# BRINGING TRANSPARENCY TO ROBO INVESTING

EDITION 26

# *The Robo Report*®
# Fourth Quarter 2022

**Condor Capital Wealth Management is proud to publish the 26th edition of the *Robo Report*®, covering the fourth quarter of 2022, and the tenth 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, Wealthfront, provides a top-tier digital experience and strikes an impressive balance between simplicity, functionality, and customization. (pg. 7)*
- *SoFi's budgeting, career coaching, live planning, low fees, and ability to manage many areas of one's financial life on a single platform combine to make SoFi the winner for Best Robo for First-Time Investors. (pg. 8)*
- *Wealthfront, Schwab's Domestic Focus, and Morgan Stanley Inflation Conscious were the decisive winning accounts for the year. (pg. 15)*
- *The major driver of fixed income performance over the last three years has been the allocation to municipal bonds. (pg. 16)*
- *Betterment announced it was transitioning to a subscription-based fee of $4 a month for smaller accounts without recurring contributions, significantly raising costs for many clients. (pg. 9)*

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*All supporting data can be found online at [theroboreport.com/data](theroboreport.com/data)*

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# *Executive Summary*

This edition of the *Robo Report*, published by [Condor Capital Wealth Management](), tracks 57 accounts at 32 different providers. The *Robo Report* continues to evolve, and this quarter, we bring you our usual data, which can be found online at https://www.theroboreport.com/data, as well as performance commentary for the quarter. This quarter, we publish our *Robo Ranking Winter Edition*, providing an in-depth look at both the qualitative factors of robo-advice platforms, as well as the performance of our underlying accounts.

Wealthfront and SoFi have topped our ranking for Best Overall Robo this year. Full details and scores for our ranking can be found in the *Robo Ranking* section of this report.

Please note that the Wealthfront account originally invested in 2016 has held a dedicated allocation to an energy holding since inception. According to portfolio allocations posted on the Wealthfront website, new accounts opened at Wealthfront do not have this “natural resources” allocation. Our main account is in a legacy portfolio model. We also track an account that was opened and invested in 2018. This account’s allocation appears closer to the current models offered at Wealthfront. Starting this quarter, we will publish the performance of both of the accounts we track and label them by the years in which they were first invested. The *Robo Ranking* scores the performance of our account as part of the ranking metrics. The ranking score is based on our legacy 2016 account to be consistent with prior rankings.

2022 was dominated by the economic aftershocks of the Covid-19 pandemic. Government spending, household savings, and pent-up demand facing off against disrupted supply chains ignited inflation in 2021. Waking up late to reality, in 2022, the Federal Reserve lurched into action, embarking on a historic rate-rising campaign. The rapid rise in rates drove current values of future cash flows downwards, decimating valuations of low profit, high growth companies and driving asset prices of value companies lower. Rising rates also hurt bondholders by providing a painful ride for both equity and fixed-income investors. Thankfully, inflation has, at last, shown signs of easing, and the Fed appears to be approaching the end of its rate hiking cycle. Bonds are delivering truly attractive yields for the first time in many years, and equity markets have risen from their lows, reflecting investors' optimism for 2023.

The pace of change in the robo-advice industry has recently slackened as the market has consolidated the winners, and most major banks, discount brokers, and wirehouses have launched a digital advice or hybrid advice offering. The most notable news of 2022 was the unraveling of the UBS-Wealthfront merger. UBS has long struggled with its robo strategy, both closing its European robo, SmartWealth, and opening the Advice Advantage robo product in the U.S. within months of each other in 2018. When the merger between Wealthfront and UBS was announced, it was unclear what that would mean for the existing robo-advice product, Advice Advantage, which is backed by SigFig. Regardless, Wealthfront will remain independent for the time being after the tie-up was abandoned last year.

In other news, Betterment announced it was transitioning to a subscription-based fee of $4 a month for those with less than $20,000 platform assets or those without monthly recurring deposits of $250 or more. Perhaps finally admitting that serving small-asset clients is not profitable with an annual fee of just 0.25%. Unfortunately, it has also not raised its minimum. This means without recurring deposits, someone who opens an account with just $500 can expect to pay the equivalent of a nearly 10% management fee.

The behemoth Vanguard continues to incrementally improve its platform. Announcing the expansion of automated tax loss harvesting for its digital-only product Digital Advisor. Vanguard is now also clearly marketing its three distinct advice tiers: Digital Advisor, Personal Advisor, and Personal Advisor Select. Personal Advisor is a hybrid-advice product with a team of advisors approach, while those with $500,000 or above get a dedicated advisor with Personal Advisor Select. While we believe dedicated advisors have long been available to those with $500,000 or more, this highest tier of services is now clearly marketed as a separate service.

For our performance and market commentary and our newest ranking winners, please read-on. We look forward to another exciting year in the robo-advice industry.

# *The Robo Ranking*®

## Bringing Transparency to Robo Investing

**Condor Capital Wealth Management is excited to publish the 10th 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.**

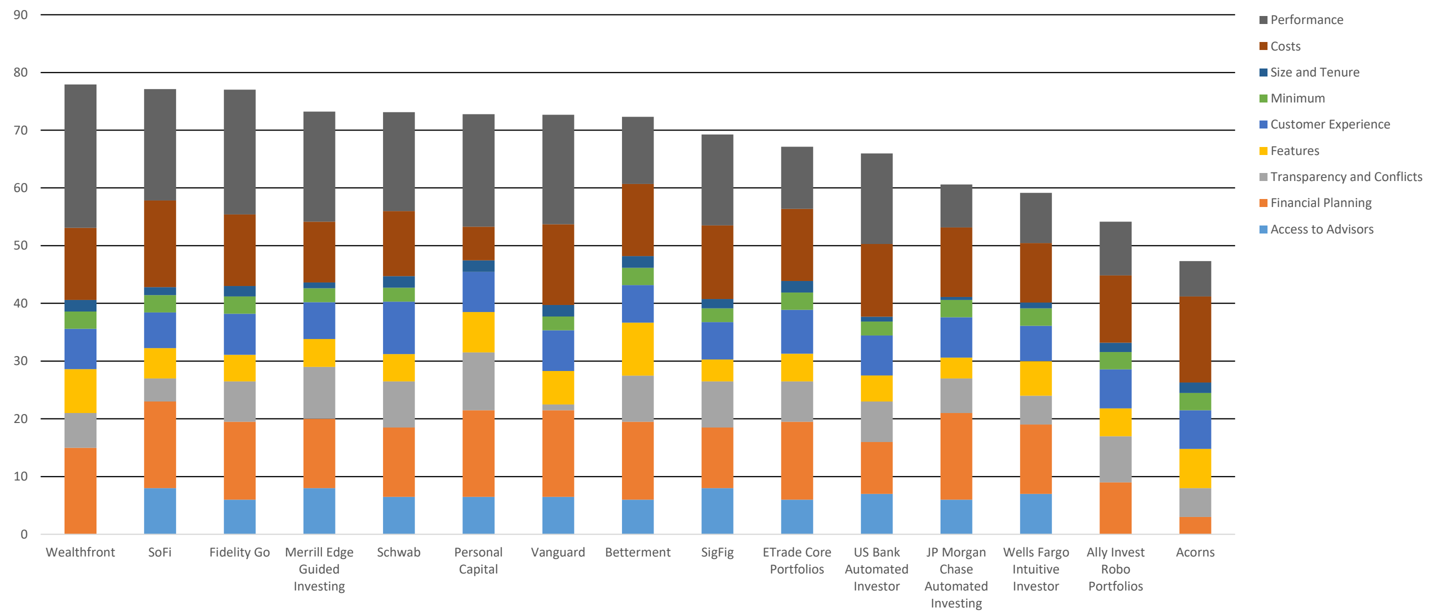
## *Introduction*

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 *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. The details of how we created the scores and *Ranking* can also be found 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Wealthfront** | 0.0 | 15.0 | 6.0 | 7.6 | 7.0 | 3.0 | 2.0 | 12.5 | 24.8 | 77.9 |
| **SoFi** | 8.0 | 15.0 | 4.0 | 5.3 | 6.2 | 3.0 | 1.4 | 15.0 | 19.3 | 77.1 |
| **Fidelity Go** | 6.0 | 13.5 | 7.0 | 4.6 | 7.1 | 3.0 | 1.8 | 12.4 | 21.6 | 77.0 |
| **Merrill Edge Guided Investing** | 8.0 | 12.0 | 9.0 | 4.8 | 6.4 | 2.4 | 1.0 | 10.5 | 19.1 | 73.2 |
| **Schwab** | 6.5 | 12.0 | 8.0 | 4.7 | 9.1 | 2.4 | 2.0 | 11.3 | 17.1 | 73.1 |
| **Personal Capital** | 6.5 | 15.0 | 10.0 | 7.0 | 7.0 | 0.0 | 2.0 | 5.8 | 19.5 | 72.8 |
| **Vanguard** | 6.5 | 15.0 | 1.0 | 5.8 | 7.0 | 2.4 | 2.0 | 14.0 | 19.0 | 72.7 |
| **Betterment** | 6.0 | 13.5 | 8.0 | 9.2 | 6.5 | 3.0 | 2.0 | 12.5 | 11.6 | 72.3 |
| **SigFig** | 8.0 | 10.5 | 8.0 | 3.8 | 6.5 | 2.4 | 1.6 | 12.8 | 15.8 | 69.3 |
| **ETrade Core Portfolios** | 6.0 | 13.5 | 7.0 | 4.8 | 7.6 | 3.0 | 2.0 | 12.5 | 10.7 | 67.1 |
| **US Bank Automated Investor** | 7.0 | 9.0 | 7.0 | 4.5 | 6.9 | 2.4 | 0.8 | 12.6 | 15.7 | 66.0 |
| **JP Morgan Chase Automated Investing** | 6.0 | 15.0 | 6.0 | 3.6 | 7.0 | 3.0 | 0.5 | 12.0 | 7.5 | 60.6 |
| **Wells Fargo Intuitive Investor** | 7.0 | 12.0 | 5.0 | 6.0 | 6.1 | 3.0 | 1.0 | 10.3 | 8.7 | 59.1 |
| **Ally Invest Robo Portfolios** | 0.0 | 9.0 | 8.0 | 4.8 | 6.8 | 3.0 | 1.6 | 11.7 | 9.3 | 54.2 |
| **Acorns** | 0.0 | 3.0 | 5.0 | 6.8 | 6.7 | 3.0 | 1.8 | 14.9 | 6.1 | 47.3 |
| **MAX** | 10.0 | 15.0 | 10.0 | 10.0 | 10.0 | 3.0 | 2.0 | 15.0 | 25.0 | 100.0 |

*Produced by The Robo Report*

# Best Robo Advisors

- *The Winner of Best Overall Robo, Wealthfront, provides a top-tier digital experience and strikes an impressive balance between simplicity, functionality, and customization.*
- *The premier examples of online digital planning tools come from the three winners for Best Robo for Digital Financial Planning: Personal Capital, Wealthfront, and Schwab Intelligent Portfolios Premium.*
- *SoFi's budgeting, career coaching, live planning, low fees, and ability to manage many areas of one's financial life on a single platform combine to make SoFi the winner for Best Robo for First-Time Investors.*
- *While a long-time favorite of ours for those just starting on their investing journey, we have moved Betterment to the Honorable Mention for First-Time Investors due to its change in fee structure.*

## Best Overall Robo Advisor

- **Winner: Wealthfront**
- **Runner-up: SoFi**

Wealthfront is our selection for the Best Overall Robo in this year's *Robo Ranking Winter Edition*. Wealthfront is one of the pioneers in the industry and is one of the few remaining independent providers, although it was nearly acquired by UBS last year. The digital experience offered by Wealthfront is top-tier and strikes an impressive balance between simplicity, functionality, and customization. Wealthfront has had a strong platform that has been a leader in innovation since its founding over a decade ago. Wealthfront is also one of the only platforms that have stuck to its original digital-only offering. While you can now call in and receive operational support from a small, in-person team, Wealthfront's intention is to make its online experience strong enough to eliminate the need for live advisors. The online digital planning experience is rivaled by only a few other products on the market. The platform offers a version of direct indexing, has introduced innovative customization options, and now offers ESG-themed portfolios. Wealthfront was also a pioneer in bringing automated tax-loss harvesting into the hands of any retail investor. Along with Betterment, Wealthfront sets the benchmark for low fees at 0.25%. We look forward to future feature releases from Wealthfront as they have always been on the forefront of innovation within the space.

Wealthfront's all-around score in this version of the *Ranking* is in large part due to the performance of our account in 2022. While we cover this outperformance in other areas of the *Report* in more detail, investors should note one key facet of our model. The portfolio was first invested in 2016 and has long held a dedicated allocation to an energy-focused ETF. Since our first investment, models at Wealthfront have been updated to no longer include this allocation to energy, but likely due to tax considerations, our portfolio continued to hold energy. Those following the markets know that energy has been one of the few areas with positive returns in the market this year. Not all investors will have

> *Wealthfront has had a strong platform that has been a leader in innovation since its founding over a decade ago.*

experienced the fantastic outperformance by Wealthfront that we did.

SoFi has greatly expanded the types of financial products it offers over the past few years as it ambitiously looks to compete with national banks for retail investing and banking business. While this ranking focuses on the investing products SoFi offers, it is worth noting the depth of the platform as a whole. On the SoFi platform, individuals can find bank accounts, credit cards, mortgages, insurance, self-directed investing, crypto, and of course, their original business line of student loan refinancing. The checking accounts are free, the savings accounts offer high interest rates, the credit cards offer 2% cash back, self-directed trading is commission free, and the Auto-Invest robo product has no management fee. While this line-up of low- to no-cost products is compelling, it is important to note that SoFi has grown with significant venture capital investment, and growth has likely been a priority over profitability. We mention this because as the company matures and the focus shifts towards profits, we will not be surprised if SoFi starts to introduce more fees for some of its products.

*SoFi has greatly expanded the types of financial products it offers over the past few years as it ambitiously looks to compete with national banks for retail investing and banking business.*

All SoFi members get free access to live financial planning services, which is one reason we like the investing platform. SoFi receives a high score in financial planning due to the quality financial plan a user can receive through the live planning option. We note that those looking for a top-of-class digital planning experience should consider our best Robo for Digital Financial Planning winners, as SoFi planning is primarily through sessions with live planners. SoFi does offer a strong budgeting tool as well as career coaching for those interested. The ability of live planners to deliver a comprehensive financial plan, low costs, and strong portfolio performance has driven SoFi to a top spot in our Ranking.

## *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 to reward those investors that seek the best bottom-line quantitative metrics, specifically, returns and fees. For the three-year period ending December 31st, 2022, a period that contained about two and a half years of falling interest rates and a year of rapidly rising rates, our Wealthfront portfolio was the top performer, followed by Fidelity Go as the Runner-up.

The driving force behind Wealthfront's equity outperformance was notable investments in the energy sector, proving valuable during recent inflationary times. In 2022, the energy sector outperformed the S&P 500 by a whopping 80%, as energy stocks were up over 63% while the S&P 500 was down 18%. Investors in Wealthfront's style of portfolio benefitted tremendously last year from having a dedicated energy holding which worked as both an inflation hedge and benefited from the disruption of energy markets.

*Wealthfront portfolio was the top performer, followed by Fidelity Go as the Runner-up.*

While Wealthfront benefited over the past year from its tilt towards the value sector of energy, growth as a whole outperformed value over the past three years. During the 3-year trailing period ending December 31st, 2022, the Russell 3000 Growth index outperformed the Russell 3000 Value index by about 5% per year on average.

Fidelity Go generally maintains a market-neutral position towards growth and value. Many others in the robo universe have specific tilts towards value, which over long periods, has been a drag on performance.

On the fixed-income side of the portfolio, both portfolios allocate heavily to municipal bonds. Muni's have held up well and have been a top-performing fixed income asset class over the past three-years. Our Fidelity Go account allocates the entirety of its fixed income to municipals. In comparison, Wealthfront augments municipal holdings with TIPS, another strong performer in 2022 and the three-year period.

*Additionally, both portfolios held below-average allocations to the parts of the market that detracted from performance.*

Additionally, both portfolios held below-average allocations to the parts of the market that detracted from performance, namely international stocks and small-cap stocks, at a time when these assets underperformed significantly.

## *Best Robo for First-Time Investors*

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

SoFi is a great option for first-time investors. One reality for many young Americans is the investing journey really starts on a path to paying down student loans or other debt. SoFi is a platform where student borrowers can explore options to consolidate debt as a first step and work their way towards saving for long-term goals over time. SoFi has other features that are also tailored to those earlier in their investing career. SoFi not only offers access to live financial planners but also to career coaches. Young investors can benefit greatly from maximizing and growing their human capital at early stages in their lives. SoFi Relay is also a quality budgeting tool, allowing outside accounts to be tracked and helping investors with smart budgeting. Budgeting, career coaching, live planning, low fees, and the ability to manage many areas of one's financial life on a single platform combine to make SoFi the winner for Best Robo for First-Time Investors.

We award Fidelity Go with the Runner-up in this category thanks to exceptionally low costs, an evolving and accessible digital platform, and strong long-term returns. When looking at the costs of Fidelity Go, an investor will find no-cost underlying Fidelity Flex funds. Furthermore, from a management fee perspective, the first $25,000 is managed for free, making it especially attractive for those with small sums to get started. When looking at the portfolio itself, it boasts top-quartile long-term performance thanks to a simple and elegant portfolio that tilts towards large-cap U.S. stocks, which have performed well on a relative basis. Finally, when looking at the digital platform itself, Fidelity has a mobile app called Spire, which is geared toward the millennial generation. It contains quick-read articles on topics like wedding planning and retirement while also allowing the user to easily monitor their accounts with various financial goals all in one place. The team at Fidelity continues to innovate its digital platform while offering a low-cost competitive product making it a great choice for first-time investors.

*We award Fidelity Go with the Runner-up in this category thanks to exceptionally low costs, an evolving and accessible digital platform, and strong long-term returns.*

We award Betterment the Honorable Mention for First-Time Investors. While a long-time favorite of ours for those just starting on their investing journey, we have moved Betterment to the Honorable Mention category in this edition of the *Robo Ranking* due to its change in fee structure. Now, investors must have either $20,000 in platform assets or a $250 recurring monthly contribution to receive the 0.25% management fee, those not meeting these requirements pay $4 a month. This means for a $1,000 account, this equates to around a 4.8% annual fee. We no longer feel this is the best option for those that cannot meet the criteria for the 0.25% annual fee and must pay the $4 subscription.

Betterment is one of the longest-standing robo advisors and one of the few that remains independent. Building from the ground up has helped Betterment achieve an easy, intuitive interface with a friendly feel, making it a great home for those new to investing.

Digital planning at Betterment is a quality experience. Betterment balances easy-to-use planning features while still having the ability to complete quality goal-based plans. Each goal allows the user to model different inputs, whether deposits, time horizon, or various scenarios for the retirement plan. The ability to model hypothetical changes to a user's financial model can serve as an effective education tool, making it particularly attractive for a new investor. Users can bring in outside accounts for holistic planning and track progress on multiple independent goals on a single dashboard.

For those who want more than a basic indexed portfolio, Betterment has added multiple thematic portfolios over the years. It now offers three ESG-themed portfolios: social, climate, and broad impact. Betterment is also a great choice for first-time investors as the platform can grow with clients as their situation grows in complexity. Betterment Premium offers unlimited access to CFP-credentialed planners for a modest increase in price. While many first-time investors may not want continual access to a CFP planner, especially if they are young and still in the early phases of accumulation, they may want some help from live planners to get them started. Betterment offers a-la-carte packages of sessions with live planners without needing to sign up for a higher service tier.

## *Best Robo for Digital Financial Planning*

- **Winner: Personal Capital**
- **Runner-up: Wealthfront**
- **Honorable Mention: Schwab Intelligent Portfolios Premium**

The democratization of professionally managed portfolios is the most significant impact robo-advisors have had on the financial advice industry. Not only have robos democratized managed accounts and access to advice, but they have also brought high-quality financial plans to anyone with an internet connection and willingness to spend some time building a plan. The winners in this category are the best-in-class digital planners on the market. And to top it off, Personal Capital and Wealthfront make their digital plans available to anyone without needing to open an investment account.

> *Not only have robos democratized managed accounts and access to advice, but they have also brought high-quality financial plans.*

The premier examples of online digital planning tools come from the three winners of Best Robo for Digital Financial Planning: Personal Capital, Wealthfront, and Schwab Intelligent Portfolios Premium. One area where these tools stand out is they not only can bring in data on outside accounts, but they can combine multiple goals into a single, holistic financial plan. The capability to build in future events, such as Social

Security, pension or other retirement income, windfalls, and other custom inputs, aids in their ability to plan effectively. The three winners take these tools and present them in a digestible, easy-to-use manner. Personal Capital and Wealthfront include these robust planning tools in the standard, free-to-use versions of their Services.

Personal Capital had among the most wide-ranging financial planning tools measured in our rankings. The robo advisor offers a variety of in-depth tools to aid in planning for retirement, savings, home purchase, education, and other goals. The retirement planner allows you to set up several spending goals alongside future income events and calculates a probability showing how likely you are to succeed in these goals. The retirement fee analyzer looks into your account's holdings to identify what portion of your investments may be lost to expense ratios. Further, the planner gives you the power to map out your current savings, an emergency fund, and allows you to plan to pay down debt. The Investment Checkup feature goes in-depth to explain to you how and why you should be rebalancing your portfolio for the most optimal outcome, taking into account risk tolerance, age, and portfolio composition, including the ability to analyze positions held elsewhere. Another nice feature offered is a consolidated display of your net worth, monthly cash flows, and other useful views of your finances in a single dashboard. Additionally, Personal Capital has a retirement asset deaccumulation tool called Smart Withdrawal to help design a plan to draw down assets during retirement in a tax-efficient way. The wide array of tools, an integrated multi-goal plan, the ability to customize inputs specific to the investor, and Smart Withdrawal combine to make Personal Capital our top Robo Advisor for Digital Financial Planning.

*Personal Capital had among the most wide-ranging financial planning tools measured in our rankings.*

Wealthfront launched as, and continues to be, a digital-first product with the goal of eliminating the need for human advisors and the higher fees that typically come with them. Its digital planning tools go a long way in accomplishing this goal. The tool has specific modules for retirement, education savings, and taking time off to travel, as well as a home buying module that uses data from real estate tech firm Redfin. The planning module itself is not only built with a simple and easy-to-use interface but also has a wide variety of input settings, allowing users to drill down and build complex plans. Retirement income, Social Security, real estate, windfalls, and other details can be modified within the planner.

*Wealthfront launched as, and continues to be, a digital-first product with the goal of eliminating the need for human advisors and the higher fees that typically come with them.*

Another feature we like with Wealthfront is Self-Driving Money. Self-Driving Money is a set of automated or semi-automated features to help investors sweep and invest excess cash held in their bank accounts. This is designed to help users integrate their long-term goals with their month-to-month saving and spending habits. Wealthfront's planner is the epitome of innovation across the robo-advisor universe.

Schwab Intelligent Portfolios at the Premium service level is another compelling planning option for robo investors. The financial plan can be built collaboratively with a CFP-credentialed live planner alongside a built-in integration with MoneyGuidePro, an institutional-quality suite of planning tools. Similar to other winners, Schwab has both the ability to model different goals and integrate them into a single holistic plan. The tool also has the ability to model different types of income, life events, scenarios, and other areas to allow for a higher level of customization.

Schwab also goes above and beyond most other planners with its Schwab Intelligent Income tool. Intelligent Income is a specific module that helps users model spending during retirement. It has automated withdrawal features to help investors spend down assets in a tax-efficient way. It also can generate a monthly "paycheck." Most people spend their adult lives learning to budget based on regular paychecks. By replicating the monthly cash flows of paychecks, Schwab helps ease the transition from working to drawing down your nest egg. Schwab Intelligent Portfolios Premium is one of the best planning experiences available in the robo-advice universe.

## *Best Robo for Complex Financial Planning*

- **Winner: Vanguard Personal Advisor**
- **Runner-up: Personal Capital (now Empower)**

While some of the digital planning tools on the market have enough features to model many complex situations, we believe those with complex planning needs can still benefit from live planners. Vanguard Personal Advisor championed the "hybrid" advice model and remains our top choice for those with complex planning needs. While Personal Advisor still leaves something to be desired on the digital interface, it provides tremendous value as it costs just 0.30% in management fees. With a minimum investment of $50,000, users can work with a live advisor to model multiple financial goals.

*Vanguard Personal Advisor championed the "hybrid" advice model and remains our top choice for those with complex planning needs.*

Additionally, for those with $500,000 or more, Vanguard Personal Advisor Select provides a dedicated advisor to clients at the same low management fee.

Investors can view a comprehensive illustration of their assets for a full picture. When we consider that traditional financial advice relationships often ask for a 1% management fee, Vanguard Personal Advisor has paved the way for a new kind of service.

The Runner-Up for Complex Financial Planning provides a combination of live planning with one of the best digital planners on the market. Personal Capital is one of the more expensive options available, priced starting at 0.89%, and it carries a high minimum of $100,000. On top of its stellar online planning, budget, and asset-tracking tools, Personal Capital stands out in a few other ways. Personal Capital offers a few investment options, including an SRI option and direct indexing. Additionally, for those with more than $1,000,000 under management, there are custom allocation options, including private equity and other alternative investments. On top of the comprehensive retirement planning features, Personal Capital offers a feature called Smart Withdrawal. This tool simplifies what can be the complex process of determining where to withdraw retirement spending funds to do so in the most tax-efficient manner. This feature can not only help determine tax-efficient withdrawals, but it will suggest whether Roth conversions or tax gain harvesting should be considered. While Personal Capital is priced higher than most other products we cover, it represents a next-generation combination of technology and live advisors.

*On top of the comprehensive retirement planning features, Personal Capital offers a feature called Smart Withdrawal.*

## *Robo Ranking Facts (Results as of 12/31/2022)*

| | 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] | 0.98% | -1.64% | 0.10 | No minimum | $3/month for Personal; $5/month for Personal Plus | 0.04% |
| Ally Invest[9] | 1.55% | -0.86% | 0.14 | $100 | 0.30% annually; Also offers 'cash-enhanced' portfolio with 30% invested in cash and no management fee | 0.06% |
| Betterment[27] | 2.01% | -0.71% | 0.17 | Digital: No minimum; Premium: $100,000 | $4/ month or 0.25% anually with $20,000 in platform assets or $250 monthly deposits; additional 0.15% annual fee for Premium | 0.09% |
| Etrade Core Portfolios[21] | 1.78% | -0.63% | 0.15 | $500 | 0.30% annually | 0.04% |
| Fidelity[33] | 3.09% | 0.63% | 0.24 | $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[7] | 0.97% | -0.92% | 0.09 | 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[31] | 2.85% | 0.21% | 0.22 | 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% |
| Personal Capital[4] | 3.39% | 0.07% | 0.24 | $100,000 | 0.89% annually; discounted tiered pricing at higher asset levels | 0.09% |
| Schwab[5] | 2.30% | 0.21% | 0.19 | 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% |
| SigFig[6] | 2.45% | -0.24% | 0.20 | $2,000 | No fee for the first $10k; 0.25% annually for balance over $10k | 0.06% |
| SoFi[17] | 2.89% | 0.26% | 0.22 | $1 | No management fee | 0.04% |
| US Bank[28] | 2.28% | 0.04% | 0.18 | $1,000 | 0.24% annually | 0.09% |
| Vanguard[43] | 2.76% | 0.19% | 0.22 | 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[44] | 4.69% | 1.95% | 0.32 | $500, some additional portfolio features require a higher minimum | 0.25% annually | 0.09% |
| Wells Fargo[14] | 1.46% | -1.06% | 0.14 | $500 | 0.35% annually; discounted relationship pricing may be available | 0.15% |

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Returns are net of fees and from 12/31/2019 - 12/31/2022. The weighted average expense ratio calculations exclude cash holdings from the portfolio

# Top Performers

## 1-Year Trailing Top Performers

| | Best | 2nd | 3rd |
|---|---|---|---|
| **Total Portfolio** | Wealthfront (Risk 4.0 ; 2016) | Schwab Domestic Focus | Morgan Stanley Inflation Conscious |
| **Equity** | Wealthfront (Risk 4.0 ; 2016) | Interactive Advisors | Schwab Domestic Focus |
| **Fixed Income** | Zacks Advantage | Marcus Invest Smart Beta | Marcus Invest SRI |

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## 3-Year Trailing Top Performers

| | Best | 2nd | 3rd |
|---|---|---|---|
| **Total Portfolio** | Wealthfront (Risk 4.0 ; 2016) | Zacks Advantage | Schwab Domestic Focus |
| **Equity** | Wealthfront (Risk 4.0 ; 2016) | Zacks Advantage | Schwab Domestic Focus |
| **Fixed Income** | Zacks Advantage | Schwab Domestic Focus | Schwab |

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## 5-Year Trailing Top Performers

| | Best | 2nd | 3rd |
|---|---|---|---|
| **Total Portfolio** | Wealthfront (Risk 4.0 ; 2016) | Zacks Advantage | Fidelity Go |
| **Equity** | Zacks Advantage | Wealthfront (Risk 4.0 ; 2016) | Morgan Stanley SRI |
| **Fixed Income** | Schwab | SoFi | Vanguard P.A.S. |

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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 12/31/2022.*

# Performance Commentary

- *The year 2022 will go down in financial history as one of the worst for the "60/40" investor.*
- *Wealthfront, Schwab's Domestic Focus, and Morgan Stanley Inflation Conscious were the decisive winning accounts for the year.*
- *The major driver of fixed income performance over the last three years has been the allocation to municipal bonds.*
- *The top robo advisors over the five-year trailing period were supported by low fees.*

## Market Backdrop

The year 2022 will go down in financial history as one of the worst periods for the "60/40" (60% stocks/40% bonds) investor. The year serves as a unique stress test of what can happen to investment returns when the Federal Reserve increases the Federal Funds' target rate from near-zero levels to over 4% in a single calendar year. Consequently, it was a bad year for many asset classes and a historically bad year for bond investors. According to some historians, 2022 was the worst year for bonds in over 250 years. It was also a poor year for stocks.

*According to some historians, 2022 was the worst year for bonds in over 250 years.*

The Bloomberg Aggregate Index posted losses of about 13.01%, while the S&P 500 posted a return of -18.13% for the year. The year 2022 proved to be a year that was not so much defined by growing investment portfolios but was instead defined by mitigating losses.

The world continues to watch closely as the Russia/Ukraine war unfolds. This did not bode well for European risk assets in 2022 as the region suffered from rising prices and an ECB that is on a path of increasing rates. One of the few bright spots for asset prices was the surge in energy stocks, as sanctions on Russia have had major implications on the global supply of energy. Despite the high inflation numbers across the globe, this was a year where cash and cash-like investments were some of the few places to hide.

One area of the market that fell precipitously in 2022 was the equities that were the darlings of Wall Street and Main Street in recent years, namely companies with especially high growth rates, little-to-no earnings, and expensive valuations. These companies were high fliers for years but fell sharply as borrowing costs and discount rates increased. As a result of some of these factors, the Russell 3000 Growth Index fell about 28.97% for the year, while the Russell 3000 Value Index fell 8.01%. This change in stock market leadership has resulted in a wide dispersion between 2022's winning robo advisors versus those who won in the *Robo Reports* in years prior to 2022.

*Despite the high inflation numbers across the globe, this was a year where cash and cash-like investments were some of the few places to hide.*

## One-Year Performance

While the impact of inflation and rising interest rates have led to declines across our robo advisor accounts, some have held up much better than others. Our Wealthfront portfolio (2016 vintage), Schwab's Domestic Focus, and Morgan Stanley Inflation Conscious were the winning accounts, boasting modest single-digit outperformance versus their respective Normalized Benchmark, a proprietary benchmarking process that compares each account against a comparable asset allocation benchmark.

From an equity standpoint, Wealthfront's portfolio was the winning account thanks to its allocation to energy stocks. The robo's allocation to VDE, the Vanguard Energy Fund, was a significant boon to portfolio performance. For reference, the VDE ETF returned over 60% for the year. Ranging between 5% and 10% of the equity portfolio, the dedicated energy portion was an impactful hedge this year against general inflation and the rising energy prices from the war in Ukraine.

*From an equity standpoint, Wealthfront's portfolio was the winning account thanks to its allocation to energy stocks.*

Schwab's Domestic Focus portfolio benefitted from its implementation of ETFs weighted by fundamentals as opposed to market capitalization. For example, the robo's allocation to FNDX, the Schwab Fundamental U.S. Large Company Index ETF, posted a modest mid-single-digit loss for the year. These fundamentals-weighted ETFs did a nice job mitigating losses in such a challenging year.

Morgan Stanley's Inflation Conscious portfolio performed well. Holdings in an energy pipeline fund and commodities fund, which both returned more than 15% in 2022, helped drive this portfolio's outperformance.

The Zacks Advantage portfolio achieved noteworthy fixed income performance. Whereas the average robo's fixed income returned about -11.01% for bonds in 2022, Zacks returned just -4.10%. Limiting duration was a key driver of this outperformance. As market yields rose, bond prices fell across the board, but less so for those holding bonds with shorter maturities. Short-term municipal bond funds make up over half of Zack's fixed income allocation and were down significantly less than the greater bond market.

## Three-Year Performance

Our Wealthfront, Zacks, and Schwab Domestic Focus portfolios posted first, second, and third place finishes, respectively, for the three-year period ending 2022. The top performers tended to tilt significantly towards domestic equities while underweighting foreign stocks. Additionally, the winners tended to allocate to municipal bonds over taxable options.

*As market yields rose, bond prices fell across the board, but less so for those holding bonds with shorter maturities.*

Over the last few years, one of the most pronounced areas of outperformance has been the returns of U.S. equities over their counterparts in international developed and emerging market countries. Whether the outperformance is due to the innovative domestic marketplace or the significant challenges abroad, the U.S. has been an excellent relative performer. For the three-year period ending December 31st, 2022, the S&P 500 had an annual return of 7.64% while the MSCI EAFE Index posted a return of just 1.44%. Zacks, Schwab Domestic Focus, and our Wealthfront portfolio had some of the highest percentages of U.S. equity exposure expressed as a percentage of total equities. The trend here was clear: sticking with domestic stocks was a better-returning strategy than a more globally diversified approach.

Another major driver of performance over the last three years has been allocations to municipal bonds. As the portfolios sit today, Zacks had the highest allocation to municipal bonds, comprising nearly the entire bond portfolio, while earning the top score in the fixed-income category. Meanwhile, the Schwab Domestic Focus portfolio, the second place robo for fixed income, held about two-thirds of its bond portfolio in municipals. For the three-year period ending December 31st, 2022, the iShares Municipal Bond ETF (MUB) had an annualized return of -0.54%, while the iShares Bloomberg Aggregate Bond ETF (AGG) posted an annualized return of -2.80%. As revenues and balance sheets of municipalities remain solid, investors may continue to be rewarded for selecting these tax-advantaged issues.

*Another major driver of performance over the last three years has been allocations to municipal bonds.*

## *Five-Year Performance*

When reflecting on the last five years of investment performance, Wealthfront (2016) Zacks Advantage, and Fidelity Go won the top three positions for Total Portfolio performance for the five-year time period.

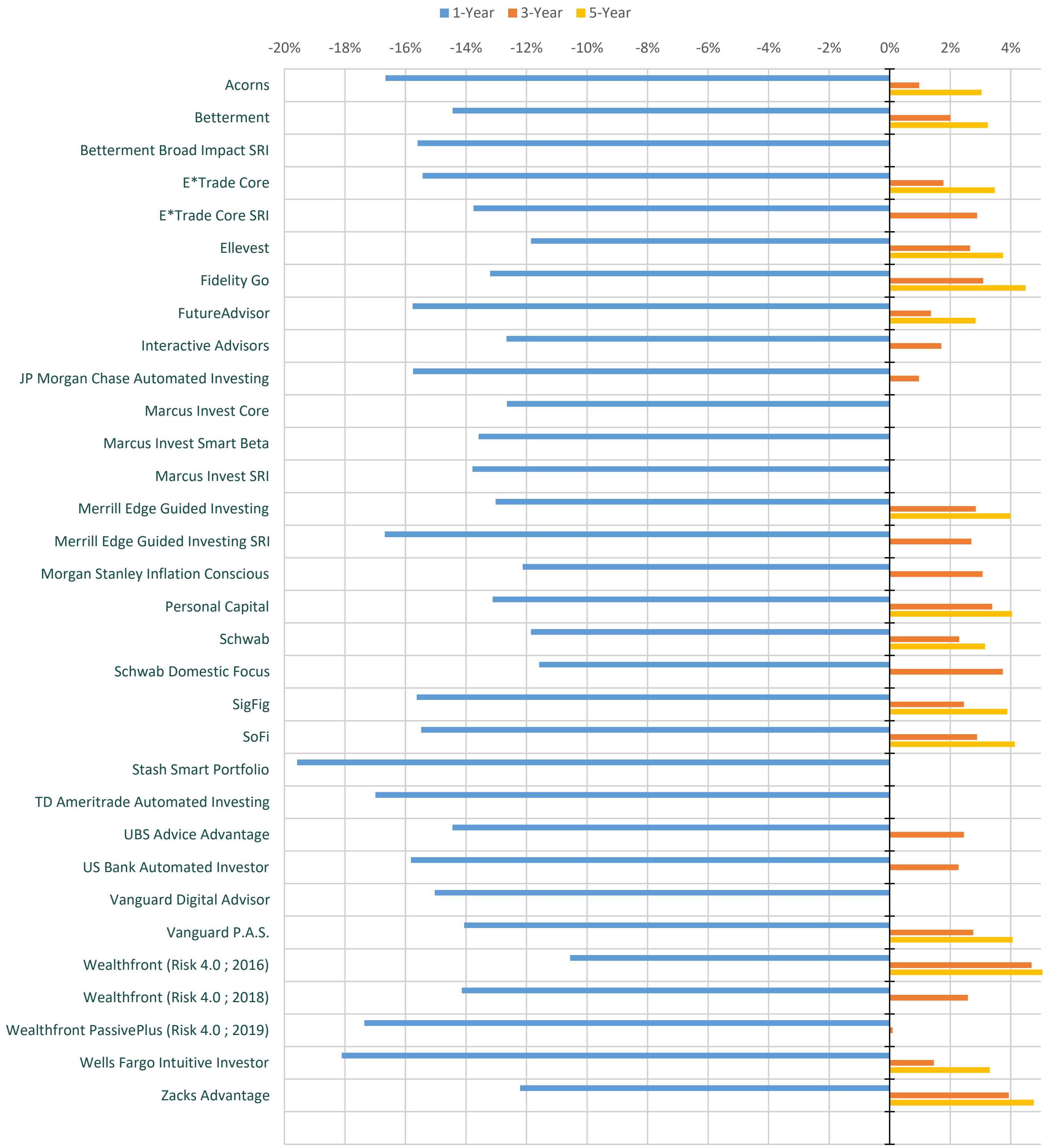
The Fidelity account had support from a few core tailwinds. First, growth stocks demonstrated significant leadership over value stocks. This five-year period was characterized by a low-interest-rate regime and a robust demand for technology, supporting the growth portion of the market. Both Fidelity and Zack's are slightly tilted towards growth equities compared to the average of our other robo portfolios. Many other portfolios have distinct tilts towards value equities. These growth-tilted allocations supported performance over the five-year period.

On the bond side, Fidelity is part of the group of robo advisors heavily allocated to municipal bonds. Municipals outperformed taxable bonds by about 1.25% on an annualized basis for the five-year period ending 12/31/2022.

Another tailwind for Fidelity was the exceptionally low expense ratios of funds employed. Whereas the average robo advisor had a weighted-average expense ratio of 0.17% across our study group, Fidelity posted a 0.00% fee as it uses the Fidelity Flex funds. These are funds that are completely free of charge. Wealthfront and Zacks both show a low fee of 0.09% for funds used in their portfolios. Together, these three accounts are examples of low-cost funds performing well over the long haul. Although the impact of fees may be subtle over a period spanning just a few years, it can be one of the most pronounced differentiators over long periods.

*Although the impact of fees may be subtle over a period spanning just a few years, it can be one of the most pronounced differentiators over long periods.*

## *Total Portfolio Performance*



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**Last updated: 9/30/2021**

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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 increasing 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 Digital Advice LLC'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. Digital Advice LLC is owned by Condor Capital Wealth 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 12/31/2022, the total size of the position was 38,584 shares of Schwab common stock, 23,189 shares of JP Morgan Chase common stock, and 5,722 shares of Goldman Sachs common stock. As of 12/31/2022, 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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