate hiking cycle. From 06/30/2018 to the end of 2019, around the time Zacks transitioned out of corporates, corporates outperformed. Again, Zacks' active management has proved to add value in fixed income. Schwab's willingness to take on credit risk in their bond portfolio has helped its top-tier fixed income performance over the five-year period.

Total Portfolio Performance

YTD 1-Year 3-Year 5-Year



Robo Commentary

→ The robo advice industry was estimated to have \$893 billion in AUM at the end of 2022, down 10% from the end of 2021.

→ Vanguard, Financial Engines and Schwab represent hold almost two thirds of Robo Advisors' AUM.

→ For independent robo advisors, new client acquisitions kept their platforms growing through the market turmoil of 2022.

Growth of the Robo-Advice Industry

The robo advice industry undoubtedly had an eventful year in 2022, characterized by continued closures, consolidation, and a pullback in AUM. The market landscape was turbulent, with sharp declines in both equity and fixed-income markets. Closures of some smaller players on top of the dramatic pullback in markets in 2022 led to the total AUM of robo advisors contracting by an estimated 10% in 2022. As of year-end, we estimate the domestic robo-advice market to have \$893 billion in AUM.

However, despite these global market trends, the robo advice industry demonstrated resilience. Vanguard finally eclipsed Financial Engines as the largest provider of financial advice. Vanguard concluded the year with \$251 billion, outpacing Financial Engines' \$242 billion. While Schwab is a distant third with over \$70 billion in AUM, its success should not be discounted. Amassing \$70 billion in AUM in just eight years is a success story and is more than double the AUM of the largest start-ups, Betterment and Wealthfront. It is worth noting that the three giants, Vanguard, Financial Engines, and Schwab, hold almost two-thirds of the total robo advice AUM, with over one-half concentrated in the two more prominent advisors.

Market corrections in the 2022 fiscal year put downward pressure on these three prominent advisors' assets. However, it is important to view this through the lens of a broader cycle, with markets and AUM quickly recovering in 2023. At the midpoint of 2023, both Schwab and Vanguard rebounded, posting growth over the 2022- and 2021-year ends.

While these market leaders faced AUM declines in 2022, smaller, independent Robo advisors fared better. A more detailed look reveals independent robos achieved positive growth despite falling asset prices. Betterment, Acorns, Stash, and SoFi all posted AUM growth.

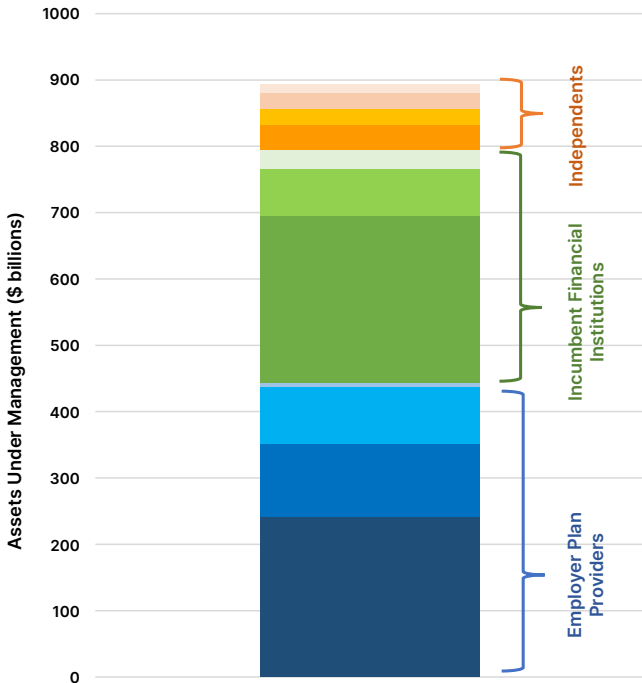
This growth was driven by successful client acquisition as growing new clients and assets offset market declines. Notably, Acorns reported a resurgence in client growth. After a slowdown in 2021, Acorns managed to bounce back with year-on-year growth of clients just under 43%, a commendable feat. Betterment and Wealthfront also continued to add clients, growing client bases by 12% and 8%, respectively.

Despite an increase in clients and assets, growth has slowed. Judging by growth in the number of clients, the industry is leaving its rapid growth stage. Betterment grew client counts by 12% in 2022, down from 20% year-over-year growth in 2018. Similarly, Wealthfront's client growth fell to 8% last year, down from 42% in 2018. Even SoFi, which increased clients by 47% last year, is down from more than doubling its clients in 2018 and growing by 67% in 2021.

As the industry matures, the goal of expanding the accessibility of financial advice remains. Now that robo advisors have been on the scene for over a decade, the pace of innovation has slowed. Automated tax-loss harvesting, seamless digital account opening, rock-bottom fees, and quality digital planners have existed for years. How will robo advisors leverage AI to improve budgeting, planning, and personalized advice? Will companies continue to invest in these products, or will

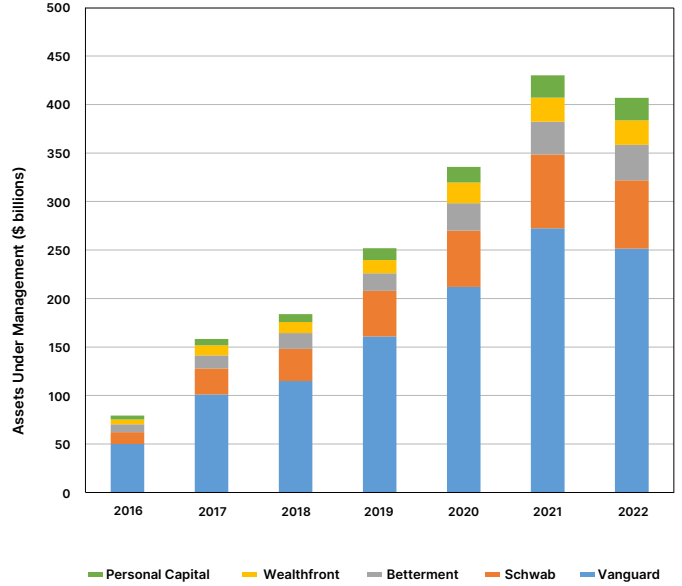
they put their development dollars into more profitable business segments? What innovations in the robo-advice space spur the next leg of growth?

Digital Advice Market AUM - Current Estimate Year-End 2022



- Edelman Financial Engines
- Morningstar Retirement Advice
- Fidelity Investments PPA
- Guided Choice
- Vanguard
- Schwab
- Other Incumbents
- Betterment
- Wealthfront
- Personal Capital
- Other Independents

AUM Growth at Selected Major Providers



Industry Commentary

→ A maturing industry witnesses Bloom shutter and Blackrock's Future Advisor sell its direct-to-consumer business.

→ Hybrid offerings stand to benefit more from AI than digital-only products.

→ Betterment pivots to focus on profit with the introduction of subscription pricing on smaller accounts.

Robo Advice Industry in 2023

Robo advice emerged onto the scene in 2008 with the launch of Betterment and Wealthfront. While robo advice products are now a permanent part of the financial advice landscape, recent years have witnessed a consolidation across this industry, with most start-ups either being acquired or shut down.

Over the past year there has been continued turmoil in the robo industry. Notably, FutureAdvisor, which was acquired by Blackrock in 2015, announced its direct-to-consumer business is being sold to Ritholtz Wealth Management. Under the control of BlackRock, the direct-to-consumer product had long languished; we witnessed very few product enhancements over the years. This followed the abrupt shutdown of Bloom, a 401(k)-focused robo advisor, in late 2022.

Early in 2022, Wealthfront and UBS announced an acquisition and it appeared at the time that one of the few remaining independent robos would be acquired by a larger firm. UBS's robo-strategy has long been disjointed. In 2018 UBS sold SmartWealth, a previously acquired European-based robo advisor. This announcement was followed a few months later by the launch of Advice Advantage, a U.S. robo advice offering built on SigFig's robo-technology platform. Despite already having a robo advice product, it appeared the Swiss bank would acquire Wealthfront until the deal fell apart last year. For now, Wealthfront will remain independent.

The acquisition price of Wealthfront was reported to be \$1.4 billion. Months after the acquisition fell apart, UBS stepped

in to buy Credit Suisse for \$3.25 billion. Wealthfront is undoubtedly an attractive target as wealth managers eye firms that have proven success with younger investors ahead of the impending wealth transfer of baby boomers to younger generations. Regardless, it is startling to consider that prior to the deal falling apart, UBS was going to purchase Wealthfront, with just \$25 billion in AUM per its last ADV, for a little under half the price that it eventually paid for its rival Credit Suisse.

Betterment remains an established player in the market, and while we anticipate Betterment will continue to be a stable business, it has had a rocky year. Last year, Betterment announced that accounts with less than \$20,000 will be charged a \$4 monthly fee unless they meet monthly deposit requirements. While \$4 per month sounds reasonable, this is a significant jump in fees on smaller accounts. For an account with just \$1,000 in it, this roughly equates to a 4.8% annual management fee. This speaks to the difficulty of profitably serving clients with account balances of just a few thousand dollars or less. It also speaks to the shift in focus from growth to profits that the industry is experiencing as it matures. Additionally, Betterment recently reached a settlement with the SEC, in part related to some issues with its tax loss harvesting software that affected a relatively small number of clients. While this is clearly not good news for Betterment, we also acknowledge that when start-ups push the envelope of innovation, coding errors can occur.

Schwab's product also ran into some regulatory issues over the past year. Last summer, the SEC fined Schwab \$187 million related to disclosures of the high cash allocation of Intelligent Portfolios model portfolios. Schwab sent checks to

clients that were in the product during the time period in question earlier this year.

Meanwhile, Vanguard has rolled out automated tax-loss harvesting at its digital-only robo advice product, Digital Advisor. Vanguard's digital tools have been gradually increasing in quality over the years, but their product has often lagged others in terms of its online experience in the past. Now Vanguard offers a quality experience and a good digital retirement planner. The lack of a great digital experience in the past did not hold Vanguard Personal Advisor services back from quickly becoming a market leader in the space.

Looking forward, we are asking ourselves one of the most important questions of 2023, how will AI impact the industry? Using AI in financial advice in planning presents many challenges. While some tasks are handled well by AI, others will leave financial advice firms open to risks.

Many of the applications that immediately come to mind when thinking of how AI could impact a financial advice firm are already in use at many robo advisors. Automated account rebalancing, scanning for available tax-losses and optimizing tax-loss harvest trades, account opening and other back-office tasks are all areas that robo-advice has revolutionized. Other areas, like the actual delivery of financial advice, will be difficult to entrust to an AI language model without the supervision of a human. Even if an AI language model is giving good financial advice in 99% of scenarios, it is still unacceptable if the fiduciary duty is breached when providing bad advice to just one client.

Even if AI is not, and may never be, ready to replace a financial advisor, firms can still implement the technology to improve efficiency and quality of advice. Creating a financial plan, analyzing customer behavior, summarizing meeting notes, and providing suggestions on how to advise clients are all areas that can augment an existing advisor and client communications. We expect AI utilization in assisting live advisors in client relationships will become widespread at larger advice firms. Hybrid advice offerings that pair online digital tools with human advice stand to greatly benefit from the implementation of AI. While AI language models should not be trusted to deliver consistent quality advice unsupervised, AI technology assisting human advisors has the opportunity to increase the quality of service and the efficiency of advisors. AI can be leveraged to deliver better advice and help advisors

effectively manage more clients. As firms like Morgan Stanley are already actively exploring how AI can be used within its wealth management business, this presents a new challenge for regulators as they look to adapt regulations for a rapidly changing landscape.

Robo Tax-Loss Harvesting

- Schwab stands out as particularly active in tax loss harvesting.
- Wealthfront's direct indexing strategy, Passive Plus, helped bolster benefits of tax-loss harvesting activity.

- US Bank reduced its realized losses due to wash sale rules.

Robo Tax-Loss Harvesting

The equity and fixed-income market declines in 2022 provided another ideal opportunity to observe the efficiency of robo portfolio tax-loss harvesting (TLH) efforts.

It is important to note that we previously conducted a TLH study, which ended in 2021. The accounts used in that study were all opened and funded at the same time and had regular monthly contributions. This was done to set an even playing field and allow regular contributions to create more tax lots for potential future harvesting. The complete results of that TLH study, which covered the sharp pullback following the initial pandemic shutdowns, can be found in the archives section of our website in the First Quarter 2021 report.

When we conducted the analysis in 2021, we found that Schwab stood out as particularly active in tax-loss harvesting. In 2020, Schwab realized net short-term losses of 8.3% of the total portfolio. Wealthfront was also quite active during this period, harvesting net losses of just under 5% of the total portfolio, while Wells Fargo harvested 3.8% in net losses. SigFig and Citizens did not harvest losses in our portfolio during 2020.

The results discussed below are from our standard accounts that do not have regular contributions and differ from when they were opened and funded. The results below provide valuable insights into which robos are active in their tax-loss harvesting efforts. Some accounts will have had more or less opportunities to harvest losses for the reasons above.

Loss harvesting in 2022 looked very different from the last observed 2020 period, given the shape and duration of the drawdown. However, one similarity stands: Schwab deployed one of the most successful TLH strategies in the period.

Once again, Schwab was the most active robo, turning over 147% of the portfolio throughout the year, demonstrating their aggressiveness. The Wealthfront Passive Plus portfolio followed, with 98% turnover. These high turnovers flowed directly through to the TLH results. The Wealthfront Passive Plus portfolio generated 2.9% in losses net of long-term gains. Intuitively, this makes sense, the direct indexing construction provides a better opportunity to seize losses. Holding the individual underlying stocks allowed the robo to capture losses that gains in other index constituents would have otherwise muted. Schwab rotated through various muni and emerging market ETFs, allowing them to harvest losses throughout the year, ending with 3.3% in short-term losses and 1% losses net of gains. Given our Schwab account is over five years old and has not had contributions during the period limiting positions at a loss, it is good to see tax-loss harvesting is more than offsetting the tax consequences of rebalancing and other trading activity during a down year.

Wells Fargo and US Bank also actively produced net losses in our portfolios, each around 1.5% of the portfolio value. Wells Fargo and US Bank turned over 20% – 30% of their portfolios. Notably, US Bank would have posted almost double the short-term losses had it not enacted various trades that violated wash sale rules.

SigFig, Citizens, and SpeciFi did not harvest any losses in 2022. It is possible our accounts do not meet some minimum threshold or did not meet minimum thresholds for the size of losses for them to be harvested, but we could not find disclosures clarifying the limits for when tax loss harvesting will be implemented.

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Last updated: 03/31/2023

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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. Prior to the Axos and Wisebanyan acquisition and integration, this account was not charged a management fee. 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 have decreased the reflected performance. Currently, this account is charged a 0.24% management fee. In August of 2021, there was a reporting issue with this provider. The issue has been resolved but the resolution effectively caused a rebalance of the account on 09/30/2021.

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 of 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. "Essential Portfolios" does not appear to be available to new clients, likely due to the pending Schwab and TD Ameritrade integration. These accounts are grandfathered into the "Essential Portfolios" program and are charged a 0.30% annual asset-based management fee.

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 The Robo Report 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. The 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. The 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 (0.08-1.5%), 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. The 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 may 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 for portfolios with balanced fund holdings. 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.

⁴³ 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 in-

creasing reflected performance. On June 19th, 2017, Vanguard removed the Robo Report'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.

⁴⁴ 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. 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 in equity allocation between the accounts on 12/31/2017 was approximately 5.4%.

⁴⁵ 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. 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 the 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 Deviation calculations are calculated with the assumption of 252 trading days in a year.

This report represents [Condor Capital Wealth Management'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. 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 3/31/2023, the total size of the position was 62,756 shares of Schwab common stock, 17,660 shares of JP Morgan Chase common stock, and 5,629 shares of Goldman Sachs common stock. As of 3/31/2023, 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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