

BRINGING TRANSPARENCY TO ROBO INVESTING

EDITION 19

Robo Report[™] First Quarter 2021



We are proud to publish the 19th edition of the *Robo Report*[™] covering the first 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:

- *Shifting tides favoring value stocks rewarded Schwab robo investors while Titan and Morgan Stanley Robotics held on to top spots (pg. 5)*
- *Pandemic pushes robo assets to new highs as Betterment, Schwab, Vanguard, and M1 show impressive AUM growth (pg. 14)*
- *Tax-loss harvesting study: which robos took your tax bill seriously? (pg. 12)*
- *New platforms from Goldman Sachs, Stash, and Walmart heat up the U.S. marketplace (pg. 14)*
- *Chinese robo advisor BangNiTou crosses 1 million users (pg. 15)*
- *Interview with CEO Brandon Krieg explains how Stash plans to improve the financial lives of over 5 million users on its platform (pg. 18)*

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Executive Summary

This edition of the *Robo Report™* tracks 91 accounts at 42 different providers, the most comprehensive analysis of robo advisors available.

First Quarter Gives New Hope to Value-Oriented Robos

After the overwhelming outperformance of growth-style investing in 2020, value stocks outperformed in the first quarter of 2021. As the energy and industrial sectors enjoyed the tailwinds of an economy expanding in light of coronavirus vaccines, Schwab's Domestic Focus and standard portfolios were top performers due to their tilt towards value. If investors believe we are in a new regime, these robos may be compelling options for the future.

Titan & Morgan Stanley Robotics Are Top Performers over the 1-Year Period

Titan Invest had less-than-stellar performance in the first quarter of 2021. However, its equity holdings still reported over 71% returns during the trailing 1-year period, in part due to a favorable allocation to technology stocks. Similarly, Morgan Stanley's Robotics-themed portfolio demonstrated top-tier performance over the last year. It has yet to be seen if these technology-oriented portfolios will continue to perform so well in 2021.

Wells Fargo, Zacks Advantage, and Morgan Stanley SRI Lead 3-Year Returns

Morgan Stanley's Socially Responsible Investing option won the top total-portfolio performer award for the 3-year period. This portfolio stands out for its commitment to allocating capital towards ESG-oriented funds for its equity allocation. Interestingly, the portfolio

demonstrated stellar returns despite higher-than-average fund fees. Meanwhile, when looking at top 3-year equity performance, Zacks Advantage and Wells Fargo Intuitive Investor were dominant. Both robos favored domestic stocks, which bolstered performance.

Robo Advisors Expand Rapidly - Is This the New Normal?

If the last twelve months are indicative of the future, robo advisors are not only here to stay but also expanding rapidly. One of the leading independent robo advisors, Betterment, increased its assets under management from approximately \$18 billion to \$28 billion over the last 12 months, according to the firm's ADV filings. Schwab Intelligent Portfolios, M1 Finance, Ellevest, and Titan Invest have all experienced rapid growth over the past year. Walmart's new Hazel service has the opportunity to bring robo advisor services to its global demographic of over 240 million weekly customers. Finally, BangNiTou, a Vanguard and Ant-backed robo offering in China, just crossed 1 million users, marking what may be a global rise in robo investing.

New Options for Your Money - Marcus & Stash

Goldman Sachs finally released its highly anticipated robo advisor, Marcus Invest, last quarter. The Marcus brand already has a compelling consumer-loan offering, but it now has a fully equipped robo advisor. In addition to offering a low-cost ETF portfolio that tracks market indices, it also offers socially responsible and smart-beta options for further customization.

Another notable entrant is Stash Smart Portfolios. Stash is a micro-investing brokerage platform that boasts over 5 million customers.

Taxable Top Performers

Year-to-Date Top Performers

	Best	2nd	3rd
Total Portfolio	Schwab Domestic Focus	TD Ameritrade Managed Risk	Wealthfront
Equity	Schwab Domestic Focus	Schwab	Qcapital
Fixed Income	Fidelity Go	Fifth Third Bank OptiFi	Betterment Income

Produced by Backend Benchmarking for BackendB.com

1-Year Trailing Top Performers

	Best	2nd	3rd
Total Portfolio	Titan Invest	Morgan Stanley Robotics	Wells Fargo Intuitive Investor
Equity	Titan Invest	Morgan Stanley Robotics	Schwab Domestic Focus
Fixed Income	Interactive Advisors Legg Mason Global Growth and Income	TIAA Personal Portfolio SRI	M1 Finance

Produced by Backend Benchmarking for BackendB.com

3-Year Trailing Top Performers

	Best	2nd	3rd
Total Portfolio	Morgan Stanley SRI	Wells Fargo Intuitive Investor	Axos Invest
Equity	Zacks Advantage	Wells Fargo Intuitive Investor	Morgan Stanley SRI
Fixed Income	E*Trade Core	Axos Invest	SigFig & Wealthfront

Produced by Backend Benchmarking for BackendB.com

5-Year Trailing Top Performers

	Best	2nd	3rd
Total Portfolio	SigFig	Axos Invest	Vanguard P.A.S.
Equity	SigFig	Vanguard P.A.S.	Axos Invest
Fixed Income	Schwab	SigFig	Axos Invest

Produced by Backend Benchmarking for BackendB.com

Total Portfolio winners are based on the portfolio's return vs. the Normalized Benchmark. Returns are net of fees and are as of 03/31/2021.

Performance Commentary

- *Year to date, shifting tides reward Schwab equity portfolios for value exposure*
- *Municipal bonds propel Fidelity Go and Fifth Third Bank to top fixed-income performance*
- *Titan Invest and Morgan Stanley Robotics show 70%+ equity returns over the 1-year period thanks to a boom in technology stocks*
- *SigFig continues its reign as the top performer over the 5-year period*

Market Recap

After an unprecedented year in financial markets, U.S. equities continued to climb higher in the first quarter of 2021. The S&P 500 Index rose 6.17% over the quarter to finish near an all-time high. A strengthening labor market, a healthy rise in consumer spending, and a growing deployment of vaccines provided investors with greater clarity into the country's economic recovery. However, the drivers of performance in the first quarter were different from those in 2020, when technology and growth-related names outperformed the broader market. The energy, financial, and industrial sectors were the primary drivers of performance during the quarter. Value

Value stocks outperformed growth stocks by a wide margin in the period - reversing the trend.

stocks outperformed growth stocks by a wide margin in the period, extending their outperformance from the fourth quarter of last year.

The rally in value has closed the growth-value divide over the one-year trailing period, in a reversal of previous periods when growth dominated. Additionally, the improving economic conditions particularly boosted small-cap stocks, which are more sensitive to economic fluctuations but tend to fare better during recoveries. As such, small caps led the way during the quarter, followed by mid caps and then large caps.

On the international front, both developed and emerging market equities posted positive returns for the quarter but fell short of U.S. markets. The MSCI EAFE Index, which tracks equities in

developed markets, saw a quarterly gain of 3.63% despite new lockdown measures and vaccine distribution challenges in many European countries. While a recovery is unfolding throughout these developed markets, analysts are lowering their expectations for corporate earnings. On the other hand, emerging market nations have seen a strong economic recovery, though the MSCI Emerging Markets Index returned only 2.24% for the quarter. China continued to be at the forefront of the emerging market space, with economic activity returning to pre-pandemic levels and economic forecasts coming in stronger than expected.

In the fixed-income market, the focus has shifted from the Federal Reserve's ultra-accommodative policies to the sharp rise in long-term yields. The 10-year U.S. Treasury note ended the quarter yielding 1.74%, up from the 0.93% yield at the end of 2020, and exhibited the largest quarterly rise in more than four years. This sizable move came as investors began to price in rising inflation expectations associated with the reopening of the U.S. economy and the

The 10-year U.S. Treasury note exhibited the largest quarterly rise in more than four years.

impact of fiscal stimulus and demanded higher yields for holding Treasury bonds. Against this backdrop, fixed-income returns were mostly flat or negative during the quarter. Longer-duration bonds were among the worst-performing. Municipal bonds outperformed their corporate counterparts for the most part, and

higher-yielding bonds generally led the pack in both the corporate and municipal bond space.

Value Drives Robo Performance in Q1, Titan Retains One-Year Spot

In the last several *Robo Reports*, the performance data has shown that robos with growth tilts in their equity holdings have fared better. That trend reversed over the past six months. The Schwab Domestic Focus portfolio placed first for both performance relative to the Normalized Benchmark and for equity performance in the first quarter. The standard Schwab portfolio, which has more international equities than the Domestic Focused portfolio, had the second-best equity performance and the sixth-best performance compared to the Normalized Benchmark in the first quarter. Schwab's first quarter success was bolstered by the fact that it has one of the most value-oriented portfolios.

The strong first and fourth quarter performance was enough to push both Schwab portfolios into the top 10 over the 1-year trailing period ending March 31, 2021, when looking at performance compared to the Normalized Benchmark. While value stocks experienced a strong six months, growth stocks still outperformed in periods longer than a year.

Titan Invest, on the other hand, has a heavy growth tilt. In the final quarter of 2020, its two portfolios had the highest equity performance compared to their Normalized Benchmark, but in the first quarter of 2021, they had the lowest equity performance compared to their

Normalized Benchmarks. For the 1-year period ending March 31st, 2021, however,

Titan retained its top spot for both equity-only performance and performance versus the Normalized Benchmark. Over the past year, Titan's equities returned 71.96%. These strong returns led it to outperform its benchmark by 12.43%. Titan differentiates itself from other robos by actively selecting individual stocks. At the end of the quarter, its three largest holdings

were Paypal, Twilio, and Apple. These holdings are representative of the larger portfolio, which is tilted towards large-cap growth stocks.

Municipal Bonds Propel Fixed-Income Performance in Q1

In 2020, hesitant investors flocked to U.S. Treasury bonds and other high-quality bond offerings. In the first quarter of 2021, investors began to move out of those categories and back into high-yield fixed income as economic prospects improved. The tightening of credit spreads in the second half of 2020 and into 2021 helped municipal and corporate bonds offset rising interest rates. Municipal bonds also fared better than corporate bonds or Treasury bonds year to date. Fidelity and Fifth Third Bank OptiFi were the top two fixed-income performers over the first quarter. Both of their fixed-income portfolios consist entirely of municipal bonds. When looking over the 1-year trailing period, Interactive Advisors Legg Mason, TIAA SRI, and M1 were the top fixed-income performers. These portfolios hold higher allocations to corporate bonds. While municipal and corporate bonds both recovered in the second half of 2020 and the first quarter of 2021, corporate bonds have generally fared better over the past year.

Fidelity and Fifth Third were the top two fixed-income performers over the first quarter. Both bond portfolios consisted entirely of municipal funds.

Morgan Stanley Robotics and SRI Shine

Just behind Titan for 1-year performance is the Morgan Stanley Robotics portfolio. Its equity holdings returned 71.90% over the 1-year trailing period. Unlike Titan, Morgan Stanley does not pick individual stocks but rather specific ETFs to achieve exposure to certain industries in its different thematic portfolios. The four funds specific to the Robotics-themed portfolio all returned over 65% over the one-year trailing period. The top fund, the ARK Innovation ETF, returned 177% over a period when the S&P 500 returned 56%. The funds that Morgan Stanley

Both of Schwab's portfolios showed stellar equity returns YTD.

Over the past year, Titan's equities returned 71.96%.

has chosen for this particular theme are technology-heavy and give the portfolio a higher growth tilt than most of the other robos. This has boded well during a period when the COVID economic environment has lent itself to remote work and an increased reliance on technology.

Morgan Stanley also claimed a top performance spot over the 3-year time period. Its SRI portfolio

Morgan Stanley's SRI portfolio was the top performer. Its entire equity holdings were ESG funds.

was the top performer relative to the Normalized Benchmark over this time. It is one of the few SRI portfolios whose entire equity holdings are invested in SRI-themed funds.

3-Year Equity Returns: Zacks and Wells Fargo Rely on Domestic, Small-Caps

Over the 3-year period, Zacks Advantage and Wells Fargo's Intuitive Investor were the best

Over the 3-year period, Zacks Advantage and Wells Fargo's Intuitive Investor were the best equity performers with annual returns of 14.02% and 13.99%, respectively.

equity performers with annual returns of 14.02% and 13.99%, respectively. During this period, the Russell 3000 Index returned over 17% annualized and the MSCI Foreign Developed and Emerging

Indices both returned between 6 and 7% annualized. Zacks and Wells Fargo outperformed the other robos by holding a larger percentage of their equities in domestic stocks than international stocks. Zacks ended the quarter with 83% domestic exposure as a percentage of equities.

Another common factor was that both Zacks and Wells Fargo have more mid- and small-cap exposure than many other robos. Zacks achieves this by specifically holding the S&P mid- and small-cap funds and Wells Fargo relies on the Vanguard Extended Market ETF. While small- and mid-cap holdings generally underperformed large-cap stocks over the 3-year period, the fantastic run in small caps during the fourth quarter of last year and the first quarter of this year has boosted performance.

SigFig Remains Top 5-Year Performer

SigFig maintained its top spot for 4-year and 5-year performance for both total portfolio and equity performance. Over the 5-year period, SigFig's portfolio returned 10.38% annually and its equities returned 14.17% annually.

Top robo SigFig earned 10.38% annually over the 5-year period.

SigFig has benefitted from a straightforward approach. The majority of its equities are held in total U.S. stock market ETFs. These ETFs are composed mainly of large caps, which have outperformed mid and small caps, and entirely of domestic equities, which have widely outperformed foreign ones over the past five years. SigFig has also made good choices within its international holdings, having more emerging markets than developed as a percentage of its international exposure. Lastly, its fixed income is heavily investment-grade, with allocations to TIPS and high-quality domestic corporate bonds. These two areas of fixed income have performed well, especially over the past year, and made SigFig the second-best fixed-income performer over the 5-year trailing period.

Filling out the 5-year total portfolio spots are Axos Invest and Vanguard P.A.S., which placed second and third, respectively. Vanguard, true to form, keeps its strategy simple and utilizes only two equity funds—a total U.S. market fund and total international market fund—and three municipal fixed-income funds. This strategy, though simple, has returned 9.54% annually over the past five years.

Schwab remains the top fixed-income performer. Unlike Vanguard, which holds only municipal bonds, Schwab holds a broad mix of fixed income, including mid-duration TIPS, emerging market bonds, municipals, and high-yield corporates. Over the last five years, emerging market bonds and corporate bonds did better when markets

Schwab holds a broad mix of fixed income - TIPS, emerging market bonds, municipals, and high-yield corporates.

were calmer and riskier debt was under less duress. Mid-duration TIPS, on the other hand, have done well in the second half of 2020 as investors shifted into inflation-protecting assets.

SRI Performance

Socially Responsible Investing (SRI) remains a hot trend in the investment industry. At Backend Benchmarking, we compare the equity performance of the SRI options and the standard options at the same robo advisor to analyze their differences. The providers are Betterment, E*Trade, Ellevest, Merrill Edge, Morgan Stanley, M1 Finance, TD Ameritrade, and TIAA. Betterment recently introduced three new SRI portfolios: the Broad Impact portfolio, the Climate Impact Portfolio, and the Social Impact portfolio. This is the first *Robo Report* in which we can begin to report on them. Additionally, we cover a provider called Sustainfolio, which only offers SRI portfolios.

Over the 2-year trailing period, the equity-only performance of the SRI portfolios outperformed

the standard option at all providers except for E*Trade. The biggest performance gap was at Morgan Stanley, whose SRI equity portfolio outperformed the standard option by 3.11% annually. As mentioned above, the Morgan Stanley SRI portfolio was the top 3-year total portfolio performer.

Over the 2-year period, the equity-only performance of the SRI portfolios outperformed the standard option in all but one provider.

Over the last quarter, however, the results were mixed and there were many instances in which the standard option outperformed the SRI option. One factor is that SRI screens often exclude fossil fuels and many energy companies, which have lagged over the past two years but had a very strong first quarter as the cyclical sectors have bounced back.



Robo Advisor Average Returns

	1Q 2021	1-Year	2-Year	3-Year	4-Year	5-Year
Equity	6.25%	59.06%	17.23%	12.15%	12.50%	12.99%
Fixed Income	-2.29%	4.30%	4.21%	4.11%	3.59%	3.30%
Total Portfolio	3.10%	35.94%	12.66%	9.33%	9.31%	9.53%

Returns are net of fees and are as of 03/31/2021. All returns for periods longer than one year are annualized. Produced by Backend Benchmarking for BackendB.com

Index Returns

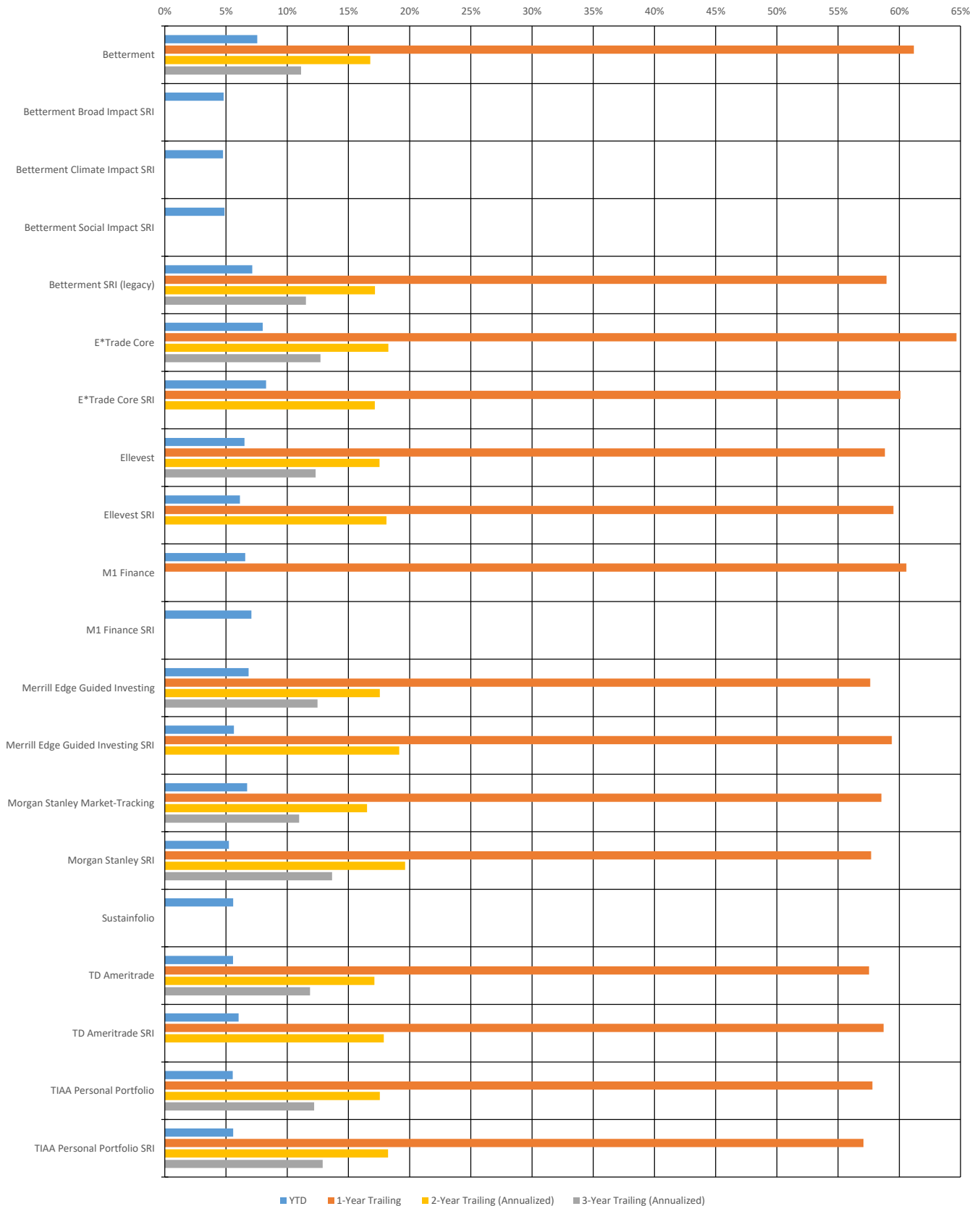
	Index	3-Year Return
Domestic	Russell 3000	18.02%
International Emerging Markets	MSCI Emerging Markets	6.88%
International Developed Markets	MSCI EAFE	6.62%
Value	Russell 3000 Value	11.79%
Growth	Russell 3000 Growth	23.38%
Large Cap	Russell 1000	18.21%
Small Cap	Russell 2000	15.68%
U.S. Aggregate Bond	Barclays U.S. Aggregate	4.64%
Intermediate Corporate Bonds	Barclays Intermediate Corp.	5.43%
Municipal Bonds	Barclays Municipal	4.88%

Returns are as of 03/31/2021. All returns for periods longer than one year are annualized.

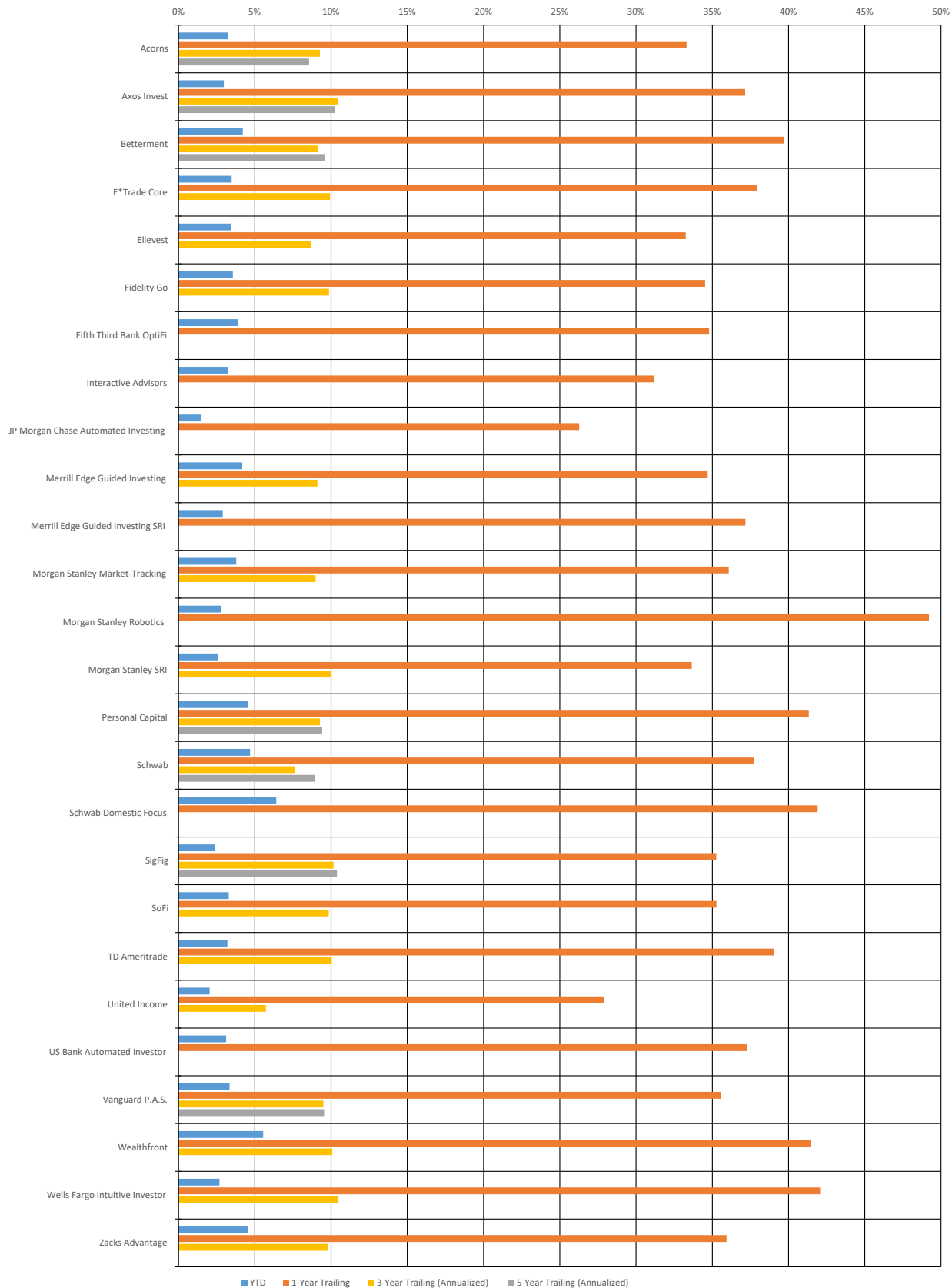
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SRI Account Equity-Only Performance



Taxable Account Total Performance



Tax-Loss Harvesting Study

- *Not all robos implemented tax-loss harvesting to the same extent. While some realized net losses of over 8% of the account value on the year, others did not realize any losses at all*
- *TD Essential Portfolios and Schwab Intelligent Portfolios were top choices for tax-loss harvesting over the year*
- *SigFig, UBS, and Citizens were at the bottom of the pack with virtually no net realized losses on the year*

Tax-Loss Harvesting Study—Which Robos Took Your Tax Bill Seriously?

The large sell-off at the beginning of the global pandemic has provided the opportunity to assess the efficacy of tax-loss harvesting services at major robo advisors. Backend Benchmarking tracks a set of specific accounts that offer tax-loss harvesting which were all opened and funded at the same time and receive monthly deposits (note that these accounts are different from the main accounts that we use to measure performance in the *Robo Report*). As of the end of 2020, the insight is clear: not all tax-loss harvesting services

As of the end of 2020, the insight is clear: not all tax-loss harvesting services are made equally.

are made equally. TD Essential Portfolios and Schwab Intelligent Portfolios stand out for the highest percentage of realized net losses for the year. As of the end of 2020, TD realized over 9.5% of its portfolio in net short-term losses, while Schwab realized over 8.3%. Meanwhile, our tax-loss harvesting study group of 11 robo advisors averaged 3.59% realized net losses as a percentage of year-end value.

TD and Schwab also demonstrated their aggressiveness of harvesting losses by heavy portfolio turnover. TD experienced a 120% portfolio turnover, while Schwab showed 116%. On the other hand, the average of the portfolios

analyzed in our tax-loss harvesting study group experienced turnover just under 50%. The benefits of a more aggressive tax-loss harvesting strategy accrue to the investor's bottom line. Short-term losses not only offset gains but can also be used to offset some ordinary income in many cases, both of which bolster the after-tax performance of these leading robos.

TD and Schwab were the most aggressive. TD experienced a 120% portfolio turnover, while Schwab showed 116%.

Towards the middle of the pack, Wealthfront realized net losses of just under 5% of its total portfolio, while Wells Fargo realized 3.75%. Both of these portfolios were fairly active, with Wealthfront standing out with a portfolio turnover rate of 87%. Morgan Stanley Access Investing showed some signs of tax-loss harvesting with 2.14% of its portfolio in net realized losses. At the bottom of the pack were SigFig, Citizens Bank Specifi, and UBS.

SigFig did not realize any losses, while Specifi, a robo advisor backed by SigFig's technology, only realized 0.05% net losses in the year. This is in light of estimated unrealized net losses above 9% of the account value for both accounts at the end of the first quarter of 2020. Similarly, UBS Advice

At the bottom of the pack were SigFig, Citizens Bank, and UBS. These three robos realized nearly zero net losses in the year of the pandemic.

Advantage, another SigFig-backed robo advice product, reported only 0.13% net losses on the year. Given that 2020 included a quarter when stock indices were down over 30% from market highs, investors would expect more opportunities to sell struggling asset classes to harvest losses for later use. But this was not the case for these three accounts.

Ultimately, when selecting a robo advisor for its ability to execute tax-loss harvesting, it is important to be aware that implementations vary widely. For some, it seems to be a major feature, while others may be struggling to find the right algorithm to harvest losses. It is also

important for investors to keep in mind that while tax-loss harvesting can improve after-tax returns, the benefits can often appear greater than they are. When a tax loss is harvested, the resulting portfolio has a lower cost basis, so realized gains will be higher when assets are sold in the future. Additionally, as markets rise, the opportunities to harvest losses fall. Tax-loss harvesting opportunities occur more frequently in newer accounts, since older accounts are more likely to hold assets which have already significantly appreciated above their original cost basis.

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It is important to be aware that implementations vary widely.



Industry Trends and Outlook

- *New products from Walmart, Goldman Sachs, and Stash heat up the competitive U.S. marketplace*
- *Vanguard-backed BangNiTou crosses 1 million users in China*
- *Significant growth from Betterment, Schwab, Vanguard, and M1 Finance point to the pandemic rewarding digital platforms*
- *Wealthfront's Self-Driving Money - a glimpse at the future of automated cash management*

It is hard to believe that it has now been more than a decade since the first robo advisors were launched in the wake of the financial crisis. Now, algorithmic, managed-account platforms have become ubiquitous. Juggernaut independent firms like Betterment, Wealthfront, and Personal Capital sit beside massive incumbents like Edelman Financial Engines, Charles Schwab, and Vanguard. With notable new entrants to the marketplace like Marcus Invest by Goldman Sachs, the once-novel industry is now mature and highly competitive. Robo advisors are pushing the boundaries between investment platforms and digital banks, as traditional banking services have become key elements of their offerings. However, not all success has been distributed evenly. While some firms are thriving and raising new rounds of funding, others are closing doors. Still, robo advisors are at the epicenter of major trends. Socially responsible investing, direct indexing, and a digital-native way of life are all part of this developing story.

Robo Advisors Democratize Investing Across the Globe

Robo advisors continue to impress with significant growth in funding, assets under management, and notable new products. In 2020, the wealth-tech industry raised over \$3.7 billion in new funding through November, according to reports from CB

In 2020, the wealth-tech industry raised over \$3.7 billion in new funding through November, according to reports from CB Insights. This marked a 50% increase from 2019.

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year-end total. Investors shifting to managing more of their lives online in response to the pandemic has given the digital-advice industry a tailwind. For example, Betterment grew its AUM from approximately \$18 billion in 2020 to over \$28 billion, while Schwab experienced 51% growth in digitally advised assets, and Vanguard added \$70 billion in robo-assets from the end of 2019 through the first quarter of 2021.

Betterment grew its AUM from approximately \$18 billion in 2020 to over \$28 billion.

Robo advisors still have ample room to grow. According to a Hearts and Wallets survey of 5,000 participants issued last September, only 8% of U.S. households reported having money invested with a robo advisor. There is a tremendous opportunity for this trend to spread.

Although firms like Wealthfront, Vanguard, and Schwab are dominant in this space, there have been notable new entrants. Goldman Sachs launched Marcus Invest in February of this year. This platform includes many of the features that we have come to appreciate in modern robos, including a socially responsible investing (SRI) option, a low advisory fee of 0.35%, and a low minimum of \$1,000. Not long after, Merrill Lynch Guided Investing slashed its minimum from \$5,000 to \$1,000, making these services even more

Stash, the micro-investing online brokerage with over 5 million customers, launched Smart Portfolios.

approachable for the average investor. Stash, the micro-investing online brokerage with over 5 million customers, launched a managed accounts product called Smart Portfolios. Vinod Raman, VP of Product at Stash, explained that, "from

day one, Stash was built for long-term, diversified investing, not day trading.” As the competition in the automated investing space continues to accelerate, one beneficiary is clearly the long-term investor.

In what is potentially one of the biggest announcements of 2020, Walmart is partnering with Ribbit Capital, a large Robinhood backer, to launch a service called Hazel. According to

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reports from RIABiz, there is language that includes “advisory services” and “financial counseling” in the firm’s USPTO filing. This has the potential to be a ground-breaking offering, as Walmart has over 240 million weekly customers around the world.

In global news, BangNiTou, a digital advice provider in the Chinese market, crossed its first 1

BangNiTou, a digital advice provider in the Chinese market, crossed its first 1 million users in March.

million users in March of 2021. The name means “help you invest” and is a joint venture between Vanguard and Ant Group. The trend is clear: automated, diversified, low-cost portfolios are here to stay, and they are becoming increasingly accessible to investors of all asset levels across the globe.

Robos Resilient to Pandemic Woes

The tumultuous period of COVID-19 saw various online services surge in popularity. The work-from-home movement has been accompanied by the investment industry’s rise in new account openings across online brokers and robo advisors. According to reports from Bloomberg, brokers Schwab and TD Ameritrade

Schwab reports 51% year-over-year growth in its digital advisory solutions.

reported some of the best months they have ever had in terms of new account openings during the periods of heightened volatility in the first half of 2020. When looking at the 1-year period ending March 31, 2021, the story is the same. Schwab reports 51% year-over-year growth in its digital advisory solutions. Vanguard Personal Advisor Services,

the firm’s hybrid robo advisor, grew from approximately \$161 billion at the end of 2019 to \$231 billion by March 31, 2021.

Although new openings are compelling, there is other good news for the digital advice industry. When robo advisors initially rolled out, many speculated that during a sharp sell-off investors would make poor decisions due to the lack of communication with a human advisor. The investment research firm Dalbar conducted a survey of investor sentiment in response to the COVID-19 sell-off. According to its reports, 82% of investors were “satisfied” with their robo advisor and 55% of investors reported a “significant” increase in confidence after the crisis. Reports of new account openings, account contributions during market sell-offs, and overall satisfaction point to the possibility that the digital investor may hold up better than once anticipated.

Tides Shift in Robo Landscape

There have been multiple significant changes in the robo advisor landscape as the market finds its equilibrium. There have been new entrants and closures in the past year. Founded in 2010, Motif was one of the earliest platforms and had a unique approach emphasizing thematic investing. However, it closed doors in 2020 as intensity in the U.S. marketplace grew. Additionally, Wealthsimple, a large Canadian-based robo advisor, recently sold its U.S. advisory business to Betterment. Also in 2021, Prudential Link’s PMA platform, the firm’s robo advisor, was discontinued.

While the highly competitive U.S. market drove closures, it also drove significant acquisitions. The industry’s largest acquisition to date was announced in June of 2020. Empower Retirement, the second-largest retirement plan provider with over 12 million participants, purchased Personal Capital for \$1 billion. This acquisition was notable for Personal Capital’s high valuation and the fact that it has been a pioneer in the space. The move provides Empower clients with a natural destination when exiting their employer-sponsored plans. In an even bigger transaction, Charles Schwab purchased TD

Ameritrade. Schwab Intelligent Portfolios and TD Essential Portfolios were two of the largest digital-advice platforms before the acquisition, and now they sit under the same roof. The landscape continues to consolidate as it matures.

While some firms are closing doors or getting acquired by larger institutions, others are raising large sums of funding. M1 Finance, an online brokerage platform that allows users to customize their holdings through a series of portfolio “pies,” just raised another monumental sum. In March, the firm raised \$75 million of Series D funding following a \$45 million Series C funding round last October. The most recent round followed rapid growth in assets from \$1 billion in February 2020 to over \$3 billion in January 2021.

Titan Invest, the actively managed robo advisor based in New York City, raised \$12.5 million in

Titan Invest, the actively managed robo advisor based in New York City, raised \$12.5 million in Series A funding as the firm crossed its first \$500 million in assets.

Series A funding as the firm crossed its first \$500 million in assets. This is remarkable since the firm was founded in 2018. Although many smaller robo advisors have struggled to distinguish themselves among the juggernauts, some specific

firms with unique value propositions have experienced significant growth in assets and funding.

Robo Innovations

Robo advisors are now looking beyond investment management. The first major step towards offering more personal finance services was the introduction of cash spending and savings accounts. Now, it is standard for independent robo advisors to offer a bank account alongside investment accounts. Ellevest, a robo advisor focused on serving the needs of women investors, launched its Money Membership program, which includes a debit card and round-ups. Even beyond these banking features, some providers are looking to push the envelope.

Wealthfront’s Self-Driving Money feature set is a glimpse at the types of new capabilities being made available to investors. Self-Driving Money allows users to automate savings on a day-to-day basis. By creating a series of savings goals and setting an

amount of “Everyday Cash” for day-to-day spending, investors enable Wealthfront to seamlessly split up paychecks into different “buckets” and monitor for excess cash to be automatically transferred to an investment account. Self-Driving Money helps users link monthly spending and savings to long-term goals without having to decide how much money to move each month. The automation increases the likelihood of optimizing each dollar so it can be appropriately invested. The old adage of “it’s not about timing the market but time in the market that matters” is fully on display with this feature. While still rudimentary, this type of automated cash management is an area in which we expect to see continued innovation.

Self-Driving Money helps users link monthly spending and savings to long-term goals without having to decide how much money to move each month.

Is Direct Indexing the Next Big Wave?

Direct indexing is an investment strategy that seeks to replicate the underlying stocks of an index instead of holding an index fund. Historically, this strategy has been difficult to implement for lower-dollar accounts due to the capital requirements of buying a whole share, or more, of each security in an index. This is no longer the case as fractional-shares technology becomes mainstream. The reason for direct indexing over an index ETF, is that it can increase customization and opportunities for tax-loss harvesting. An investor can, for example, screen out individual stocks that are not in line with ethical concerns. Concentrated stock positions can be accounted for through specific stock screens implemented on the strategy. From a tax-loss harvesting perspective, investors can harvest losses by selling individual securities instead of being restricted to selling an entire index fund or ETF.

This technology sits at the intersection of a few major trends in the robo advice industry: finding ways to be conscientious about ESG concerns, automated tax-loss harvesting, and using fractional-shares technology. In the last year, there were multiple acquisitions that point to these

Schwab, BlackRock, Goldman Sachs, and Morgan Stanley have all engaged in transactions that could influence their ability to offer direct indexing at scale.

technologies finding their way into the hands of large players in the space.

Schwab, BlackRock, Goldman Sachs, and Morgan Stanley have all engaged in transactions that could influence their ability to offer direct indexing at scale. Schwab purchased technology from Motif, bolstering its thematic and fractional share capabilities. Neesha Hathi, Schwab's chief digital officer, commented that this will "help our clients navigate their investment needs in a more personal way." BlackRock purchased Aperio, a firm known for its direct-indexing strategies, and Goldman purchased technology from Folio, improving its fractional-shares technology. Lastly, Morgan Stanley acquired Parametric, which for decades has been offering a direct-indexing portfolio through its "Custom Core" SMA.

While there are only a few robo advice providers utilizing some type of direct indexing for clients today, we expect the recent surge of acquisitions in this area will mature into products for the individual investor in coming years.

Final Thoughts

Looking back over the last year reveals a few major trends in the industry. First, there continues to be consolidation as the U.S. marketplace becomes increasingly competitive. Still, for firms like M1 Finance and Titan whose growth prospects look promising, funding continues to pour in. Second, there is a great deal of value accruing to the average investor, including free financial planning, access to SRI options at low minimums, digital banking services, and new innovative features like Self-Driving Money by Wealthfront. Finally, if there is one thing that we have learned from the pandemic, it is that investing online continues to gain popularity and trust. Firms such as Betterment, Acorns, and Schwab have grown tremendously in the last year, and investors can rest assured that digital investing is here to stay.



Robo Interview with Stash CEO Brandon Krieg

- *Stash Smart Portfolios, the company's new managed accounts program, reports over 100,000 users in its first month after launch*
- *In just 5 years Stash went from a fractional-share investing app to a holistic platform with over 5 million users*
- *A clear differentiating feature has been the Stock-Back Card - it aligns short-term spending with long-term investing*

For this edition of the *Robo Report*, we spoke with Brandon Krieg, the CEO and Co-Founder of Stash. Stash has emerged as a leading consumer fintech company. Counting its users at over 5 million, the Stash platform is resonating with investors. Stash began as a self-directed investing platform but has steadily expanded its offerings. Since Stash just released a managed accounts platform we thought it was a good time to discuss how they have succeeded in the crowded fintech space.

Can you share with us the current number of users and current assets on the platform?

Over 5 million customers and over \$2.6 billion in AUM.

Stash has had impressive growth in terms of the number of users in a relatively short period of time. Is there a particular aspect of your brand or platform that has led to this growth?

Stash's mission to help millions of Americans invest in themselves. Our three key factors: accessibility, affordability, and simplicity.

long-term wealth is rooted in three key factors: accessibility, affordability, and simplicity. This focus has guided every decision over the last 5+ years—from our launch as a fractional investing app to the holistic financial platform we are today.

Now, for a flat, monthly subscription—starting at \$1/month—customers have access to investing and retirement accounts, a banking account with our Stock-Back Card, budgeting and diversification tools, round-the-clock educational content, and more.

Regardless of your background or financial experience, anyone can come to Stash and expect to be met with simple, easy-to-understand

Anyone can come to Stash and expect to be met with simple, easy-to-understand personalized guidance and tools.

personalized guidance and tools—something that's long been missing for the vast majority of Americans when it comes to managing their money and long-term goals.

Customer acquisition costs are a large hurdle for most consumer investing fintech companies. How has Stash tackled customer acquisition? Are there any specific acquisition channels or methods Stash has found particularly successful?

The Stash platform helps to solve a very real problem for many Americans who have been on the sidelines or excluded from traditional financial services. Because of this market fit, we've been able to find success in most digital channels you would expect to find millennials, along with many traditional channels like TV and OOH.

One of the interesting elements of Stash is how you are working to help investors “browse” ETFs and stocks to find which investments they are interested in. What have you learned from offering a place for investors to “shop” for investments?

Making the stocks and funds offered by Stash easier to browse has helped to provide an entrance point for many everyday Americans who are interested in learning more about investing. Without the ability to discover and learn, many of these folks would have to rely on personal knowledge or historical experience—something that’s, understandably, not a given for many first-time or beginner investors.

Of course, we’ve seen increased “browsing” when

Of course, we’ve seen increased “browsing” when specific companies or industries are in the news.

specific companies or industries are in the news during a given moment in time—and breaking down key information about given

investments can be helpful for people looking to know more. But, since 2020, our fifth most viewed investment on our website has been our “Match the Market” ETF, which we can credit back to our long-term investment philosophy.

Which dashboard features, or app features generally, stand out as particularly compelling for users on the app? Are there any that stand out as a “hit” with your user base?

Our Stock-Back Card is a key differentiator for us. Historically, many reward-driven cards have been designed to make customers spend more. Or, the rewards expire before being put to use. Stash’s Stock-Back Card helps customers invest in themselves as they spend on life’s necessities or at their favorite brands—plus, unlike points, the pieces of stock can grow with a customer over time.

When a customer makes a qualifying purchase with the Stock-Back Card, they earn stock that matches where they shopped. Swipe at McDonald’s, earn \$MCD, Spotify, earn \$SPOT, Etsy, earn \$ETSY. If you go to your local bookstore or grocery, customers also

Swipe at McDonald’s, earn \$MCD, Spotify, earn \$SPOT, Etsy, earn \$ETSY.

earn pieces of stock in their choice of more than a dozen qualifying stocks and ETFs. We’ve also seen that Stock-Back can be a great discovery tool for customers, helping them learn about new industries and companies, and even prompting them to make follow-up investments in the stocks and funds they receive Stock-Back in.

How does the Stash platform stand out from other micro-investing apps like Acorns and robo-advice platforms?

It’s twofold. For one, Stash has never wavered in its mission to help make long-term, diversified investing as easy and affordable as possible. This tried and true approach to investing is core to our unique “Stash Way” philosophy, and continues to guide every decision we make.

What’s more, the Stash platform aims to support people in all phases of their financial lives—from folks who are thinking about their financial futures for the very first time, to more experienced savers or goal-setters. For example, those looking for a bit more help may choose to kick off their investing journey with Stash’s Smart Portfolios—long-term, diversified portfolios that are fully managed by the Stash Investing Team. On the other hand, someone might choose to take a more “DIY” approach, investing in the specific stocks and funds they believe in, with the added guidance of our Diversification Analysis tool through their Personal Portfolio.

Regardless, all customers have access to Stash's Stock-Back Card, a debit card that rewards them with pieces of stock when they go about their daily spend. Plus, robust educational content and personalized advice. Again, it's Stash's unwavering dedication to accessibility, affordability, and simplicity that truly sets the brand apart.

What type of clients have you had the most success in attracting onto the platform? Are they new to investing? Previously self-directed? Previously in a traditional advice relationship?

A majority of Stash customers are around 30-years-old and first-time investors. This might mean they're coming to Stash to start thinking about their unique financial goals for the first time, as well as how to build wealth for the long term.

A majority of Stash customers are around 30-years-old and first-time investors.

Because of this, education is embedded into every corner of the Stash experience, helping to ensure that customers feel supported and informed as they navigate each part of their financial journey, from daily spend to goal-setting to retirement.

Has the launch and reception of the Smart Portfolios met expectations? Have you been surprised by anything since launching Smart Portfolios?

It's been exciting to see the response to Smart Portfolios. Roughly one month post-launch, there are now more than 100K Stash customers using Smart Portfolios to invest in their futures. The new offering helps solidify—and deepen—Stash's mission to make long-term, diversified

Roughly one month post-launch, there are now more than 100K Stash customers using Smart Portfolios to invest in their futures.

investing easier and more affordable for everyday Americans, particularly beginners who may not know where to start on their investment journeys. Unlike other institutions, Stash does not charge fees based on portfolio size—instead, Smart Portfolios are available to customers as part of Stash's Growth and Plus subscription plans, starting at \$3/mo.

What have you learned about how individuals interact with their investments that you did not expect?

I think it's clear that people are interested in ways to simplify their financial lives. Our popular tools like Auto-Stash and Smart Portfolios help to cement this—both of which offer ways for customers to practice a more “set it and forget it” mentality by letting them automate their investment approach. It's a simple way for people to live out our “Stash Way” investment philosophy—regular, diversified, long-term investing.

What is the long-term effect investing fintechs will have on the investment and advice industry?

Access is key. We've already seen how fintechs can help to make it easier for more and more Americans to have a stake in the game, and to start building wealth for the long term. Fintechs also have a key role to play in helping to provide financial education and, ultimately, increase widespread financial literacy—something a vast majority of Americans weren't taught in school or even at home.

Fintechs also have a key role to play in helping to provide financial education and, ultimately, increase widespread financial literacy.

Taking a more macro lens, the hope is that fintechs can help to make the financial services

industry—and access to wealth-building tools—as simple, affordable, and equitable as possible.

Who is the typical Stash client? Can you share any demographic information such as average age or account size?

The average Stash customer is around 30-years-old, with about \$50K in household income. Many of them are first-time investors, or new to their financial journey. In terms of gender, we were excited to see that nearly half of new customers coming to the platform in 2020 were women.

What other characteristics do you see in the Stash clientele? Are there any other demographic, investor type, or other trends you see?

Amid the market volatility that came to define the last year or so, we saw roughly 50% in the number of customers automating their investments to help them ride out the varying market highs and lows—a testament to the strength of Stash’s long-term investment philosophy.

What do Stash clients care about the most?

Perhaps not what customers care about “most,” but something we’ve certainly seen an increased interest in of late, are goal-setting tools. In 2020, for example, Stash launched Goals—a cash management tool that allows customers to create unique categories within their Stash banking account, helping them better prepare for expenses and more easily allocate money towards their financial goals.

A 2019 Stash study found that, each week, at least 35% of study participants faced an unplanned expense, and 44% reported turning to credit cards in those instances.

The genesis of Goals was direct customer feedback. A 2019 Stash study found that, each week, at least 35% of study participants faced an

unplanned expense, and 44% reported turning to credit cards in those instances. Recognizing customers’ need for a better way to partition their money—without the fear of taking on debt—Goals was born.

Do you see Stash expanding past investments and banking? Are there any specific areas that Stash is considering like insurance or payments?

While Stash does not sell insurance, we already partner with several trusted platforms to offer our customers simple, affordable insurance options as a way to help complete their financial picture—from life and auto to homeowners and renters insurance.

What is out there that is on the cutting edge of innovation? Are there any ideas or products that are new, coming to the market, or still in the idea phase that you find interesting either within Stash or at other providers?

While we’re always talking to customers, ideating, and testing new features for the Stash platform, the year ahead will be rooted in focus. With over 5M customers and a holistic financial offering, 2021 will be about making the Stash experience as simple and delightful as possible.

What do you see as the largest challenge presented to Stash to continue its growth?

There are still hundreds of millions of Americans who need better access to affordable financial products. This is the challenge Stash has been working to solve since day one, and what continues to drive the team day in and day out.

There are still hundreds of millions of Americans who need better access to affordable financial products.

Charts and Tables

AUM Statistics

Robo	AUM (in millions)	Clients	Source of AUM and Clients Figures
Acorns	\$3,378	5,443,371	Recent ADV
Ally Invest Advisors	\$710	57,006	Recent ADV
Axos Invest	\$205	19,649	Recent ADV
Beanstox	\$3	1,289	Recent ADV
Betterment	\$28,268	616,074	Recent ADV
bloom	\$4,883	24,144	Recent ADV
Edelman Financial Engines	\$260,100	1,293,365	Recent ADV
Ellevest	\$1,006	80,886	Recent ADV
FutureAdvisor	\$1,749	24,176	Recent ADV
M1 Finance	\$3,000*	Unknown	News Media
Personal Capital	\$17,800	27,000	Company Website
Qcapital	\$23	56,755	Recent ADV
Schwab Digitally Advised Assets	\$63,600	Unknown	Company Website
SigFig	\$1,422	26,791	Recent ADV
SoFi Invest	\$339	54,951	Recent ADV
Stash Invest	\$6	6,067,287	Recent ADV
Titan Invest	\$500	26,640	Recent ADV
United Income	\$889	1,142	Recent ADV
Vanguard Personal Advisor Services	\$231,000	Unknown	Company Representative
Wahed	\$147	15,161	Recent ADV
Wealthfront	\$15,847	278,740	Recent ADV

All clients, accounts, and AUM figures are estimates

Unless otherwise noted, AUM figures include discretionarily managed assets only

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

Produced by Backend Benchmarking for BackendB.com



Taxable Returns: Total Performance

	Total Portfolio											
	1Q 2021	1Q 2021 Return vs. Benchmark	1-Year	1-Year Return vs. Benchmark	2-Year	2-Year Return vs. Benchmark	3-Year	3-Year Return vs. Benchmark	4-Year	4-Year Return vs. Benchmark	5-Year	5-Year Return vs. Benchmark
Acorns ¹	3.23%	0.88%	33.31%	-1.35%	11.77%	-1.46%	9.26%	-0.63%	8.67%	-1.27%	8.56%	-1.43%
Ally Invest Managed Portfolios ⁹	3.37%	1.11%	33.39%	-0.70%	11.94%	-1.15%	9.03%	-0.77%	8.95%	-0.77%	-	-
Axos Invest ⁸	2.97%	0.28%	37.15%	0.17%	13.65%	-0.12%	10.46%	0.23%	10.15%	-0.06%	10.27%	-0.02%
BBVA SmartPath ⁷	1.71%	-0.55%	28.01%	-5.99%	10.12%	-3.04%	-	-	-	-	-	-
Beanstox ⁴²	1.71%	-0.64%	-	-	-	-	-	-	-	-	-	-
Betterment ²⁷	4.21%	1.44%	39.71%	2.15%	12.88%	-1.02%	9.13%	-1.19%	9.27%	-1.03%	9.57%	-0.83%
Betterment Broad Impact SRI ³²	2.14%	-0.21%	-	-	-	-	-	-	-	-	-	-
Betterment Climate Impact SRI ³²	1.99%	-0.36%	-	-	-	-	-	-	-	-	-	-
Betterment Goldman Sachs Smart Beta ³²	2.53%	0.18%	34.02%	-0.64%	-	-	-	-	-	-	-	-
Betterment Social Impact SRI ³²	2.12%	-0.23%	-	-	-	-	-	-	-	-	-	-
Betterment SRI (legacy) ²⁷	3.58%	1.23%	35.78%	1.12%	12.45%	-0.78%	9.01%	-0.88%	-	-	-	-
Citi Wealth Builder ⁴⁰	4.05%	1.45%	37.36%	1.57%	-	-	-	-	-	-	-	-
Citizens Bank Specifi ⁷	2.73%	0.04%	36.53%	-0.45%	12.91%	-0.86%	-	-	-	-	-	-
E*Trade Core ²¹	3.48%	1.13%	37.94%	3.28%	13.38%	0.15%	9.93%	0.04%	9.60%	-0.22%	-	-
E*Trade Core Smart Beta ²³	4.28%	1.93%	34.35%	-0.78%	12.04%	-1.28%	-	-	-	-	-	-
E*Trade Core SRI ²³	4.95%	2.60%	36.24%	1.11%	12.96%	-0.36%	-	-	-	-	-	-
Edelman Financial Engines (EMAP) ⁴	3.98%	1.04%	37.58%	-1.16%	12.54%	-1.68%	-	-	-	-	-	-
Ellevest ³⁸	3.42%	1.41%	33.26%	0.88%	11.61%	-1.07%	8.67%	-0.87%	8.70%	-0.87%	-	-
Ellevest SRI ³⁸	2.56%	1.40%	28.61%	0.80%	10.36%	-0.89%	-	-	-	-	-	-
Fidelity Go ³³	3.56%	1.13%	34.53%	-0.71%	12.53%	-0.83%	9.86%	-0.11%	9.83%	-0.09%	-	-
Fifth Third Bank Optifi ⁷	3.88%	1.53%	34.79%	0.13%	12.64%	-0.59%	-	-	-	-	-	-
FutureAdvisor ³	2.56%	0.72%	30.52%	-2.08%	11.98%	-0.69%	8.35%	-1.19%	8.46%	-1.01%	-	-
Interactive Advisors ²⁴	3.24%	1.40%	31.20%	-0.04%	10.74%	-1.66%	-	-	-	-	-	-
Interactive Advisors Legg Mason Global Growth and Income ²⁴	3.04%	-0.07%	33.53%	-6.39%	-	-	-	-	-	-	-	-
Interactive Advisors State Street Moderate ²⁴	2.86%	0.51%	35.47%	0.14%	-	-	-	-	-	-	-	-
Interactive Advisors Wisdom Tree Moderate Aggressive ²⁴	2.64%	0.55%	32.29%	-0.65%	-	-	-	-	-	-	-	-

Returns are net of fees and are as of 03/31/2021. All returns for periods longer than one year are annualized.

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Taxable Returns: Total Performance (continued from previous page)

	Total Portfolio											
	1Q 2021	1Q 2021 Return vs. Benchmark	1-Year	1-Year Return vs. Benchmark	2-Year	2-Year Return vs. Benchmark	3-Year	3-Year Return vs. Benchmark	4-Year	4-Year Return vs. Benchmark	5-Year	5-Year Return vs. Benchmark
JP Morgan Chase Automated Investing ⁷	1.46%	-0.10%	26.27%	-2.82%	-	-	-	-	-	-	-	-
Liftoff (Ritholtz Wealth Management) ³	3.38%	1.03%	36.18%	1.52%	-	-	-	-	-	-	-	-
M1 Finance ³⁴	3.24%	0.38%	39.67%	1.52%	-	-	-	-	-	-	-	-
Merrill Edge Guided Investing ³¹	4.18%	1.64%	34.70%	-0.68%	11.98%	-1.10%	9.10%	-0.73%	8.89%	-0.91%	-	-
Merrill Edge Guided Investing SRI ³¹	2.90%	0.19%	37.17%	0.74%	14.42%	0.65%	-	-	-	-	-	-
Morgan Stanley Active ³	2.76%	0.07%	37.55%	0.57%	13.90%	0.13%	-	-	-	-	-	-
Morgan Stanley Defense and Cyber Security ⁷	2.81%	-0.39%	39.29%	-1.01%	-	-	-	-	-	-	-	-
Morgan Stanley Emerging Consumer ⁷	1.70%	-1.41%	42.22%	2.30%	-	-	-	-	-	-	-	-
Morgan Stanley Gender Diversity ⁷	2.61%	0.18%	34.05%	-0.98%	-	-	-	-	-	-	-	-
Morgan Stanley Genomics ⁷	1.07%	-0.85%	32.05%	0.65%	-	-	-	-	-	-	-	-
Morgan Stanley Global Frontier ⁷	2.15%	-0.96%	37.95%	-1.76%	-	-	-	-	-	-	-	-
Morgan Stanley Inflation Conscious ⁷	4.05%	1.36%	38.23%	1.88%	-	-	-	-	-	-	-	-
Morgan Stanley Market-Tracking ¹²	3.78%	1.09%	36.08%	-0.69%	12.68%	-1.14%	8.99%	-1.27%	-	-	-	-
Morgan Stanley Robotics ⁷	2.79%	-0.41%	49.21%	8.91%	-	-	-	-	-	-	-	-
Morgan Stanley SRI ⁷	2.59%	0.50%	33.65%	0.71%	13.61%	0.73%	9.98%	0.33%	-	-	-	-
Personal Capital ⁴	4.57%	1.11%	41.33%	-0.98%	12.95%	-2.01%	9.27%	-1.71%	9.06%	-2.00%	9.42%	-1.84%
Qapital ³⁰	5.09%	2.15%	40.50%	1.76%	12.41%	-1.76%	-	-	-	-	-	-
Schwab ⁵	4.69%	2.60%	37.72%	3.66%	11.21%	-1.52%	7.65%	-1.92%	8.22%	-1.53%	8.97%	-0.99%
Schwab Domestic Focus ⁵	6.41%	3.72%	41.91%	5.58%	-	-	-	-	-	-	-	-
SigFig ⁶	2.40%	-0.12%	35.26%	-0.56%	13.87%	0.37%	10.16%	0.10%	10.12%	0.11%	10.38%	0.30%
SoFi ¹⁷	3.29%	0.94%	35.27%	0.61%	13.62%	0.39%	9.85%	-0.10%	-	-	-	-
Sustainfolio ⁷	2.60%	0.42%	-	-	-	-	-	-	-	-	-	-
TD Ameritrade ¹⁰	3.20%	-0.08%	39.06%	-1.04%	13.88%	-0.74%	10.04%	-0.73%	10.19%	-0.53%	-	-
TD Ameritrade Opportunistic ³⁵	2.99%	1.07%	29.88%	0.52%	-	-	-	-	-	-	-	-
TD Ameritrade SRI ⁴⁵	3.42%	0.14%	39.82%	-0.33%	14.76%	0.01%	-	-	-	-	-	-

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Taxable Returns: Total Performance (continued from previous page)

	Total Portfolio											
	1Q 2021	1Q 2021 Return vs. Benchmark	1-Year	1-Year Return vs. Benchmark	2-Year	2-Year Return vs. Benchmark	3-Year	3-Year Return vs. Benchmark	4-Year	4-Year Return vs. Benchmark	5-Year	5-Year Return vs. Benchmark
TIAA Personal Portfolio Active ⁷	2.79%	0.36%	36.53%	1.29%	12.97%	-0.62%	-	-	-	-	-	-
TIAA Personal Portfolio ⁷	2.19%	-0.24%	33.28%	-1.96%	12.86%	-0.50%	9.46%	-0.51%	-	-	-	-
TIAA Personal Portfolio SRI ⁷	2.77%	0.42%	35.92%	1.26%	13.47%	0.24%	10.06%	0.17%	-	-	-	-
Twine ³	3.17%	0.06%	39.66%	-0.26%	13.80%	-0.63%	-	-	-	-	-	-
UBS Advice Advantage ⁷	3.71%	0.51%	40.04%	-0.47%	12.96%	-1.83%	-	-	-	-	-	-
United Income ¹⁶	2.04%	-0.22%	27.89%	-6.20%	8.12%	-4.97%	5.73%	-4.07%	-	-	-	-
US Bank Automated Investor ²⁸	3.12%	1.03%	37.31%	4.37%	13.67%	0.83%	-	-	-	-	-	-
Vanguard Digital Advisor ⁷	2.19%	0.01%	33.10%	-0.42%	-	-	-	-	-	-	-	-
Vanguard P.A.S. ⁴³	3.34%	0.99%	35.56%	0.90%	12.65%	-0.58%	9.50%	-0.39%	9.54%	-0.28%	9.54%	-0.32%
Wahed Invest ⁴	0.68%	-1.67%	-	-	-	-	-	-	-	-	-	-
Wealthfront ⁴⁴	5.55%	2.78%	41.46%	3.90%	13.19%	-0.71%	10.08%	-0.24%	10.04%	-0.26%	-	-
Wealthfront PassivePlus ²²	1.63%	-0.38%	31.16%	-1.22%	-	-	-	-	-	-	-	-
Wells Fargo Intuitive Investor ¹⁴	2.68%	0.08%	42.07%	5.67%	14.02%	0.39%	10.45%	0.30%	-	-	-	-
Zacks Advantage ²⁹	4.56%	2.21%	35.94%	1.28%	12.97%	-0.26%	9.79%	-0.05%	-	-	-	-

Returns are net of fees and are as of 03/31/2021. All returns for periods longer than one year are annualized.

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Non 60/40 Target Allocation Taxable Returns

		Total				Equity		Fixed Income	
		1Q 2021	1Q 2021 Return vs. Benchmark	1-Year	1-Year Return vs. Benchmark	1Q 2021	1-Year	1Q 2021	1-Year
Betterment Income ²⁷	0%	-0.07%	2.67%	3.23%	-0.26%	-	-	-0.07%	3.23%
M1 Finance SRI ³⁴	98%	6.95%	1.19%	-	-	7.07%	-	-	-
TD Ameritrade Income ³⁵	23%	-0.62%	0.34%	13.61%	-0.05%	*A	*A	*A	*A
TD Ameritrade Managed Risk ³⁵	9%	1.64%	3.11%	13.36%	2.69%	*A	*A	*A	*A
Titan Invest ³	100%	0.34%	-5.42%	71.71%	12.43%	0.34%	71.96%	-	-

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Taxable Returns: Equity and Fixed-Income Performance

	Equity						Fixed Income					
	10 2021	1-Year	2-Year	3-Year	4-Year	5-Year	10 2021	1-Year	2-Year	3-Year	4-Year	5-Year
Acorns ¹	6.70%	57.05%	16.64%	12.75%	12.24%	12.53%	-2.66%	2.95%	4.09%	3.68%	2.86%	2.19%
Ally Invest Managed Portfolios ⁹	7.60%	61.54%	17.34%	11.78%	12.40%	-	-3.36%	0.82%	4.15%	4.51%	3.61%	-
Axos Invest ⁸	5.90%	57.55%	18.08%	13.20%	13.37%	13.82%	-2.14%	6.69%	5.47%	5.14%	4.11%	3.75%
BBVA SmartPath ⁷	6.15%	52.00%	13.66%	-	-	-	-3.85%	0.79%	4.15%	-	-	-
Beanstox ⁴²	3.44%	-	-	-	-	-	-2.19%	-	-	-	-	-
Betterment ²⁷	7.56%	61.19%	16.78%	11.13%	11.70%	12.57%	-2.11%	5.59%	4.18%	4.26%	3.79%	3.25%
Betterment Broad Impact SRI ³²	4.80%	-	-	-	-	-	-1.98%	-	-	-	-	-
Betterment Climate Impact SRI ³²	4.76%	-	-	-	-	-	-2.30%	-	-	-	-	-
Betterment Goldman Sachs Smart Beta ³²	6.23%	54.26%	-	-	-	-	-3.00%	7.63%	-	-	-	-
Betterment Social Impact SRI ³²	4.88%	-	-	-	-	-	-2.17%	-	-	-	-	-
Betterment SRI (legacy) ²⁷	7.15%	58.95%	17.17%	11.53%	-	-	-2.01%	5.64%	4.20%	4.27%	-	-
Citi Wealth Builder ⁴⁰	*A	*A	-	-	-	-	*A	*A	-	-	-	-
Citizens Bank Specifi ⁷	5.37%	58.40%	17.25%	-	-	-	-2.92%	2.24%	4.18%	-	-	-
E*Trade Core ²¹	8.00%	64.67%	18.26%	12.71%	12.95%	-	-3.56%	4.68%	5.28%	5.20%	4.14%	-
E*Trade Core Smart Beta ²³	7.16%	56.49%	15.61%	-	-	-	-0.68%	4.63%	4.30%	-	-	-
E*Trade Core SRI ²³	8.28%	60.10%	17.16%	-	-	-	-0.68%	4.63%	4.30%	-	-	-
Edelman Financial Engines (EMAP) ⁶	7.81%	61.77%	16.64%	-	-	-	-4.37%	-0.86%	2.69%	-	-	-
Ellevest ³⁸	6.51%	58.82%	17.54%	12.32%	12.62%	-	-0.67%	5.24%	3.09%	3.18%	2.86%	-
Ellevest SRI ³⁸	6.14%	59.52%	18.10%	-	-	-	-0.57%	4.67%	3.06%	-	-	-
Fidelity Go ³³	5.90%	57.07%	17.46%	12.86%	13.28%	-	0.02%	5.63%	3.81%	4.14%	3.79%	-
Fifth Third Bank OptiFi ⁷	6.56%	57.99%	17.99%	-	-	-	-0.02%	5.34%	4.01%	-	-	-
FutureAdvisor ³	7.67%	59.76%	17.69%	11.84%	12.20%	-	-3.63%	0.81%	4.39%	3.68%	3.39%	-
Interactive Advisors ²⁴	8.45%	59.21%	14.74%	-	-	-	-3.11%	4.41%	4.92%	-	-	-
Interactive Advisors Legg Mason Global Growth and Income ²⁴	6.38%	45.46%	-	-	-	-	-4.44%	12.07%	-	-	-	-
Interactive Advisors State Street Moderate ²⁴	5.67%	55.85%	-	-	-	-	-3.56%	5.09%	-	-	-	-
Interactive Advisors Wisdom Tree Moderate Aggressive ²⁴	*A	*A	-	-	-	-	*A	*A	-	-	-	-

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

	Equity						Fixed Income					
	1Q 2021	1-Year	2-Year	3-Year	4-Year	5-Year	1Q 2021	1-Year	2-Year	3-Year	4-Year	5-Year
JP Morgan Chase Automated Investing ⁷	5.48%	53.93%	-	-	-	-	-3.17%	1.37%	-	-	-	-
Liftoff (Ritholtz Wealth Management) ⁵	7.11%	59.72%	-	-	-	-	-2.25%	5.41%	-	-	-	-
MI Finance ³⁴	6.57%	60.58%	-	-	-	-	-3.55%	8.30%	-	-	-	-
Merrill Edge Guided Investing ³¹	6.85%	57.62%	17.57%	12.48%	12.65%	-	-0.43%	4.64%	3.35%	3.68%	3.13%	-
Merrill Edge Guided Investing SRI ³¹	5.64%	59.39%	19.15%	-	-	-	-2.49%	4.28%	3.88%	-	-	-
Morgan Stanley Active ³	5.36%	59.66%	18.11%	-	-	-	-3.05%	3.00%	4.46%	-	-	-
Morgan Stanley Defense and Cyber Security ⁷	4.90%	58.11%	-	-	-	-	-3.05%	3.02%	-	-	-	-
Morgan Stanley Emerging Consumer ⁷	3.31%	61.91%	-	-	-	-	-3.06%	3.02%	-	-	-	-
Morgan Stanley Gender Diversity ⁷	5.06%	56.52%	-	-	-	-	-2.12%	3.26%	-	-	-	-
Morgan Stanley Genomics ⁷	3.77%	60.50%	-	-	-	-	-2.98%	2.93%	-	-	-	-
Morgan Stanley Global Frontier ⁷	4.07%	56.04%	-	-	-	-	-3.06%	2.95%	-	-	-	-
Morgan Stanley Inflation Conscious ⁷	7.81%	62.44%	-	-	-	-	-2.57%	4.36%	-	-	-	-
Morgan Stanley Market-Tracking ¹²	6.73%	58.54%	16.52%	10.97%	-	-	-2.71%	1.17%	3.99%	4.18%	-	-
Morgan Stanley Robotics ⁷	4.56%	71.90%	-	-	-	-	-3.01%	3.06%	-	-	-	-
Morgan Stanley SRI ⁷	5.24%	57.69%	19.63%	13.66%	-	-	-2.14%	3.25%	3.90%	3.76%	-	-
Personal Capital ⁴	7.25%	59.78%	16.20%	11.44%	11.33%	11.85%	-2.36%	4.40%	3.79%	3.07%	2.65%	2.62%
Qcapital ³⁰	8.99%	61.10%	15.63%	-	-	-	-3.22%	5.01%	4.98%	-	-	-
Schwab ⁵	9.24%	64.46%	15.67%	10.23%	11.01%	12.12%	-1.51%	7.78%	5.34%	4.28%	4.37%	4.61%
Schwab Domestic Focus ⁵	10.64%	68.31%	-	-	-	-	-1.04%	6.08%	-	-	-	-
SigFig ⁶	5.63%	59.21%	18.09%	12.71%	13.47%	14.17%	-2.92%	3.69%	5.62%	5.05%	4.02%	3.84%
SoFi ¹⁷	5.34%	59.12%	19.51%	13.09%	-	-	-0.44%	4.79%	4.20%	4.23%	-	-
Sustainfolio ⁷	5.58%	-	-	-	-	-	-1.68%	-	-	-	-	-
TD Ameritrade ¹⁰	5.57%	57.53%	17.12%	11.86%	12.64%	-	-3.19%	1.44%	4.01%	3.74%	3.21%	-
TD Ameritrade Opportunistic ³⁵	8.14%	56.65%	-	-	-	-	-3.30%	5.10%	-	-	-	-
TD Ameritrade SRI ⁴⁵	6.03%	58.72%	17.89%	-	-	-	-3.34%	1.20%	4.08%	-	-	-
TIAA Personal Portfolio Active ⁷	6.51%	59.31%	16.39%	-	-	-	-3.06%	6.13%	5.27%	-	-	-

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

	Equity						Fixed Income					
	10 2021	1-Year	2-Year	3-Year	4-Year	5-Year	10 2021	1-Year	2-Year	3-Year	4-Year	5-Year
TIAA Personal Portfolio ⁷	5.55%	57.80%	17.57%	12.20%	-	-	-3.03%	1.92%	4.38%	4.33%	-	-
TIAA Personal Portfolio SRI ⁷	5.58%	57.07%	18.24%	12.90%	-	-	-1.57%	8.33%	5.26%	4.86%	-	-
Twine ³	5.65%	57.65%	17.73%	-	-	-	-2.68%	5.42%	4.15%	-	-	-
UBS Advice Advantage ⁷	5.79%	56.86%	15.63%	-	-	-	-1.29%	6.08%	4.04%	-	-	-
United Income ¹⁶	5.43%	48.04%	11.55%	7.26%	-	-	-3.15%	1.42%	2.45%	2.63%	-	-
US Bank Automated Investor ²⁸	5.61%	64.93%	19.97%	-	-	-	-0.59%	5.48%	4.45%	-	-	-
Vanguard Digital Advisor ⁷	5.95%	58.95%	-	-	-	-	-3.26%	1.77%	-	-	-	-
Vanguard P.A.S. ⁴³	5.55%	58.72%	18.09%	12.78%	13.28%	13.84%	-0.31%	4.96%	4.10%	4.22%	3.62%	2.87%
Wahed Invest ⁴	4.39%	-	-	-	-	-	-0.80%	-	-	-	-	-
Wealthfront ⁴⁴	8.80%	62.90%	16.48%	11.95%	12.41%	-	-1.16%	5.47%	4.75%	5.05%	4.25%	-
Wealthfront PassivePlus ²²	5.39%	59.03%	-	-	-	-	-1.24%	5.82%	-	-	-	-
Wells Fargo Intuitive Investor ¹⁴	5.89%	66.70%	19.41%	13.99%	-	-	-3.17%	6.78%	4.29%	4.10%	-	-
Zacks Advantage ²⁹	7.81%	61.41%	19.12%	14.02%	-	-	-0.50%	3.28%	3.40%	3.39%	-	-

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Retirement Returns: Total Performance

	Total Portfolio											
	1Q 2021	1Q 2021 Return vs. Benchmark	1-Year	1-Year Return vs. Benchmark	2-Year	2-Year Return vs. Benchmark	3-Year	3-Year Return vs. Benchmark	4-Year	4-Year Return vs. Benchmark	5-Year	5-Year Return vs. Benchmark
Ally Invest Managed Portfolios IRA ⁹	7.44%	2.31%	57.74%	3.41%	16.90%	-0.27%	11.64%	-0.63%	12.04%	-0.63%	-	-
Axos Invest IRA ²⁵	5.00%	-0.05%	53.27%	-0.40%	16.92%	-0.12%	12.03%	-0.16%	12.48%	-0.09%	13.02%	-0.05%
Betterment IRA ²⁷	6.09%	1.45%	52.58%	2.15%	15.54%	-0.83%	10.71%	-1.06%	11.13%	-0.96%	-	-
bloom IRA ⁴¹	4.26%	-0.30%	-	-	-	-	-	-	-	-	-	-
E*Trade Core IRA ²¹	7.95%	2.40%	63.78%	6.12%	17.99%	0.16%	12.49%	-0.20%	12.72%	-0.43%	-	-
Fidelity Go IRA ³³	4.61%	0.14%	47.53%	-1.61%	15.97%	-0.13%	11.94%	0.34%	11.99%	0.10%	-	-
Marcus Invest (Goldman Sachs) IRA ³	7.00%	1.37%	56.31%	-2.01%	16.87%	-1.08%	-	-	-	-	-	-
Merrill Edge Guided Investing IRA ³¹	6.35%	1.21%	52.52%	-1.30%	16.09%	-0.92%	11.32%	-0.86%	-	-	-	-
Morgan Stanley IRA ⁷	5.09%	1.19%	44.88%	-0.35%	14.48%	-0.75%	9.98%	-1.06%	-	-	-	-
Personal Capital IRA ⁴	6.53%	1.16%	55.62%	-0.65%	15.45%	-2.10%	11.04%	-1.47%	11.04%	-1.91%	-	-
Principal SimpleInvest IRA ⁷	5.96%	0.42%	55.69%	-1.95%	-	-	-	-	-	-	-	-
Schwab IRA ²⁰	9.25%	4.04%	59.43%	4.44%	14.24%	-3.06%	9.38%	-2.98%	10.18%	-2.58%	11.31%	-1.97%
SigFig IRA ⁶	4.67%	-0.30%	50.24%	-2.78%	14.41%	-2.49%	10.03%	-2.08%	11.05%	-1.42%	11.78%	-1.18%
SoFi IRA ¹⁸	5.34%	-0.36%	59.10%	0.12%	19.51%	1.43%	13.10%	0.26%	-	-	-	-
T Rowe Price ActivePlus Portfolios IRA ¹⁵	6.84%	1.14%	63.98%	5.00%	19.28%	1.20%	13.58%	0.74%	-	-	-	-
TD Ameritrade IRA ¹⁰	4.41%	0.02%	48.87%	0.37%	15.80%	-0.16%	11.12%	-0.39%	11.55%	-0.23%	-	-
TIAA Personal Portfolio IRA ⁷	4.44%	-0.28%	49.28%	-1.79%	16.15%	-0.35%	11.45%	-0.40%	-	-	-	-
United Income IRA ¹⁶	3.66%	-1.96%	45.88%	-12.43%	10.46%	-7.49%	6.10%	-6.66%	-	-	-	-
Wells Fargo Intuitive Investor IRA ¹⁴	5.60%	0.63%	61.56%	8.54%	17.51%	0.61%	11.90%	-0.21%	-	-	-	-
Zack's Advantage IRA ⁴	6.97%	1.59%	56.88%	0.57%	17.18%	-0.21%	11.97%	-0.45%	-	-	-	-

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Retirement Returns: Equity and Fixed Income Returns

	Equity						Fixed Income					
	1Q 2021	1-Year	2-Year	3-Year	4-Year	5-Year	1Q 2021	1-Year	2-Year	3-Year	4-Year	5-Year
Ally Invest Managed Portfolios IRA ⁹	7.94%	62.19%	17.52%	11.93%	12.50%	-	-3.05%	1.86%	4.09%	4.48%	3.67%	-
Axos Invest IRA ²⁵	5.72%	58.41%	17.92%	12.61%	13.20%	13.83%	-2.64%	6.56%	5.95%	5.30%	4.35%	4.09%
Betterment IRA ²⁷	7.32%	60.09%	16.48%	11.17%	11.86%	-	-3.01%	5.29%	4.44%	4.28%	3.85%	-
bloom IRA ⁴¹	5.59%	-	-	-	-	-	-3.54%	-	-	-	-	-
E*Trade Core IRA ²¹	8.03%	64.95%	18.27%	12.69%	12.96%	-	-	-	-	-	-	-
Fidelity Go IRA ³³	5.99%	57.44%	17.78%	13.10%	13.39%	-	-3.57%	0.11%	4.37%	4.34%	3.42%	-
Marcus Invest (Goldman Sachs) IRA ³	7.10%	57.31%	17.08%	-	-	-	-	-	-	-	-	-
Merrill Edge Guided Investing IRA ³¹	6.97%	58.06%	17.55%	12.21%	-	-	-2.61%	4.11%	-1.11%	0.36%	-	-
Morgan Stanley IRA ⁷	6.78%	58.48%	16.79%	11.20%	-	-	-2.76%	1.12%	3.86%	4.08%	-	-
Personal Capital IRA ⁴	7.10%	59.39%	16.11%	11.49%	11.46%	-	-3.11%	4.74%	3.90%	2.22%	2.32%	-
Principal SimpleInvest IRA ⁷	6.19%	57.30%	-	-	-	-	-	-	-	-	-	-
Schwab IRA ²⁰	9.90%	64.54%	15.20%	10.00%	10.86%	12.08%	-	-	-	-	-	-
SigFig IRA ⁶	5.65%	55.09%	15.62%	10.70%	11.94%	12.69%	-5.18%	11.41%	3.36%	3.65%	3.02%	3.68%
SoFi IRA ¹⁸	5.34%	59.13%	19.54%	13.12%	-	-	-	-	-	-	-	-
T Rowe Price ActivePlus Portfolios IRA ¹³	6.84%	63.98%	19.30%	13.59%	-	-	-	-	-	-	-	-
TD Ameritrade IRA ¹⁰	5.62%	58.48%	17.86%	12.49%	13.12%	-	-3.70%	1.93%	3.67%	3.15%	2.88%	-
TIAA Personal Portfolio IRA ⁷	5.43%	57.58%	17.57%	12.21%	-	-	-2.84%	2.53%	4.62%	4.46%	-	-
United Income IRA ¹⁶	3.72%	46.55%	10.28%	6.01%	-	-	-	-	-	-	-	-
Wells Fargo Intuitive Investor IRA ¹⁴	6.46%	67.33%	18.60%	12.52%	-	-	-4.31%	5.65%	1.83%	2.72%	-	-
Zack's Advantage IRA ⁴	7.56%	60.89%	18.34%	12.82%	-	-	-	-	-	-	-	-

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Taxable Account Facts

Portfolio	Account Minimum	Advisory Fee	Weighted Average Expense Ratio	Initial Target Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Current Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Initial Domestic/ International Equity Split	Current Domestic/ International Equity Split	Tax Efficiency Ratio (% Muni Bonds of Overall Fixed Income)
Acorns	No minimum	\$1/month for Lite; \$3/month for Personal; \$5/month for Family	0.05%	61%/39%/0%/0%	65%/35%/0%/0%	84%/16%	70%/30%	0%
Ally Invest Managed Portfolios	\$100	0.30% annually; Also offers 'cash-enhanced' portfolio with 30% invested in cash and no management fee	0.06%	59%/39%/0%/2%	59%/39%/0%/2%	59%/41%	60%/40%	0%
Axos Invest	\$500	0.24% annually	0.09%	64%/36%/0%/0%	64%/36%/0%/0%	62%/38%	63%/37%	0%
BBVA SmartPath	\$10,000	0.75% annually	0.12%	57%/39%/3%/1%	58%/37%/3%/1%	63%/37%	63%/37%	0%
Beanstox	\$100	\$5/month	0.18%	60%/40%/0%/0%	59%/19%/0%/21%	84%/16%	82%/18%	100%
Betterment	Digital: No minimum; Premium: \$100,000	Digital: 0.25%; Premium: 0.40%	0.09%	65%/35%/0%/0%	65%/35%/0%/0%	49%/51%	58%/42%	37%
Betterment Broad Impact SRI	Digital: No minimum; Premium: \$100,000	Digital: 0.25%; Premium: 0.40%	0.15%	60%/40%/0%/0%	62%/38%/0%/0%	50%/50%	51%/49%	60%
Betterment Climate Impact SRI	Digital: No minimum; Premium: \$100,000	Digital: 0.25%; Premium: 0.40%	0.20%	60%/40%/0%/0%	62%/38%/0%/0%	78%/22%	58%/42%	37%
Betterment Goldman Sachs Smart Beta	Digital: No minimum; Premium: \$100,000	Digital: 0.25%; Premium: 0.40%	0.11%	60%/40%/0%/0%	60%/40%/0%/0%	57%/43%	71%/29%	34%
Betterment Income	Digital: No minimum; Premium: \$100,000	Digital: 0.25%; Premium: 0.40%	0.18%	0%/100%/0%/0%	0%/100%/0%/0%	N/A	N/A	0%
Betterment Social Impact SRI	Digital: No minimum; Premium: \$100,000	Digital: 0.25%; Premium: 0.40%	0.17%	60%/40%/0%/0%	62%/37%/0%/0%	57%/43%	57%/43%	37%
Betterment SRI (legacy)	Digital: No minimum; Premium: \$100,000	Digital: 0.25%; Premium: 0.40%	0.14%	60%/40%/0%/0%	60%/40%/0%/0%	50%/50%	50%/50%	59%
Citi Wealth Builder	\$1,500	0.55% annually; discounted relationship pricing may be available	0.16%	61%/36%/0%/3%	66%/32%/0%/2%	72%/28%	83%/17%	1%
Citizens Bank Specifi	\$2,000	0.50% annually	0.08%	64%/36%/0%/1%	64%/36%/0%/0%	54%/46%	55%/45%	0%

Current allocations as of 03/31/2021. Due to rounding, may not add to 100%.

Weighted average expense ratio calculations exclude cash holdings from the portfolio.

Produced by Backend Benchmarking for BackendB.com

Taxable Account Facts *(continued from previous page)*

Portfolio	Account Minimum	Advisory Fee	Weighted Average Expense Ratio	Initial Target Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Current Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Initial Domestic/ International Equity Split	Current Domestic/ International Equity Split	Tax Efficiency Ratio (% Muni Bonds of Overall Fixed Income)
E*Trade Core	\$500	0.30% annually	0.05%	60%/39%/0%/1%	60%/38%/0%/1%	75%/25%	66%/34%	0%
E*Trade Core Smart Beta	\$500	0.30% annually	0.12%	61%/35%/0%/3%	60%/39%/0%/1%	65%/35%	66%/34%	100%
E*Trade Core SRI	\$500	0.30% annually	0.14%	61%/35%/0%/4%	60%/39%/0%/1%	65%/35%	66%/34%	100%
Edelman Financial Engines (EMAP)	\$5,000	1.75%; discounted tiered pricing at higher asset levels	0.12%	67%/30%/0%/3%	69%/28%/0%/4%	80%/20%	76%/24%	0%
Ellevest	No minimum; Private Client: \$1 million	\$1/month for Essential; \$5/month for Plus; \$9/month for Executive	0.07%	62%/36%/0%/2%	57%/42%/0%/1%	71%/29%	62%/38%	96%
Ellevest SRI	No minimum; Private Client: \$1 million	\$1/month for Essential; \$5/month for Plus; \$9/month for Executive	0.16%	56%/43%/0%/1%	46%/53%/0%/1%	63%/37%	63%/37%	84%
Fidelity Go	Digital Only: No Minimum; Personalized Planning & Advice: \$25,000	Digital Only: for balances less than \$10,000 there is no fee, for balances between \$10,000 - \$49,999.99 it is \$3/mo, for balances \$50,000 and above it is 0.35% annually. Personalized Planning & Advice: 0.50% annually	0.00%	61%/39%/0%/0%	60%/39%/0%/1%	71%/29%	71%/29%	100%
Fifth Third Bank OptiFi	\$5,000	0.50% annually	0.19%	60%/40%/0%/1%	59%/40%/0%/1%	70%/30%	70%/30%	100%
FutureAdvisor	\$5,000	0.50% annually	0.06%	58%/41%/0%/1%	57%/42%/0%/1%	49%/51%	74%/26%	0%
Interactive Advisors	\$100 minimum. Some portfolio selections require a higher minimum	Fee between 0.08% - 1.5% annually depending on portfolio selection	0.13%	54%/46%/0%/0%	56%/43%/0%/1%	55%/45%	56%/44%	32%
Interactive Advisors Legg Mason Global Growth and Income	\$100 minimum. Some portfolio selections require a higher minimum	Fee between 0.08% - 1.5% annually depending on portfolio selection	0.48%	69%/29%/0%/2%	71%/28%/0%/2%	79%/21%	70%/30%	0%

Current allocations as of 03/31/2021. Due to rounding, may not add to 100%.
Weighted average expense ratio calculations exclude cash holdings from the portfolio.

Produced by Backend Benchmarking for BackendB.com

Taxable Account Facts (continued from previous page)

Portfolio	Account Minimum	Advisory Fee	Weighted Average Expense Ratio	Initial Target Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Current Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Initial Domestic/ International Equity Split	Current Domestic/ International Equity Split	Tax Efficiency Ratio (% Muni Bonds of Overall Fixed Income)
Interactive Advisors State Street Moderate	\$100 minimum. Some portfolio selections require a higher minimum	Fee between 0.08% - 1.5% annually depending on portfolio selection	0.25%	64%/31%/2%/3%	67%/26%/5%/2%	66%/34%	64%/36%	0%
Interactive Advisors Wisdom Tree Moderate Aggressive	\$100 minimum. Some portfolio selections require a higher minimum	Fee between 0.08% - 1.5% annually depending on portfolio selection	0.27%	54%/30%/14%/2%	55%/36%/7%/1%	62%/38%	64%/36%	1%
JP Morgan Chase Automated Investing	\$500	0.35% annually. JP Morgan ETF expenses will be rebated or offset against the management fee	0.11%	50%/48%/0%/2%	54%/44%/0%/2%	55%/45%	58%/42%	0%
Liftoff (Ritholtz Wealth Management)	No minimum	0.50% annually	0.08%	60%/40%/0%/0%	61%/39%/0%/0%	57%/43%	58%/42%	37%
M1 Finance	\$100 minimum for taxable accounts, \$500 minimum for retirement accounts	No management fee	0.05%	66%/34%/0%/0%	68%/31%/0%/0%	61%/39%	64%/36%	0%
M1 Finance SRI	\$100 minimum for taxable accounts, \$500 minimum for retirement accounts	No management fee	0.39%	100%/0%/0%/0%	98%/0%/0%/2%	69%/31%	71%/29%	N/A
Merrill Edge Guided Investing	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	0.07%	60%/39%/0%/1%	65%/32%/0%/3%	66%/34%	73%/27%	72%
Merrill Edge Guided Investing SRI	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	0.17%	59%/37%/0%/4%	65%/30%/0%/4%	65%/35%	72%/28%	0%
Morgan Stanley Active	\$5,000	0.35% annually	0.40%	64%/35%/0%/1%	70%/29%/0%/1%	44%/56%	52%/48%	0%
Morgan Stanley Defense and Cyber Security	\$5,000	0.35% annually	0.45%	64%/29%/0%/8%	75%/24%/0%/1%	58%/42%	60%/40%	0%
Morgan Stanley Emerging Consumer	\$5,000	0.35% annually	0.49%	64%/29%/0%/8%	75%/23%/0%/1%	57%/43%	39%/61%	0%
Morgan Stanley Gender Diversity	\$5,000	0.35% annually	0.44%	60%/37%/0%/3%	67%/32%/0%/1%	68%/32%	69%/31%	9%

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Produced by Backend Benchmarking for BackendB.com

Taxable Account Facts (continued from previous page)

Portfolio	Account Minimum	Advisory Fee	Weighted Average Expense Ratio	Initial Target Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Current Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Initial Domestic/ International Equity Split	Current Domestic/ International Equity Split	Tax Efficiency Ratio (% Muni Bonds of Overall Fixed Income)
Morgan Stanley Genomics	\$5,000	0.35% annually	0.43%	49%/45%/0%/6%	61%/38%/0%/1%	56%/44%	60%/40%	0%
Morgan Stanley Global Frontier	\$5,000	0.35% annually	0.59%	66%/29%/0%/5%	74%/25%/0%/1%	40%/60%	43%/57%	0%
Morgan Stanley Inflation Conscious	\$5,000	0.35% annually	0.46%	58%/30%/3%/9%	68%/29%/2%/1%	63%/37%	64%/36%	0%
Morgan Stanley Market-Tracking	\$5,000	0.35% annually	0.07%	65%/30%/0%/5%	68%/31%/0%/1%	45%/55%	49%/51%	0%
Morgan Stanley Robotics	\$5,000	0.35% annually	0.47%	66%/28%/0%/5%	73%/27%/0%/1%	52%/48%	56%/44%	0%
Morgan Stanley SRI	\$5,000	0.35% annually	0.48%	64%/35%/0%/1%	65%/34%/0%/1%	56%/44%	64%/36%	9%
Personal Capital	\$100,000	0.89% annually; discounted tiered pricing at higher asset levels	0.10%	69%/25%/5%/1%	73%/22%/4%/1%	70%/30%	71%/29%	0%
Qapital	\$10	Complete: \$6 per month; Master: \$12 per month for additional non-investing features	0.14%	67%/29%/0%/4%	70%/27%/0%/3%	70%/30%	72%/28%	0%
Schwab	Intelligent Portfolios: \$5,000; Intelligent Portfolios Premium: \$25,000	Intelligent Portfolios: No fee (digital only); Intelligent Portfolios Premium: \$300 initial planning fee, \$30/month subscription	0.18%	61%/23%/5%/10%	59%/30%/1%/10%	51%/49%	52%/48%	52%
Schwab Domestic Focus	Intelligent Portfolios: \$5,000; Intelligent Portfolios Premium: \$25,000	Intelligent Portfolios: No fee (digital only); Intelligent Portfolios Premium: \$300 initial planning fee, \$30/month subscription	0.12%	65%/25%/0%/11%	64%/26%/0%/10%	78%/22%	75%/25%	60%
SigFig	\$2,000	No fee for the first \$10k; 0.25% annually for balance over \$10k	0.06%	62%/37%/0%/1%	64%/35%/0%/1%	58%/42%	60%/40%	0%
SoFi	\$1	No management fee	0.04%	52%/48%/0%/0%	66%/34%/0%/0%	67%/33%	70%/30%	65%
Sustainfolio	\$5,000	0.50% annually	0.23%	58%/40%/0%/2%	59%/36%/0%/5%	71%/29%	73%/27%	0%

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Produced by Backend Benchmarking for BackendB.com

Taxable Account Facts *(continued from previous page)*

Portfolio	Account Minimum	Advisory Fee	Weighted Average Expense Ratio	Initial Target Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Current Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Initial Domestic/ International Equity Split	Current Domestic/ International Equity Split	Tax Efficiency Ratio (% Muni Bonds of Overall Fixed Income)
TD Ameritrade	Selective Portfolios: \$25,000	Selective Portfolios: 0.75%-0.90% depending on portfolio selection; discounted tiered pricing at higher asset levels	0.05%	65%/33%/0%/1%	73%/26%/0%/1%	65%/35%	58%/42%	0%
TD Ameritrade Income	Selective Portfolios: \$25,000	Selective Portfolios: 0.75%-0.90% depending on portfolio selection; discounted tiered pricing at higher asset levels	0.59%	21%/78%/0%/1%	23%/76%/0%/1%	72%/38%	53%/47%	0%
TD Ameritrade Managed Risk	Selective Portfolios: \$25,000	Selective Portfolios: 0.75%-0.90% depending on portfolio selection; discounted tiered pricing at higher asset levels	1.30%	9%/49%/41%/1%	9%/49%/41%/1%	N/A	N/A	0%
TD Ameritrade Opportunistic	Selective Portfolios: \$25,000	Selective Portfolios: 0.75%-0.90% depending on portfolio selection; discounted tiered pricing at higher asset levels	0.13%	43%/53%/0%/4%	55%/44%/0%/1%	53%/47%	64%/36%	0%
TD Ameritrade SRI	Selective Portfolios: \$25,000	Selective Portfolios: 0.75%-0.90% depending on portfolio selection; discounted tiered pricing at higher asset levels	0.26%	67%/29%/0%/3%	73%/26%/0%/1%	59%/41%	59%/41%	0%
TIAA Personal Portfolio Active	\$5,000	0.30% annually	0.64%	73%/26%/0%/1%	62%/36%/0%/2%	66%/34%	62%/38%	0%
TIAA Personal Portfolio	\$5,000	0.30% annually	0.07%	61%/37%/0%/2%	60%/38%/0%/2%	71%/29%	63%/37%	0%
TIAA Personal Portfolio SRI	\$5,000	0.30% annually	0.34%	60%/39%/0%/1%	61%/37%/0%/2%	71%/29%	63%/37%	3%
Titan Invest	\$100 minimum for Titan Flagship; \$10,000 relationship minimum for Titan Opportunities	For deposits of \$10,000 or more, 1% annually. For deposits less than \$10,000, \$5 monthly instead	0.03%	100%/0%/0%/0%	99%/0%/0%/1%	100%/0%	96%/4%	N/A

Current allocations as of 03/31/2021. Due to rounding, may not add to 100%.
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Produced by Backend Benchmarking for BackendB.com

Taxable Account Facts (continued from previous page)

Portfolio	Account Minimum	Advisory Fee	Weighted Average Expense Ratio	Initial Target Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Current Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Initial Domestic/ International Equity Split	Current Domestic/ International Equity Split	Tax Efficiency Ratio (% Muni Bonds of Overall Fixed Income)
Twine	\$5	0.60% annually	0.07%	69%/29%/0%/2%	70%/27%/0%/2%	64%/36%	65%/35%	0%
UBS Advice Advantage	\$5,000	0.75% annually	0.14%	68%/27%/0%/5%	72%/26%/0%/2%	59%/41%	59%/41%	80%
United Income	No minimum	0.99% annually; discounted tiered pricing at higher asset levels	0.16%	59%/40%/0%/1%	62%/37%/0%/1%	51%/49%	59%/41%	0%
US Bank Automated Investor	\$5,000	0.24% annually	0.16%	60%/39%/0%/1%	58%/40%/0%/2%	59%/41%	68%/32%	89%
Vanguard Digital Advisor	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%	0.05%	58%/38%/0%/4%	61%/37%/0%/2%	59%/41%	69%/31%	1%
Vanguard P.A.S.	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%	60%/40%/0%/0%	64%/36%/0%/0%	60%/40%	69%/31%	100%
Wahed Invest	\$100	0.79% annually for balances under \$100,000; 0.49% annually for balances above \$100,000	0.50%	52%/34%/13%/1%	53%/33%/12%/1%	100%/0%	100%/0%	0%
Wealthfront	\$500, some additional portfolio features require a higher minimum	0.25% annually	0.10%	65%/35%/0%/0%	68%/32%/0%/0%	67%/33%	67%/33%	100%

Current allocations as of 03/31/2021. Due to rounding, may not add to 100%.

Weighted average expense ratio calculations exclude cash holdings from the portfolio.

Produced by Backend Benchmarking for BackendB.com

Taxable Account Facts (continued from previous page)

Portfolio	Account Minimum	Advisory Fee	Weighted Average Expense Ratio	Initial Target Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Current Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Initial Domestic/ International Equity Split	Current Domestic/ International Equity Split	Tax Efficiency Ratio (% Muni Bonds of Overall Fixed Income)
Wealthfront PassivePlus	\$500, some additional portfolio features require a higher minimum	0.25% annually	0.14%	45%/35%/19%/0%	51%/32%/17%/0%	60%/40%	61%/39%	100%
Wells Fargo Intuitive Investor	\$5,000	0.35% annually; discounted relationship pricing may be available	0.13%	63%/34%/0%/3%	62%/35%/0%/3%	77%/23%	76%/24%	0%
Zacks Advantage	\$25,000	0.70% annually; discounted tiered pricing at higher asset levels	0.09%	57%/34%/0%/9%	61%/33%/0%/7%	72%/28%	83%/17%	94%

Current allocations as of 03/31/2021. Due to rounding, may not add to 100%.
Weighted average expense ratio calculations exclude cash holdings from the portfolio.

Produced by Backend Benchmarking for BackendB.com



Retirement Account Facts

Portfolio	Account Minimum	Advisory Fee	Weighted Average Expense Ratio	Initial Target Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Current Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Initial Domestic/ International Equity Split	Current Domestic/ International Equity Split
Ally Invest Managed Portfolios IRA	\$100	0.30% annually; Also offers 'cash-enhanced' portfolio with 30% invested in cash and no management fee	0.05%	93%/5%/0%/2%	93%/5%/0%/2%	60%/40%	60%/40%
Axos Invest IRA	\$500	0.24% annually	0.05%	92%/8%/0%/0%	92%/8%/0%/0%	60%/40%	61%/39%
Betterment IRA	Digital: No minimum; Premium: \$100,000	Digital: 0.25%; Premium: 0.40%	0.06%	87%/13%/0%/0%	87%/13%/0%/0%	47%/53%	58%/42%
bloom IRA	No minimum	Essentials: \$45/year; Standard: \$120/year; Unlimited: \$250/year	0.07%	86%/14%/0%/0%	87%/13%/0%/0%	65%/35%	65%/35%
E*Trade Core IRA	\$500	0.30% annually	0.07%	98%/0%/0%/2%	99%/0%/0%/1%	75%/25%	66%/34%
Fidelity Go IRA	Digital Only: No Minimum; Personalized Planning & Advice: \$25,000	Digital Only: for balances less than \$10,000 there is no fee, for balances between \$10,000 - \$49,999.99 it is \$3/mo, for balances \$50,000 and above it is 0.35% annually. Personalized Planning & Advice: 0.50% annually	0.00%	85%/14%/0%/1%	85%/14%/0%/0%	71%/29%	71%/29%
Marcus Invest (Goldman Sachs) IRA	\$1,000	0.25% annually	0.05%	99%/0%/0%/1%	99%/0%/0%/1%	68%/32%	72%/28%
Merrill Edge Guided Investing IRA	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	0.05%	89%/9%/0%/2%	93%/3%/0%/4%	64%/36%	71%/29%
Morgan Stanley IRA	\$5,000	0.35% annually	0.07%	79%/15%/0%/6%	83%/15%/0%/2%	47%/53%	50%/50%
Personal Capital IRA	\$100,000	0.89% annually; discounted tiered pricing at higher asset levels	0.08%	91%/3%/2%/4%	94%/3%/2%/1%	69%/31%	71%/29%
Principal SimpleInvest IRA	\$1,000	0.40% annually. Combined fee between fund fees and management fee capped at 0.85%	0.50%	98%/0%/0%/2%	98%/0%/0%/2%	64%/36%	66%/34%
Schwab IRA	Intelligent Portfolios: \$5,000; Intelligent Portfolios Premium: \$25,000	Intelligent Portfolios: No fee (digital only); Intelligent Portfolios Premium: \$300 initial planning fee, \$30/month subscription	0.19%	94%/0%/0%/6%	94%/0%/0%/6%	54%/46%	53%/47%
SigFig IRA	\$2,000	No fee for the first \$10k; 0.25% annually for balance over \$10k	0.08%	91%/9%/0%/0%	91%/8%/0%/1%	45%/55%	47%/53%
SoFi IRA	\$1	No management fee	0.02%	100%/0%/0%/0%	100%/0%/0%/0%	66%/34%	70%/30%

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Produced by Backend Benchmarking for BackendB.com

Retirement Account Facts *(continued from previous page)*

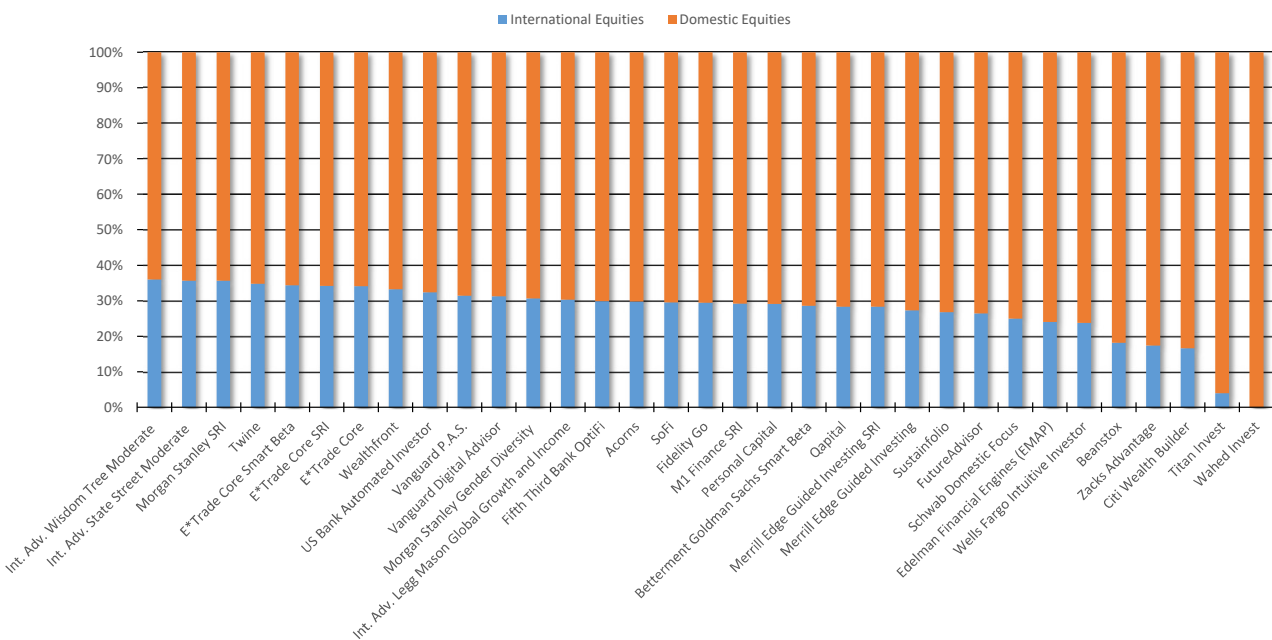
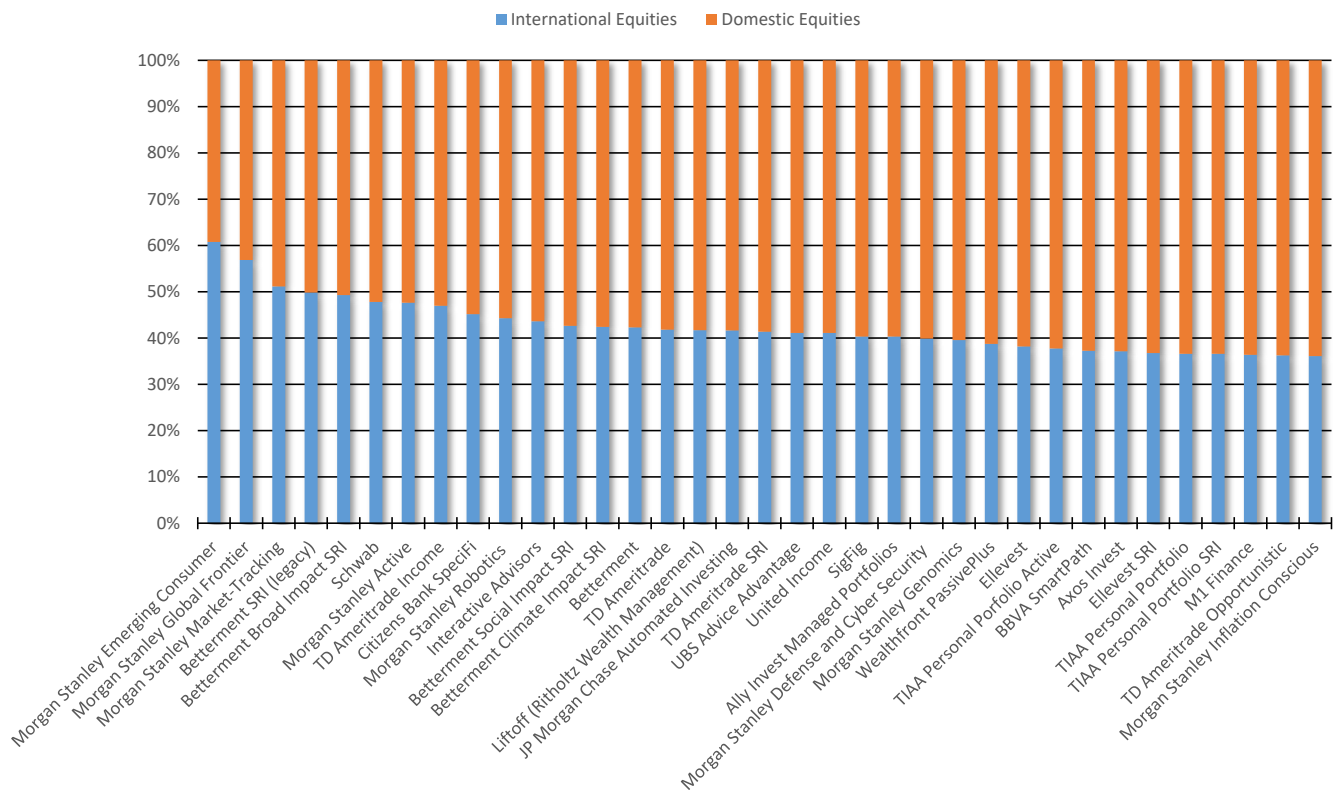
Portfolio	Account Minimum	Advisory Fee	Weighted Average Expense Ratio	Initial Target Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Current Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Initial Domestic/ International Equity Split	Current Domestic/ International Equity Split
T Rowe Price ActivePlus Portfolios IRA	\$50,000	No management fee	0.79%	100%/0%/0%/0%	100%/0%/0%/0%	63%/37%	64%/36%
TD Ameritrade IRA	Selective Portfolios: \$25,000	Selective Portfolios: 0.75%-0.90% depending on portfolio selection; discounted tiered pricing at higher asset levels	0.05%	83%/15%/0%/1%	87%/11%/0%/2%	65%/35%	61%/39%
TIAA Personal Portfolio IRA	\$5,000	0.30% annually	0.06%	88%/11%/0%/1%	88%/11%/0%/2%	72%/28%	61%/39%
United Income IRA	No minimum	0.99% annually; discounted tiered pricing at higher asset levels	0.21%	99%/0%/0%/1%	98%/0%/0%/2%	51%/49%	57%/43%
Wells Fargo Intuitive Investor IRA	\$5,000	0.35% annually; discounted relationship pricing may be available	0.12%	91%/7%/0%/2%	91%/7%/0%/2%	67%/33%	67%/33%
Zack's Advantage IRA	\$25,000	0.70% annually; discounted tiered pricing at higher asset levels	0.10%	93%/0%/0%/7%	94%/0%/1%/4%	62%/38%	84%/16%

Current allocations as of 03/31/2021. Due to rounding, may not add to 100%.
Weighted average expense ratio calculations exclude cash holdings from the portfolio.

Produced by Backend Benchmarking for BackendB.com

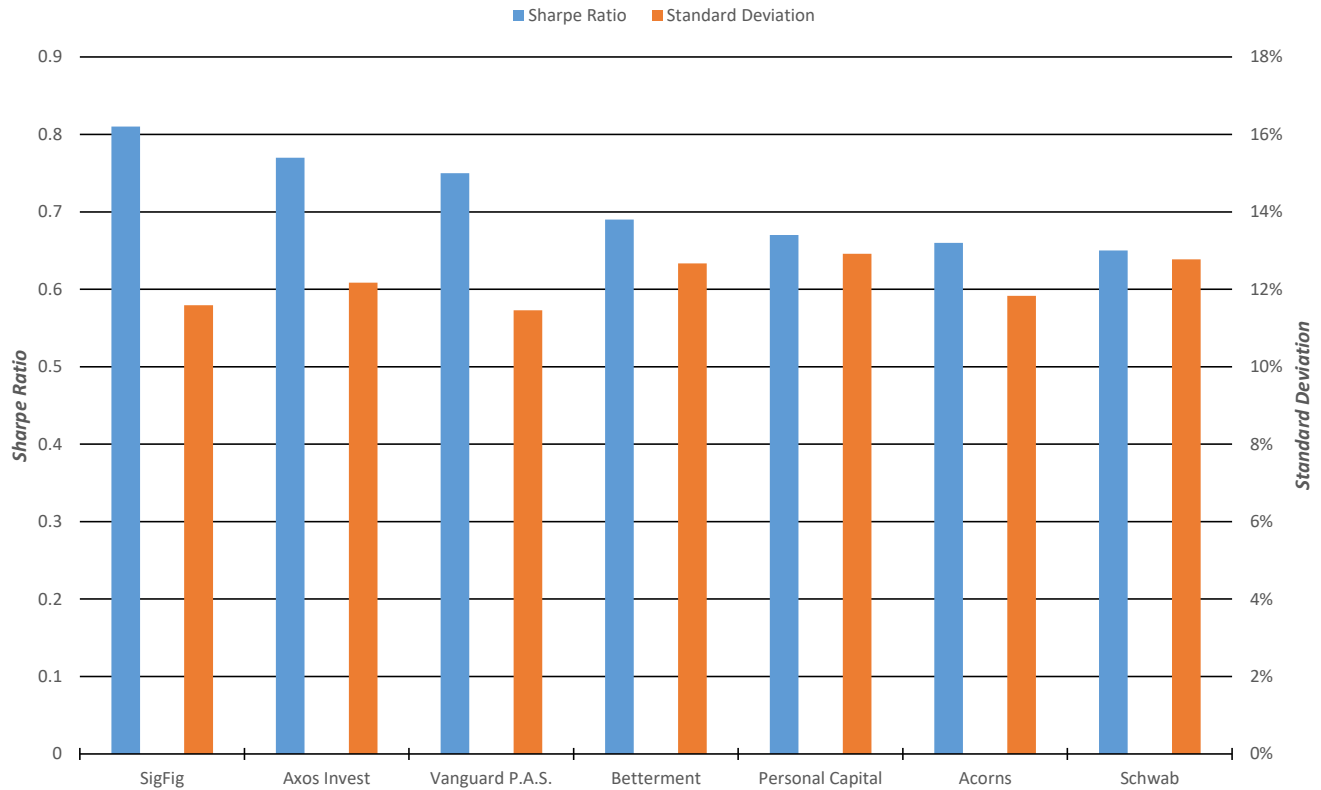


International Allocation of Total Equity for Taxable Robos



Taxable Risk/Return Charts and Tables

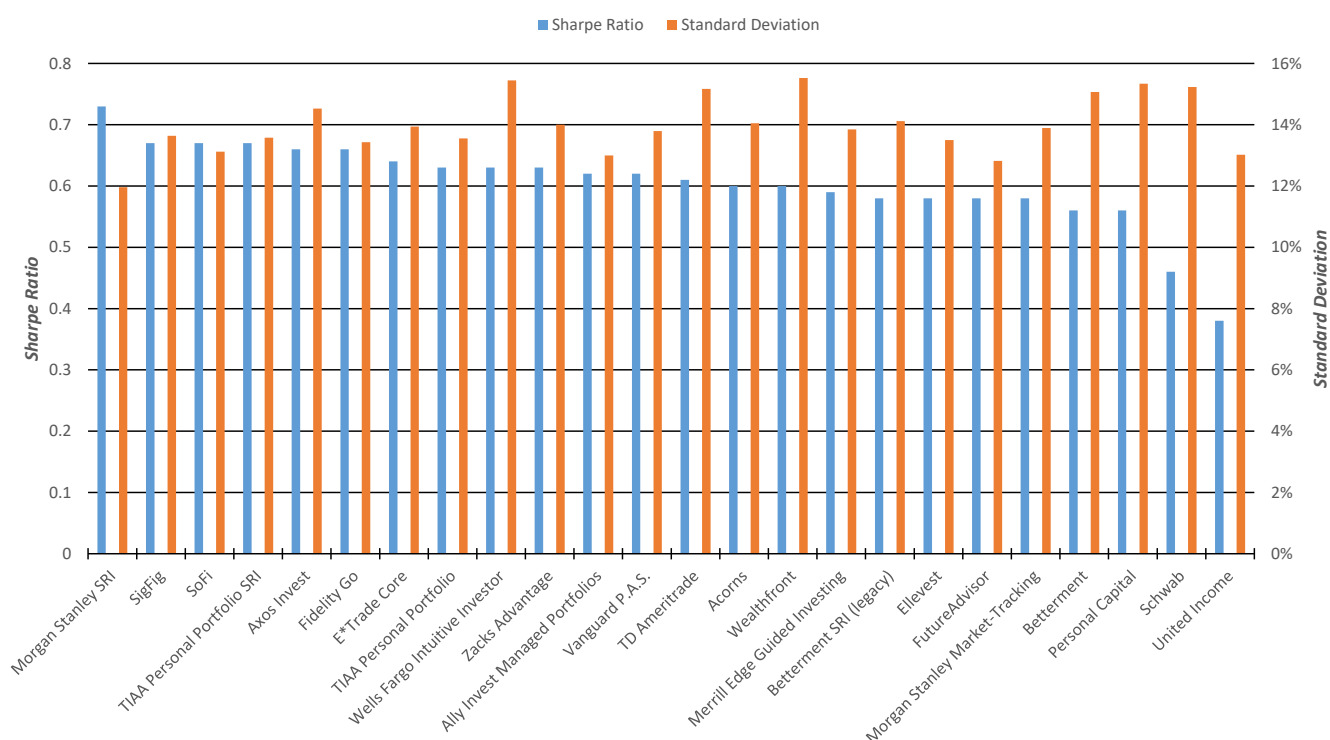
5-Year Risk/Return Statistics of Taxable Robos



	Acorns	Axos Invest	Betterment	Personal Capital	Schwab	SigFig	Vanguard P.A.S.
Standard Deviation	11.83%	12.17%	12.67%	12.92%	12.77%	11.59%	11.46%
Sharpe Ratio	0.66	0.77	0.69	0.67	0.65	0.81	0.75

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

3-Year Risk/Return Statistics of Taxable Robos



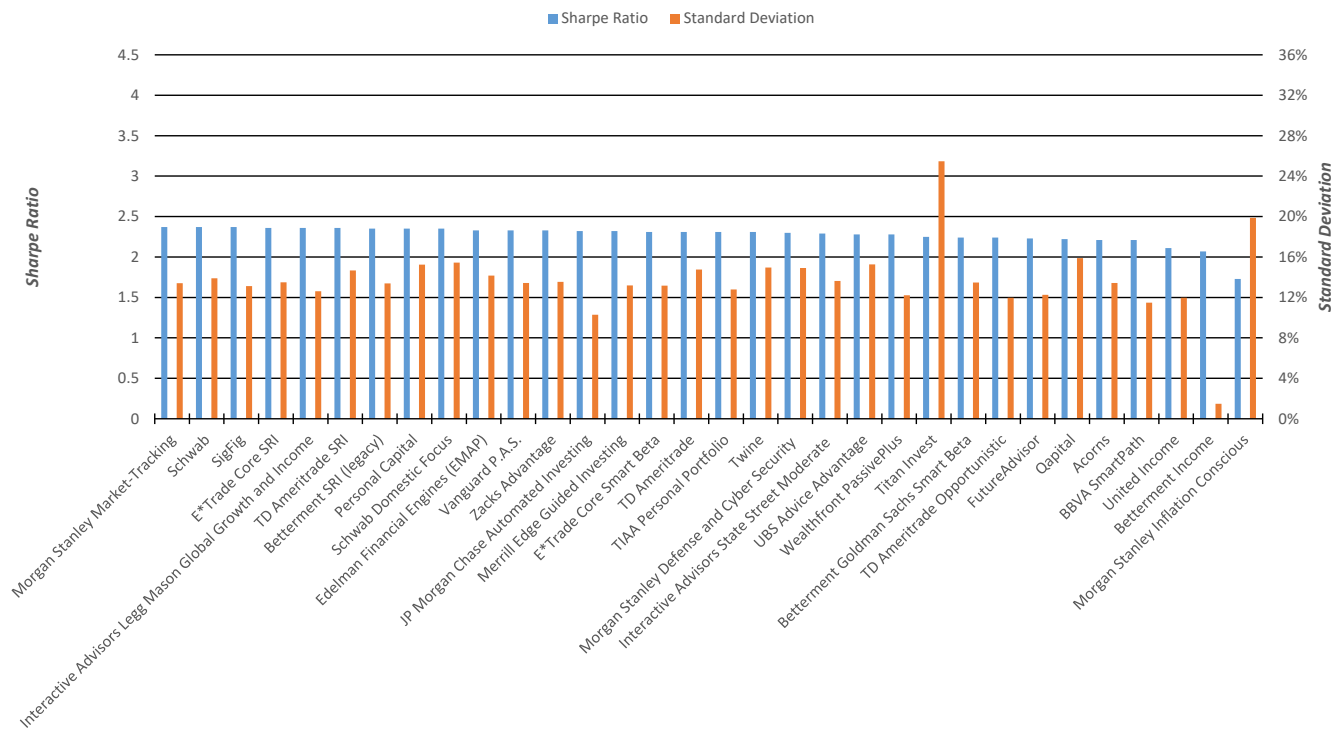
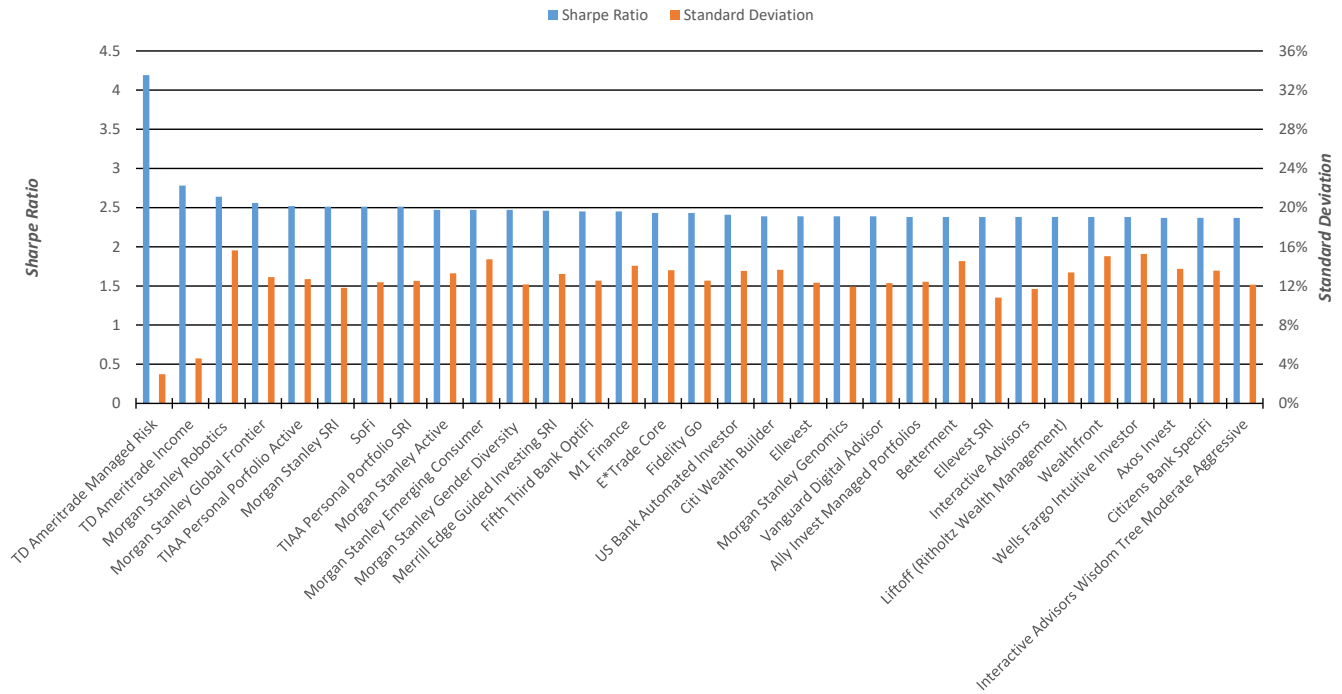
	Acorns	Ally Invest Managed Portfolios	Axos Invest	Betterment	Betterment SRI (legacy)	E*Trade Core	Ellevest	Fidelity Go
Standard Deviation	14.05%	13.00%	14.53%	15.07%	14.12%	13.94%	13.50%	13.43%
Sharpe Ratio	0.60	0.62	0.66	0.56	0.58	0.64	0.58	0.66

	FutureAdvisor	Merrill Edge Guided Investing	Morgan Stanley Market-Tracking	Morgan Stanley SRI	Personal Capital	Schwab	SigFig	SoFi
Standard Deviation	12.82%	13.85%	13.89%	11.96%	15.34%	15.23%	13.64%	13.12%
Sharpe Ratio	0.58	0.59	0.58	0.73	0.56	0.46	0.67	0.67

	TD Ameritrade	TIAA Personal Portfolio	TIAA Personal Portfolio SRI	United Income	Vanguard P.A.S.	Wealthfront	Wells Fargo Intuitive Investor	Zacks Advantage
Standard Deviation	15.17%	13.55%	13.58%	13.02%	13.79%	15.52%	15.45%	14.00%
Sharpe Ratio	0.61	0.63	0.67	0.38	0.62	0.60	0.63	0.63

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

1-Year Risk/Return Statistics of Taxable Robos



1-Year Risk/Return Statistics of Taxable Robos

	Acorns	Ally Invest Managed Portfolios	Axos Invest	BBVA SmartPath	Betterment	Betterment Goldman Sachs Smart Beta	Betterment Income	Betterment SRI (legacy)
Standard Deviation	13.44%	12.43%	13.74%	11.48%	14.53%	13.47%	1.48%	13.38%
Sharpe Ratio	2.21	2.38	2.37	2.21	2.38	2.24	2.07	2.35

	Citi Wealth Builder	Citizens Bank Specifi	E*Trade Core	E*Trade Core Smart Beta	E*Trade Core SRI	Edelman Financial Engines (EMAP)	Ellevest	Ellevest SRI
Standard Deviation	13.65%	13.56%	13.60%	13.17%	13.50%	14.16%	12.34%	10.80%
Sharpe Ratio	2.39	2.37	2.43	2.31	2.36	2.33	2.39	2.38

	Fidelity Go	Fifth Third Bank OptiFi	FutureAdvisor	Interactive Advisors	Interactive Advisors Legg Mason Global Growth and Income	Interactive Advisors State Street Moderate	Interactive Advisors Wisdom Tree Moderate Aggressive	JP Morgan Chase Automated Investing
Standard Deviation	12.53%	12.53%	12.25%	11.69%	12.61%	13.64%	12.13%	10.28%
Sharpe Ratio	2.43	2.45	2.23	2.38	2.36	2.29	2.37	2.32

	Liftoff (Ritholtz Wealth Management)	M1 Finance	Merrill Edge Guided Investing	Merrill Edge Guided Investing SRI	Morgan Stanley Active	Morgan Stanley Defense and Cyber Security	Morgan Stanley Emerging Consumer	Morgan Stanley Gender Diversity
Standard Deviation	13.38%	14.07%	13.19%	13.21%	13.28%	14.91%	14.71%	12.14%
Sharpe Ratio	2.38	2.45	2.32	2.46	2.47	2.30	2.47	2.47

	Morgan Stanley Genomics	Morgan Stanley Global Frontier	Morgan Stanley Inflation Conscious	Morgan Stanley Market-Tracking	Morgan Stanley Robotics	Morgan Stanley SRI	Personal Capital	Qapital
Standard Deviation	11.93%	12.91%	19.88%	13.41%	15.64%	11.82%	15.25%	15.88%
Sharpe Ratio	2.39	2.56	1.73	2.37	2.64	2.51	2.35	2.22

	Schwab	Schwab Domestic Focus	SigFig	SoFi	TD Ameritrade	TD Ameritrade Income	TD Ameritrade Managed Risk	TD Ameritrade Opportunistic
Standard Deviation	13.90%	15.44%	13.13%	12.37%	14.76%	4.60%	2.99%	11.97%
Sharpe Ratio	2.37	2.35	2.37	2.51	2.31	2.78	4.19	2.24

	TD Ameritrade SRI	TIAA Personal Portfolio Active	TIAA Personal Portfolio	TIAA Personal Portfolio SRI	Titan Invest	Twine	UBS Advice Advantage	United Income
Standard Deviation	14.67%	12.69%	12.78%	12.52%	25.47%	14.96%	15.27%	11.98%
Sharpe Ratio	2.36	2.52	2.31	2.51	2.25	2.31	2.28	2.11

	US Bank Automated Investor	Vanguard Digital Advisor	Vanguard P.A.S.	Wealthfront	Wealthfront PassivePlus	Wells Fargo Intuitive Investor	Zacks Advantage
Standard Deviation	13.53%	12.28%	13.43%	15.04%	12.21%	15.26%	13.55%
Sharpe Ratio	2.41	2.39	2.33	2.38	2.28	2.38	2.33

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Retirement Risk/Return

5-Year Risk/Return Statistics of Retirement Robos

	Axos Invest IRA	Schwab IRA	SigFig IRA
Standard Deviation	16.95%	17.02%	16.95%
Sharpe Ratio	0.74	0.63	0.67

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3-Year Risk/Return Statistics of Retirement Robos

	Ally Invest Managed Portfolios IRA	Axos Invest IRA	Betterment IRA	E*Trade Core IRA	Fidelity Go IRA	Merrill Edge Guided Investing IRA	Morgan Stanley IRA	Personal Capital IRA
Standard Deviation	21.03%	20.13%	19.35%	22.20%	18.35%	20.01%	17.04%	20.57%
Sharpe Ratio	0.56	0.59	0.55	0.58	0.63	0.56	0.56	0.54

	Schwab IRA	SigFig IRA	SoFi IRA	T Rowe Price ActivePlus Portfolios IRA	TD Ameritrade IRA	TIAA Personal Portfolio IRA	United Income IRA	Wells Fargo Intuitive Investor IRA	Zack's Advantage IRA
Standard Deviation	21.07%	20.03%	20.59%	22.74%	18.81%	19.10%	21.40%	21.03%	21.18%
Sharpe Ratio	0.46	0.51	0.63	0.61	0.58	0.59	0.32	0.57	0.57

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1-Year Risk/Return Statistics of Retirement Robos

	Ally Invest Managed Portfolios IRA	Axos Invest IRA	Betterment IRA	E*Trade Core IRA	Fidelity Go IRA	Marcus Invest (Goldman Sachs) IRA	Merrill Edge Guided Investing IRA	Morgan Stanley IRA
Standard Deviation	20.24%	18.83%	18.61%	21.41%	17.37%	20.64%	19.15%	16.39%
Sharpe Ratio	2.36	2.37	2.37	2.42	2.33	2.27	2.30	2.35

	Personal Capital IRA	Principal SimpleInvest IRA	Schwab IRA	SigFig IRA	SoFi IRA	T Rowe Price ActivePlus Portfolios IRA	TD Ameritrade IRA	TIAA Personal Portfolio IRA
Standard Deviation	20.03%	19.91%	21.04%	18.62%	19.66%	21.50%	17.65%	17.96%
Sharpe Ratio	2.31	2.33	2.33	2.28	2.47	2.41	2.35	2.32

	United Income IRA	Wells Fargo Intuitive Investor IRA	Zack's Advantage IRA
Standard Deviation	20.12%	20.56%	20.56%
Sharpe Ratio	1.98	2.44	2.30

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Normalized Benchmark

Equity Portfolio

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

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

Bond Portfolio

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

Produced by Backend Benchmarking for BackendB.com

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

Taxable Normalized Benchmark Returns

	1Q 2021	1-Year	2-Year	3-Year	4-Year	5-Year
Acorns Normalized Benchmark	2.35%	34.66%	13.23%	9.89%	9.94%	9.99%
Ally Invest Managed Portfolios Normalized Benchmark	2.26%	34.09%	13.09%	9.80%	9.72%	-
Axos Invest Normalized Benchmark	2.69%	36.98%	13.77%	10.23%	10.21%	10.29%
BBVA SmartPath Normalized Benchmark	2.26%	34.00%	13.16%	-	-	-
Beanstox Normalized Benchmark	2.35%	-	-	-	-	-
Betterment Normalized Benchmark	2.77%	37.56%	13.90%	10.32%	10.30%	10.40%
Betterment Broad Impact SRI Normalized Benchmark	2.35%	-	-	-	-	-
Betterment Climate Impact SRI Normalized Benchmark	2.35%	-	-	-	-	-
Betterment Goldman Sachs Smart Beta Normalized Benchmark	2.35%	34.66%	-	-	-	-
Betterment Income Normalized Benchmark	-2.74%	3.49%	-	-	-	-
Betterment Social Impact SRI Normalized Benchmark	2.35%	-	-	-	-	-
Betterment SRI (legacy) Normalized Benchmark	2.35%	34.66%	13.23%	9.89%	-	-
Citi Wealth Builder Normalized Benchmark	2.60%	35.79%	-	-	-	-
Citizens Bank Specifi Normalized Benchmark	2.69%	36.98%	13.77%	-	-	-
E*Trade Core Normalized Benchmark	2.35%	34.66%	13.23%	9.89%	9.82%	-
E*Trade Core Smart Beta Normalized Benchmark	2.35%	35.13%	13.32%	-	-	-
E*Trade Core SRI Normalized Benchmark	2.35%	35.13%	13.32%	-	-	-
Edelman Financial Engines (EMAP) Normalized Benchmark	2.94%	38.74%	14.22%	-	-	-
Ellevest Normalized Benchmark	2.01%	32.38%	12.68%	9.54%	9.57%	-
Ellevest SRI Normalized Benchmark	1.16%	27.81%	11.25%	-	-	-
Fidelity Go Normalized Benchmark	2.43%	35.24%	13.36%	9.97%	9.92%	-
Fifth Third Bank OptiFi Normalized Benchmark	2.35%	34.66%	13.23%	-	-	-
FutureAdvisor Normalized Benchmark	1.84%	32.60%	12.67%	9.54%	9.47%	-
Interactive Advisors Normalized Benchmark	1.84%	31.24%	12.40%	-	-	-
Interactive Advisors Legg Mason Global Growth and Income Normalized Benchmark	3.11%	39.92%	-	-	-	-
Interactive Advisors State Street Moderate Normalized Benchmark	2.35%	35.33%	-	-	-	-
Interactive Advisors Wisdom Tree Moderate Aggressive Normalized Benchmark	2.09%	32.94%	-	-	-	-
JP Morgan Chase Automated Investing Normalized Benchmark	1.56%	29.09%	-	-	-	-
Liftoff (Ritholtz Wealth Management) Normalized Benchmark	2.35%	34.66%	-	-	-	-
M1 Finance Normalized Benchmark	2.86%	38.15%	-	-	-	-
M1 Finance SRI Normalized Benchmark	5.76%	-	-	-	-	-
Merrill Edge Guided Investing Normalized Benchmark	2.54%	35.38%	13.08%	9.83%	9.80%	-
Merrill Edge Guided Investing SRI Normalized Benchmark	2.71%	36.43%	13.77%	-	-	-
Morgan Stanley Active Normalized Benchmark	2.69%	36.98%	13.77%	-	-	-
Morgan Stanley Defense and Cyber Security Normalized Benchmark	3.20%	40.30%	-	-	-	-
Morgan Stanley Emerging Consumer Normalized Benchmark	3.11%	39.92%	-	-	-	-
Morgan Stanley Gender Diversity Normalized Benchmark	2.43%	35.03%	-	-	-	-
Morgan Stanley Genomics Normalized Benchmark	1.92%	31.40%	-	-	-	-

Returns are net of fees and are as of 03/31/2021. All returns for periods longer than one year are annualized.

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Taxable Normalized Benchmark Returns (continued from previous page)

	1Q 2021	1-Year	2-Year	3-Year	4-Year	5-Year
Morgan Stanley Global Frontier Normalized Benchmark	3.11%	39.71%	-	-	-	-
Morgan Stanley Inflation Conscious Normalized Benchmark	2.69%	36.35%	-	-	-	-
Morgan Stanley Market-Tracking Normalized Benchmark	2.69%	36.77%	13.82%	10.26%	-	-
Morgan Stanley Robotics Normalized Benchmark	3.20%	40.30%	-	-	-	-
Morgan Stanley SRI Normalized Benchmark	2.09%	32.94%	12.88%	9.65%	-	-
Personal Capital Normalized Benchmark	3.46%	42.31%	14.96%	10.98%	11.06%	11.26%
Capital Normalized Benchmark	2.94%	38.74%	14.17%	-	-	-
Schwab Normalized Benchmark	2.09%	34.06%	12.73%	9.57%	9.75%	9.96%
Schwab Domestic Focus Normalized Benchmark	2.69%	36.33%	-	-	-	-
SigFig Normalized Benchmark	2.52%	35.82%	13.50%	10.06%	10.01%	10.08%
SoFi Normalized Benchmark	2.35%	34.66%	13.23%	9.95%	-	-
Sustainfolio Normalized Benchmark	2.18%	-	-	-	-	-
TD Ameritrade Normalized Benchmark	3.28%	40.10%	14.62%	10.77%	10.72%	-
TD Ameritrade Income Normalized Benchmark	-0.96%	13.66%	-	-	-	-
TD Ameritrade Managed Risk Normalized Benchmark	-1.47%	10.67%	-	-	-	-
TD Ameritrade Opportunistic Normalized Benchmark	1.92%	29.36%	-	-	-	-
TD Ameritrade SRI Normalized Benchmark	3.28%	40.15%	14.75%	-	-	-
TIAA Personal Portfolio Active Normalized Benchmark	2.43%	35.24%	13.59%	-	-	-
TIAA Personal Portfolio Normalized Benchmark	2.43%	35.24%	13.36%	9.97%	-	-
TIAA Personal Portfolio SRI Normalized Benchmark	2.35%	34.66%	13.23%	9.89%	-	-
Titan Invest Normalized Benchmark	5.76%	59.28%	-	-	-	-
Twine Normalized Benchmark	3.11%	39.92%	14.43%	-	-	-
UBS Advice Advantage Normalized Benchmark	3.20%	40.51%	14.79%	-	-	-
United Income Normalized Benchmark	2.26%	34.09%	13.09%	9.80%	-	-
US Bank Automated Investor Normalized Benchmark	2.09%	32.94%	12.84%	-	-	-
Vanguard Digital Advisor Normalized Benchmark	2.18%	33.52%	-	-	-	-
Vanguard P.A.S. Normalized Benchmark	2.35%	34.66%	13.23%	9.89%	9.82%	9.86%
Wahed Invest Normalized Benchmark	2.35%	-	-	-	-	-
Wealthfront Normalized Benchmark	2.77%	37.56%	13.90%	10.32%	10.30%	-
Wealthfront PassivePlus Normalized Benchmark	2.01%	32.38%	-	-	-	-
Wells Fargo Intuitive Investor Normalized Benchmark	2.60%	36.40%	13.63%	10.15%	-	-
Zacks Advantage Normalized Benchmark	2.35%	34.66%	13.23%	9.84%	-	-

Returns are net of fees and are as of 03/31/2021. All returns for periods longer than one year are annualized.

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Retirement Normalized Benchmark Returns

	1Q 2021	1-Year	2-Year	3-Year	4-Year	5-Year
Ally Invest Managed Portfolios IRA Normalized Benchmark	5.13%	54.33%	17.17%	12.27%	12.67%	-
Axos Invest IRA Normalized Benchmark	5.05%	53.67%	17.04%	12.19%	12.57%	13.07%
Betterment IRA Normalized Benchmark	4.64%	50.43%	16.37%	11.77%	12.09%	-
bloom IRA Normalized Benchmark	4.56%	-	-	-	-	-
E*Trade Core IRA Normalized Benchmark	5.55%	57.66%	17.83%	12.69%	13.15%	-
Fidelity Go IRA Normalized Benchmark	4.47%	49.14%	16.10%	11.60%	11.89%	-
Marcus Invest (Goldman Sachs) IRA Normalized Benchmark	5.63%	58.32%	17.95%	-	-	-
Merrill Edge Guided Investing IRA Normalized Benchmark	5.14%	53.82%	17.01%	12.18%	-	-
Morgan Stanley IRA Normalized Benchmark	3.90%	45.23%	15.23%	11.04%	-	-
Personal Capital IRA Normalized Benchmark	5.37%	56.27%	17.55%	12.51%	12.95%	-
Principal SimpleInvest IRA Normalized Benchmark	5.54%	57.64%	-	-	-	-
Schwab IRA Normalized Benchmark	5.21%	54.99%	17.30%	12.36%	12.76%	13.28%
SigFig IRA Normalized Benchmark	4.97%	53.02%	16.90%	12.11%	12.47%	12.96%
SoFi IRA Normalized Benchmark	5.70%	58.98%	18.08%	12.84%	-	-
T Rowe Price ActivePlus Portfolios IRA Normalized Benchmark	5.70%	58.98%	18.08%	12.84%	-	-
TD Ameritrade IRA Normalized Benchmark	4.39%	48.50%	15.96%	11.51%	11.78%	-
TIAA Personal Portfolio IRA Normalized Benchmark	4.72%	51.07%	16.50%	11.85%	-	-
United Income IRA Normalized Benchmark	5.62%	58.31%	17.95%	12.76%	-	-
Wells Fargo Intuitive Investor IRA Normalized Benchmark	4.97%	53.02%	16.90%	12.11%	-	-
Zack's Advantage IRA Normalized Benchmark	5.38%	56.31%	17.39%	12.42%	-	-

Returns are net of fees and are as of 03/31/2021. All returns for periods longer than one year are annualized.

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Last updated: 7/1/2020

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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 Backend Benchmarking's research, analysis and opinion only; the period tested was short in duration and may not provide a meaningful analysis; and, there can be no assurance that the performance trend demonstrated by Robos vs indices during the short period will continue. Backend Benchmarking is under common ownership and control with Condor Capital Management, an SEC registered investment adviser. A copy of Condor's disclosure Brochure is available at www.condorcapital.com. Condor Capital holds a position in Schwab, JP Morgan Chase and Goldman Sachs in one of the strategies used in many of their discretionary accounts. As of 03/31/2021 the total size of the position was 36,120 shares of Schwab common stock, 18,255 shares of JP Morgan Chase common stock, and 5,669 shares of Goldman Sachs common stock. As of 03/31/2021 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.

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

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