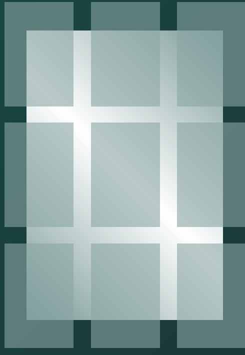

BRINGING TRANSPARENCY TO ROBO INVESTING

EDITION 21

The Robo Report® Third Quarter 2021

We are proud to publish the 21st edition of the *Robo Report*®, covering the third quarter of 2021. 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:

- *Which robo advisors were most prepared to fight inflation in 2021? (pg. 5)*
- *Marcus Invest and T. Rowe ActivePlus take the top spots for 3-year performance (pg. 7)*
- *Understanding the big picture: what has driven some popular robos to significantly outperform others? (pg. 7)*
- *Trends emerge in winning bond portfolios as SigFig and Schwab shine (pg. 8)*
- *Investment insights from Acorns' major 2020 portfolio rebalance (pg. 8)*
- *The latest robo advisor performance chart (pg. 10)*

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Executive Summary

The *Robo Report*® has evolved over the five years it has been in publication. It has grown from a report that covered less than ten providers to one that covers every major player in the robo advice space. The *Report* has grown along with the burgeoning industry. We have always produced and distributed our research for no cost to our readers. As the *Report* has grown, the resources required to produce it have also grown. We recently analyzed the resources that go into the *Report* and have decided to make some changes going forward to help us continue creating it in a sustainable way.

We will continue to produce the *Report* on a quarterly basis, including calculating and publishing returns data. Each quarter we will write a performance commentary. Industry trends and other articles will still be a part of some reports but not necessarily in each edition. The semi-annual *Robo Ranking* will also continue to be published as part of our fourth- and second-quarter editions. While we will continue to publish performance returns each quarter, some other data points, like the AUM table, portfolio allocation information, and Sharpe ratios, will not be updated every quarter but will be updated at least once a year. An important reminder: All of our data tables are now found online: www.backendbenchmarking.com/data/. Lastly, we have started to be more selective with the providers we cover. We still aim to track all major providers in the industry, but some smaller providers or products that have not gained significant traction may be removed from the *Report*. We are taking these steps to help us continue to provide our research and to do it at no cost to our readers.

We appreciate the support and feedback we have had on our *Report* over the past five years, and we look forward to continuing to serve the community of current and prospective robo advice clients.

Top Performers

Year-to-Date Top Performers

	Best	2nd	3rd
Total Portfolio	Schwab Domestic Focus	Morgan Stan. Inflation Conscious	Wealthfront
Equity	Schwab Domestic Focus	Zacks Advantage	Wealthfront
Fixed Income	Schwab Domestic Focus	Fidelity Go	Fifth Third Bank OptiFi

1-Year Trailing Top Performers

	Best	2nd	3rd
Total Portfolio	Schwab Domestic Focus	Schwab	Morgan Stan. Inflation Conscious
Equity	Schwab Domestic Focus	Schwab	Morgan Stan. Inflation Conscious
Fixed Income	Schwab Domestic Focus	Fidelity Go	Fifth Third Bank OptiFi

3-Year Trailing Top Performers

	Best	2nd	3rd
Total Portfolio	Marcus Invest Core IRA	T. Rowe Price ActivePlus IRA	US Bank Automated Investor
Equity	Marcus Invest Core IRA	Morgan Stanley SRI	SoFi
Fixed Income	E*Trade Core	SigFig	Schwab

5-Year Trailing Top Performers

	Best	2nd	3rd
Total Portfolio	SigFig	Fidelity Go	Vanguard P.A.S.
Equity	Fidelity Go	SigFig	Vanguard P.A.S.
Fixed Income	Schwab	SigFig	E*Trade Core

Total Portfolio winners are based on the portfolio's return vs. the Normalized Benchmark. Returns are net of fees and are as of 09/30/2021.

Performance Commentary

- *Schwab's Domestic Focus, Morgan Stanley's Inflation Conscious option, and Wealthfront's standard portfolio lead as inflation-protection stars in 2021*
- *Five-year stock portfolio results: winners were driven by size, style, and limiting alternatives*
- *Top long-term bond performers boast duration as a major driver of relative returns*
- *SRI portfolios continue to post strong returns*

Market Overview

The stock market took a breath in the third quarter, posting just 0.58% returns, bringing year-to-date returns to 15.91% for the period ending September 30th, 2021. Investors continue to process multiple market influences underscored by supply chain disruptions driven by pent-up demand from economies reopening. The first two quarters included U.S. GDP growth of 6.3% and 6.7% for the first and second quarters, respectively, while the third quarter was below expectations, posting just 2% GDP growth. Still, S&P 500 earnings continue to impress as analysts project S&P 500 earnings to grow over 25% in the third quarter and over 20% in the fourth quarter. The faster-than-expected rebound from the COVID-19 shutdown helped support a rising interest rate and rising inflation environment.

The U.S. 10-Year Treasury Rate rose from roughly 0.9% to 1.5% for the year-to-date period ending September 30th, 2021, as the monthly CPI showed five consecutive months of 5% year-over-year inflation. This led to -1.55%. returns for the Bloomberg U.S. Aggregate Bond Index for the first three quarters of the year. Municipal bonds held up better, posting positive returns, while TIPs posted north of 3.5% returns for the same period. This proved to be an interesting year to monitor which robo advisors have portfolios positioned for rising inflation and rising interest rates.

> *This proved to be an interesting year to monitor which robo advisors have portfolios positioned for rising inflation and rising interest rates.*

On the international front, headlines out of China regarding its mega-real estate developer Evergrande missing debt payments proved detrimental for international investors. The MSCI China Index returned negative -17.93% for the third quarter, contributing to the MSCI Emerging Markets Index returning below -1% for the year-to-date period ending September 30th, 2021. Still, there has been significant positive news overseas as vaccination rates rose and economies continued to make progress towards reopening. The latter helped drive significant earnings growth in the second quarter. As developed countries proved resilient in this year's complex market environment, robo advisor investors generally showed steady returns; however, some were much more prepared than others.

Year-to-Date: Inflation-Prepared Robos Thrive

For the first three quarters of 2021, the top three best performing robo advisors for total portfolio performance against their Normalized Benchmark were Schwab's Domestic Focus portfolio, Morgan Stanley's Inflation

> *Investors in Morgan's Inflation Conscious portfolio can rest assured that their thematic portfolio followed through with its theme.*

Conscious portfolio, and the standard Wealthfront option. These are notable winners for a few reasons. First, considering the recent rise in inflation, investors in Morgan's Inflation Conscious portfolio can rest assured that their thematic portfolio followed through with its theme. Wealthfront's allocation to an energy ETF also boosted performance in light of rising energy prices. Lastly, Schwab Domestic Focus stands out for winning both year-to-date top equity and year-to-date top bond performance.

When looking inside the winning portfolios, Morgan's Inflation-Conscious portfolio and Wealthfront had specific allocations that proved to be timely choices. Morgan invests in TPYP, a pipeline fund, and PDBC, a diversified commodities fund, which are roughly 11% and 7.5% of the portfolio's equity allocation, respectively. TPYP returned 30.69% and PDBC returned 37.94% for the first three quarters of the year as energy prices soared. Wealthfront benefitted from similar portfolio construction as its allocation to VDE, the Vanguard Energy ETF, was up over 45% year-to-date while comprising roughly 10% of Wealthfront's equity portfolio. Investors should note that the recent inflationary period coincided with multiple factors that specifically bolstered energy companies so these may not be representative of all inflationary environments. While gold is traditionally an asset class that is frequently used to hedge against inflation, it has underperformed, with the IAU ETF down over -7.5% for the first three quarters.

TPYP was up 30.69% and PDBC was up 37.94% for the first three quarters of the year as energy prices soared.

Schwab Domestic Focus generated strong relative returns across its portfolio. The portfolio's selection of index funds weighted by fundamentals, like retained operating cash flow and dividends, were great performers. The international fundamentals-weighted fund, FNDF, and the small-cap fund, FNDA, were significant outperformers of their non-fundamentally weighted counterparts; FNDF returned roughly 4% more than Schwab's standard international ETF, while FNDA returned over 10% more than Schwab's small-cap ETF. Winning the top spot in the total portfolio category requires outperforming in some categories and Schwab had success on this front.

The international fundamentals-weighted fund, FNDF, and the small-cap fund, FNDA, were significant outperformers of their non-fundamentally weighted counterparts.

On the fixed income side of the portfolio, the Schwab Domestic portfolio consisted of roughly one-third TIPs and two-thirds municipal bonds. Fidelity Go and Fifth Third OptiFi took the second and third place awards, respectively, for best bond performance driven by nearly 100% municipal bond portfolios. TIPs were a strong choice this year considering rising inflation levels, while municipal bonds proved to be attractive options for investors seeking tax-efficient yield. If high-income investors are concerned with inflation, Schwab's fixed income has been particularly well positioned. Fidelity Go and Fifth Third OptiFi are also prudent choices for non-retirement accounts.

Returns of Select Assets:

Ticker	Name	Total Return (12/31/20 - 09/30/21)
IAU	iShares Gold Trust	-7.86%
VDE	Vanguard Energy ETF	46.94%
TPYP	Tortoise North American Pipeline	30.69%
PDBC	Invesco Optimum Yield Diversified Commodity	37.94%
SPX	S&P 500 Index	15.91%
FNDX	Schwab Fundamental U.S. Large	20.66%

Marcus & T. Rowe Price Make a Splash in Three-Year Returns

In previous *Robo Reports*, we discussed the hiccups and false starts made by Goldman Sachs as it announced and retracted the launch of Marcus Invest, a fairly standard robo advisor. Our Marcus account has shown notable performance, however, as the robo took first place for 3-year performance against its Normalized Benchmark. There are a few differentiating factors to highlight. First, the portfolio is particularly invested in U.S. large-cap core securities as over 70% of the equity portfolio is in U.S. equities driven by an over 55% allocation to IVV, the iShares S&P 500 Index ETF. In addition to its U.S. large-cap bias, the allocation benefitted tremendously by avoiding an overweight to value stocks and emerging markets, two areas that otherwise could have thwarted returns.

Our Marcus account has shown notable performance as the robo took first place for 3-year performance against its Normalized Benchmark.

T. Rowe Price had very different drivers of return. This portfolio allocates almost entirely to active mutual funds from T. Rowe Price. There were a few active funds that provided significant alpha over comparable ETFs. For example, for the 3-year period ending September 30th, 2021, the T. Rowe Price Small-Cap Stock Fund returned over 58%, while the Russell 2000, a small-cap index, returned just below 35%. Similarly, the T. Rowe Price Value Fund returned over 49%, while the Russell 1000 Value Index returned approximately 33%. Although past performance is not indicative of future results, investors in T. Rowe's ActivePlus offering enjoyed significant outperformance from mutual fund investments.

The top three robo advisors had average returns north of 13.5% per year, while the bottom three advisors averaged less than 11.5%.

Five-Year Performance Deep Dive: Are There Structural Issues with Some Robos?

For this analysis, we looked at our study group of ten robo advisors that had an approximately "60/40" moderate-growth allocation and a track record at Backend Benchmarking spanning at least five years. This group of robo advisors had an average annual return of 9.03% for the 5-year period ending September 30th, 2021. For context, the S&P 500 returned over 16% annually while the average robo's equity portfolio returned 12.54% annually during the period. The dispersion is also significant. For example, when looking at equity returns, the top three robo advisors had average returns north of 13.5% per year, while the bottom three advisors averaged less than 11.5%. In this analysis we will analyze the differences in portfolio construction and see where investors can focus their attention.

Robo Advisor Equity Performance:

	%Return	%Large	%Value	%Growth
Top 5	13.4%	74%	30%	32%
Bottom 5	11.7%	63%	32%	29%
Difference	1.7%	11.8%	-2.2%	2.8%

Note: Large, Value, Growth, percentages expressed as a percentage of equities.

When looking at equities, there are a few major themes to note. Despite the work by many in academia, most notably the work by Fama and French, which emphasized the historical outperformance of smaller companies and those with a lower price, it has been large-cap growth-oriented companies that have been a top performing area of the market. The top half of our study group averaged 1.7% more in total returns and over 11.8% more in large-cap exposure than the bottom half. Firms like Schwab, Personal Capital, and Betterment had 46%, 39%, and 37% in combined small- and mid-cap exposure, respectively, and were the bottom performers for equity performance.

The top half of our study group averaged 1.7% more in total returns and consisted of roughly 11.8% more in large-cap exposure.

Along a similar theme, the top five robo advisors had an average of 2.2% less value exposure and 2.8% more growth exposure than the bottom half of robo advisors. This is at a time when the Russell 3000 Growth outperformed the Russell 3000 Value by over 105%, cumulatively, for the 5-year period ending September 30th, 2021. In fact, one of the indicators of a winning equity portfolio was the lack of value-specific funds implemented to balance out the growth tilt of market-weighted indices like the S&P 500. Fidelity, SigFig, and Vanguard allowed their portfolios to skew towards growth and enjoyed better returns. While it is worth noting that value has outperformed growth for the trailing 1-year period, investors may want to take into consideration whether their value-tilted robo advisor is best allocated for modern times.

What Makes a Good Bond Portfolio?

Although getting the equity portion right is critical, savvy investors can also look to their bond portfolios to avoid pitfalls and maximize returns. The top half of the winning bond portfolios returned 3.3%, while the bottom half returned 2.4%. This difference of 0.90% is not as high as the equity differential of 1.7%, but it is still significant. Schwab led the pack with bond returns over 4% for the period, making it even more upsetting that such a high allocation of the portfolio was invested in cash, which has been well-documented in the previous *Robo Report*.

Schwab led the pack with bond returns over 4% for the period, making it even more upsetting that such a significant allocation of the total portfolio was invested in cash.

Robo Advisor Fixed Income Performance

	5-Year Trailing Return (Annualized)	Average Duration	%TIPs of Bond Portfolio
Top 5	3.3%	6.5	11.2%
Bottom 5	2.4%	5.3	5.8%
Difference	0.9%	1.2	5.4%

Note: TIPs allocation is expressed as a percentage of the bond portfolio

When looking at trends in successful bond portfolios, the top five robo advisors had an average duration of roughly 6.5 years, while the bottom half had a duration of 5.3 years. During Acorns' large-scale rebalance in August 2020, one of the major moves it made was replacing its over 45% allocation in SHY to just a 30% allocation to ISTB and the remaining balance in traditional intermediate-term duration bonds. The SHY ETF is about as low-risk as one can get as it holds 1-3 Year Treasurys. Generally, this is not a good asset to use for long-term investing. We commend Acorn's move to the ISTB ETF, which modestly extends duration, diversifies out of just Treasury bonds, and includes high-yield exposure. Investors need to be cautious of the low-duration trend that can come from a concern of higher interest rates. Over longer periods, there is a significant opportunity cost from not holding more meaningful duration.

When looking at trends in successful bond portfolios, the top five robo advisors had an average duration of roughly 6.5 years, while the bottom half had a duration of 5.3 years.

Investors were not favored or hurt by choosing a robo advisor with either municipal bonds or taxable issues, as both had similar returns over five years. One trend, however, was that the top two robo advisors for fixed-income performance did have meaningful TIPs allocations as Schwab and SigFig had north of 38% and 17% of their fixed-income portfolios, respectively. The third

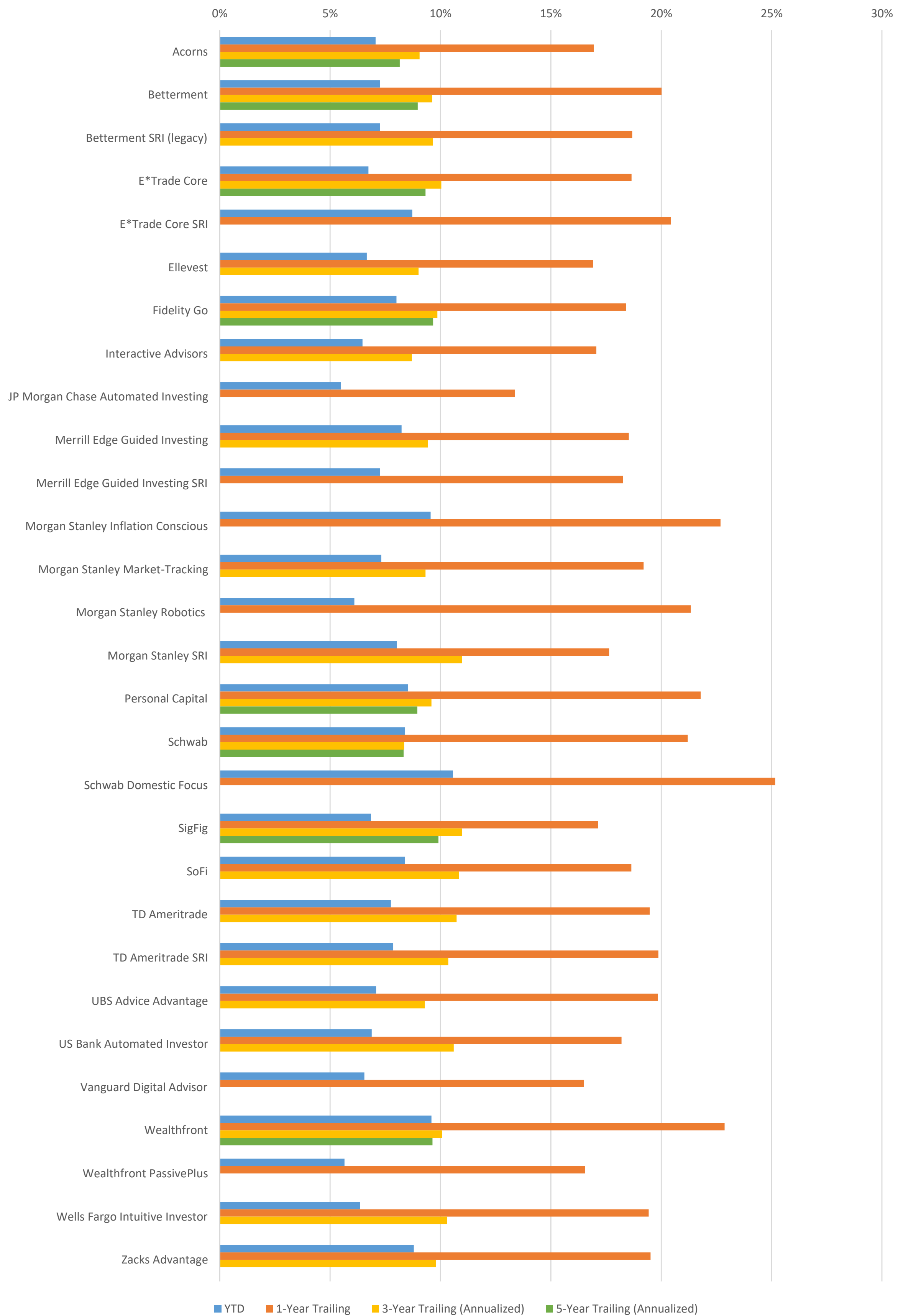
best robo, E*Trade, had a significant allocation to investment-grade corporate bonds. Although funds that track the Bloomberg Barclays Aggregate have been the most popular exposure for many robo advisors, complementing these positions with TIPs, corporate bonds, and high-yield bonds may be something investors can look for to increase the return potential of their bond portfolios.

Investor Tips for Selecting Portfolios

All in all, when evaluating the portfolios of robo advisors, investors have a few notable factors to screen for. First, if your robo advisor is exposed to short-duration investment grade bonds, be wary if it is a large percentage of total fixed income. It is one thing to opportunistically use short-duration bonds to protect against a rise in rates, but it is another thing to invest in these assets over long periods. The same is true with high allocations to cash, gold, or commodities. Investors need to be cautious to not over-allocate to these assets per the significant opportunity cost of not investing in real businesses. Lastly, and perhaps most controversially, is the question of whether academic thinking that favors small-cap stocks and value-style stocks makes the most sense for the modern investor. Investors may want to steer clear of robos who emphasize these attributes as they may be less relevant in the current era. These are themes we will continue to monitor closely at the *Robo Report.*

Lastly, and perhaps most controversially, is the question of whether academic thinking that favors small-cap stocks and value-style stocks makes the most sense for the modern investor.

Total Portfolio Performance



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Last updated: 09/30/2021

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

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

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

11 This account has no minimum required to establish an account, but had the account been funded with more assets, it would, at certain asset levels, be eligible for a lower advisory fee. The lower advisory fee would have the result of increasing reflected performance. A special request was made for an allocation of 60% equities and 40% fixed income or close to it, but this allocation was not one of the standard models at the time of account opening. At the time of account opening the closest standard models offered were in the range of 50/50 or 75/25 equity to fixed income split.

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

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

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

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

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

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

through 2019. In previous reports we reported the performance of two accounts that were combined to achieve a 60/40 allocation. Due to our introduction of Normalized Benchmarking we are no longer reporting the combined account, but only the account with the closest to a 60/40 allocation as we could achieve at this provider.

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

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

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

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

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

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

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

26 This account was enrolled in Prudential's Strategic Portfolios. It was funded with the minimum required to open an account. Had the account been funded with more assets it would, at certain asset levels, be eligible for a lower advisory fee. The lower advisory fee would have the result of increasing reflected performance. Prudential also offers Reserve Portfolios for short-term investing, which have a lower account minimum and fee. However, the Reserve Portfolios do not allow asset-allocation customization based on individual demographic and risk tolerance.

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

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

29 This account was funded with the minimum or more than the minimum amount required to establish an account at the time of opening. Had the account been funded with more assets it would, at certain asset levels, be eligible for a lower advisory fee. The lower advisory fee would have the result of increasing reflected performance. After opening, this provider changed its fee schedule, raising the fee for the asset level of the account, but our account was grandfathered in at the previous, lower fee. New accounts would be subject to the new fee schedule, which may change reflected performance.

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

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

32 This account has no minimum required to establish an account and is enrolled in the Digital Only plan. If the account was enrolled in the premium

service with access to live advisors, there would be a higher asset-based advisory fee. The higher advisory fee would have the result of decreasing reflected performance. All balances above $2 million are charged a lower asset-based advisory fee. A lower advisory fee would have the result of increasing reflected performance.

33 This account has no minimum required to establish an account and is enrolled in the Digital Only plan. If the account was enrolled in the premium service with access to live advisors, there would be a higher asset-based advisory fee. The higher advisory fee would have the result of decreasing reflected performance. Prior to August 2020, this account was assessed a 0.35% annual management fee. As of August 2020, the provider changed the fee structure such that accounts under $10,000 are not charged a management fee. Our account is under this threshold and will therefore not be charged a management fee starting in August of 2020. This will have the result of increasing reflected performance.

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

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

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

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

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

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

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

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

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

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

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

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

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

Prior to Q3 2018, due to technological limitations of our portfolio management system, some accounts which contained fractional shares had misstated

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

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

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 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 09/30/2021 the total size of the position was 33,380 shares of Schwab common stock, 17,879 shares of JP Morgan Chase common stock, and 5,374 shares of Goldman Sachs common stock. As of 09/30/2021 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, US Bancorp, Ally Financial, Charles Schwab, and Capital One.

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