

BRINGING TRANSPARENCY TO ROBO INVESTING

EDITION 17

The Robo Report[™] Third Quarter 2020



We are proud to publish the 17th edition of the *Robo Report*[™] covering the third quarter of 2020. This *Report* is a continuation of an ongoing study that monitors well known robo advisors. We strive to provide a reliable resource for both investors and professionals interested in the digital advice industry.

Highlights:

- *SigFig and Axos reign as top performers over the long-term (pg. 4)*
- *Titan continues to shine with its stellar active management (pg. 6)*
- *Morgan Stanley places multiple themed portfolios in top spots (pg. 6)*
- *Hearts and Wallets details which cohorts really use robos (pg. 13)*
- *Surge of new digital financial planning apps hit the market (pg. 13)*
- *Wealthsimple and M1 raise big sums following growth (pg. 14)*
- *Interview with bloom CEO Chris Costello on the opportunities and challenges of the robo 401(k) space (pg. 16)*

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Executive Summary

This edition of the *Robo Report*TM tracks 88 accounts at 41 different digital advice providers.

Titan Dominates the Year, SigFig is Top 4-Year Performer

Titan's goal is to bring exceptional performance to the masses with a hedge fund-like approach. So far, it is delivering on that promise. It does so by holding individual stocks and making active trades. This is in direct opposition to the strategy of most robos, which are passively managed and hold index funds. Once again, it is the top performer over all periods for which our account has been open. In the third quarter, it returned 11.76%, bringing its year-to-date returns to 24.62%. It is an all-equity portfolio, and when we compare it to the average robo's equity returns, we see that it outperformed by 30.95% over the 1-year period.

SigFig is the top performer over the 4-year period. It owes its success to domestic large-cap exposure, investment-grade Treasuries and corporate bonds, and low total cost. Fidelity Go captured the top 4-year equity performance, and Schwab had the best fixed-income performance over the same period.

SRI Continues Its Outperformance

Socially Responsible Investing (SRI) options at robos have maintained their strong performance. For every pair of SRI and standard robos, the SRI portfolios had better equity performance over the 2-year period despite higher fees for the underlying funds. Year to date, the results were mixed but the advantage still went to the SRI options. The SRI portfolios tend to have more exposure to growth stocks, which we believe is driving their outperformance.

This is good news for SRI and environmental, social, and governance investing (ESG) as they

grow in popularity across the industry. Betterment recently introduced two new SRI options and shared that its SRI option is now "on equal footing" with its standard portfolio in terms of assets under management.

Robo Adoption Continues to Rise, M1 and Wealthsimple Raise Money

According to a recent study, robo advisor adoption is up to 8% in the United States. While the number is not groundbreaking, it is impressive for a service that barely existed 10 years ago. Providers see robo advice as a new way to engage with clients early on and then ramp up to full-service offerings as their wealth grows. One way they have been doing this is offering free digital financial planning tools to complement their existing low-cost robo advisor.

COVID-19 has not slowed down funding into digital advice firms. Wealthsimple raised a staggering \$114 million and M1 Finance raised an impressive \$45 million. Both firms have witnessed tremendous growth of assets and users on their platforms.

Interview with Chris Costello, CEO and Co-Founder of bloom

bloom CEO, Chris Costello, is clearly passionate about helping investors achieve their long-term goals through better management of their employer-sponsored retirement accounts. We spoke to Chris about its unique ability to manage a 401(k) plan, the challenges of scaling a start-up business, and how its clients reacted to the market volatility this year.

Taxable Top Performers

YTD Top Performers

	Best	2nd	3rd
Total Portfolio	Titan Invest	Morgan Stanley Robotics	Wealthsimple SRI
Equity	Titan Invest	Morgan Stanley Robotics	Morgan Stanley SRI
Fixed Income	Wealthsimple	Wealthsimple SRI	SigFig

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1-Year Trailing Top Performers

	Best	2nd	3rd
Total Portfolio	Titan Invest	Morgan Stanley Robotics	Morgan Stanley Emerging Consumer
Equity	Titan Invest	Morgan Stanley Robotics	Morgan Stanley Genomics
Fixed Income	Wealthsimple	Wealthsimple SRI	SigFig

Produced by Backend Benchmarking for BackendB.com

2-Year Trailing Top Performers

	Best	2nd	3rd
Total Portfolio	Wealthsimple SRI	SigFig	Morgan Stanley SRI
Equity	Morgan Stanley SRI	SoFi	Wealthsimple SRI
Fixed Income	Wealthsimple	Wealthsimple SRI	E*Trade Core

Produced by Backend Benchmarking for BackendB.com

3-Year Trailing Top Performers

	Best	2nd	3rd
Total Portfolio	SigFig	Axos Invest	TIAA
Equity	SoFi	Tie: Fidelity Go, SigFig, & Zacks Advantage	
Fixed Income	Wealthsimple	SigFig	E*Trade Core

Produced by Backend Benchmarking for BackendB.com

4-Year Trailing Top Performers

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

Produced by Backend Benchmarking for BackendB.com

Returns are net of fees and are as of 9/30/2020.

Total Portfolio winners are based on the portfolio's return vs. the Normalized Benchmark.

Performance Commentary

- *Robos have another strong quarter as most now post positive returns for 2020*
- *Titan continues its outperformance, returning 38.38% over the past year*
- *SigFig maintains top 4-year total portfolio performance spot*
- *SRI portfolios show long-term outperformance despite higher fees*
- *Morgan Stanley & Wealthsimple emerging as performance leaders*

Markets Overview

Coming off of one its strongest quarters on record, domestic equities were an up and down experience for investors during the third quarter. At the start of the quarter, markets pulled higher as they continued their rebound, driven by better-than-expected employment numbers and improving corporate earnings. However, the rally weakened in September, paring back some of the quarter's earlier gains on fears of overstretched equity valuations and a mounting fiscal deficit. Despite this, the S&P 500 Index returned a healthy 8.93% in the third quarter and turned positive for the year, up 5.57% from the beginning of 2020. Large-cap stocks significantly

The growing divide between growth vs. value has continued to play out.

outpaced mid- and small-caps. Also, the growing divide between growth vs. value has continued to play out in the quarter, with growth faring substantially better than value

across all market caps.

On the international front, both developed and emerging market equities rose in the third quarter but, like domestic equities, not as much as they did in the second quarter. As numerous countries still face restrictive COVID-19 measures, the production of goods and services and the demand for these products continues to languish. Emerging markets, specifically China, fared better than their developed market counterparts. Better-than-expected export growth, a buoyant economic outlook, and successful containment measures of the virus helped propel Chinese

equities higher. As a result, the MSCI Emerging Markets Index returned 9.68% versus a 4.89% gain in the foreign developed MSCI EAFE Index in the third quarter.

The Federal Reserve kept the federal funds rate at 0% and stated that it does not expect to raise rates until the end of 2023. This accommodative stance offered greater stability to the fixed-income market, with the U.S. 10-Year Treasury Note finishing the quarter yielding 0.69%, essentially unchanged from the prior quarter's 0.66% yield. The Fed's accommodative stance over the prior quarters, with the introduction of its corporate bond purchase program aimed at quelling pandemic-induced economic uncertainty, continued to benefit the corporate bond market. Both investment-grade and high-yield corporate bonds posted positive returns for the quarter. While municipal bonds continued to lag their corporate counterparts, they outperformed government issues in the third quarter. Year to date, Treasuries have generally outperformed, despite both corporates and municipal issues broadly outpacing Treasuries for the quarter.

The Federal Reserve kept its discount rate at 0% and stated that it does not expect to raise rates until the end of 2023.

Portfolios Continue Rebound After Tough Start to Year

After a tumultuous beginning to the year, robo advisors continued their strong rebound in the third quarter. The average portfolio returned 7.58% on its equity holdings in the third quarter

and 1.02% on its fixed-income holdings. This strong performance pushed the average total portfolio return positive to 1.88% for the year. On average, the portfolios we track were down 2.93% through the first 6 months of the year.

The average portfolio returned 7.58% on its equity holdings in the third quarter and 1.02% on its fixed income holdings.

Titan Continues to Shine with Unique Strategy

As we highlighted in recent reports, Titan Invest is unique among robo advisors in that it holds individual stocks and employs an active strategy. Titan Invest was the top performer over the third quarter, the year-to-date period, and the 1-year trailing period ending on September 30. Its portfolio also had the best equity performance over the same periods. Titan's performance was driven by its holding of individual securities, such as Amazon, Microsoft, Netflix, and Apple. Although certain segments of the market lagged, the aforementioned tech giants drove the broad market higher with their strong performance.

While the S&P 500 was up 5.57% over the first three quarters of 2020, Titan Invest's portfolio increased in value by 24.62%.

The majority of the portfolio's holdings were large-cap growth stocks. While the S&P 500 was up 5.57% over the first three quarters of 2020, Titan Invest's portfolio increased in value by 24.62%.

Titan is also notably one of the few taxable portfolios we hold that is a 100% equity strategy. Over the past year, which is the longest period for which we have data on Titan, its equity holdings returned 38.73%, while the average robo's equity portfolio returned 7.78%. The average robo return is not poor by any means considering what has transpired in the markets over the past year. However, Titan has managed well and performed above and beyond.

Wealthsimple, Morgan Stanley Claim Many Top Performer Spots

Among the moderately aggressive group (60-40 target) of taxable portfolios, Wealthsimple and Morgan Stanley both had multiple portfolios that claimed top performer spots when compared to the Normalized Benchmark and when looking at

equity or fixed-income-specific performance. Wealthsimple's standard and Socially Responsible Investing (SRI) portfolios placed first and second, respectively, for fixed-income performance over the year-to-date, 1-year, and 2-year periods. The standard portfolio, which has a 3-year track record, was also the top fixed income performer over the 3-year trailing period.

Over the 2-year trailing period, Wealthsimple's SRI portfolio was the top performer relative to the Normalized Benchmark. There

are two main drivers behind its superior performance. First, its fixed-income holdings are entirely investment-grade, with nearly half being long-duration U.S. Treasury

Over the 2-year trailing period, Wealthsimple's SRI portfolio was the top performer.

bonds. As rates dropped earlier this year, long-duration Treasury bonds experienced large price increases. Over the 2-year period, Wealthsimple's SRI portfolio had an annualized fixed-income return of 9.35%, almost 3% higher than the average robo's. Only Wealthsimple's standard portfolio had higher fixed-income returns over the same period. The SRI portfolio also had strong equity performance, placing third over the period. It only holds two equity funds, both ESG/SRI oriented, that are heavily tilted towards large-cap stocks, which have outperformed mid- and small-caps over the past few years. There is no noticeable bias towards value or growth.

Another SRI portfolio—Morgan Stanley's—claimed the third spot for performance compared to the Normalized Benchmark and the top equity performance over the 2-year period. This portfolio, like many of the themed Morgan Stanley portfolios, has a growth tilt.

In fact, this helped Morgan Stanley across the board, as four of the top six equity performers over the 1-year period were different themed Morgan Stanley portfolios.

Four of the top six equity performers over the 1-year period were different themed Morgan Stanley portfolios.

The Robotics-themed portfolio placed second for 1-year equity performance and the Genomics-themed portfolio placed third. The Robotics portfolio held several themed ETFs that vastly outperformed standard,

broad-market funds. The most notable was its holding of the ARK Innovation ETF (ticker: ARKK), which returned more than 110% over the 1-year trailing period.

Fixed Income: Long-Duration and Investment-Grade Bonds Shine

The story in the fixed-income space has remained fairly consistent, as long-duration bonds have outperformed short-duration bonds in both the corporate and U.S. Treasury spaces over the past few years. While both high-yield and corporate issues posted strong gains in the third quarter, Treasuries and other investment-grade issues have generally outperformed YTD. The Federal Reserve's accommodative policies, including bond purchasing programs and a commitment to holding rates at 0%, have been a main driver of bond market performance. Long-duration Treasury bonds and TIPs have performed the best, followed by investment-grade corporate bonds, while municipal offerings have lagged behind YTD.

Long-duration Treasury bonds and TIPs have performed the best.

Funds that track the Barclays U.S. Aggregate Bond Index have heavy exposure to Treasuries and investment-grade corporates. Consequently, robos with these funds performed well in the fixed income ranking. The top 3-year fixed income performers—Wealthsimple, SigFig, and E*Trade—were all heavily in the aforementioned segments of the bond market. Wealthsimple had primarily long-duration Treasuries. SigFig was mostly allocated to a Barclays Agg-tracking ETF with a small allocation to TIPS and Treasuries. E*Trade was equally split between a Barclays Agg ETF and investment-grade corporate bonds with a higher-than-average duration. These portfolios have performed well compared to their peers in both shorter- and longer-term time horizons.

What Caused Underperformance Among Robos?

Over the last few years, a few trends have been apparent in equity markets: generally, large caps have outperformed mid caps, which have

outperformed small caps; growth has dominated value; domestic markets have provided superior returns than both foreign developed and emerging markets, while emerging has outperformed foreign developed. Consequently, robos that had heavier allocations to domestic markets, large caps, and/or growth stocks performed better.

Year to date, Schwab's Domestic Focus portfolio has been the worst performer relative to the Normalized Benchmark and on an absolute basis. Since the start of the year, its equity holdings have returned -7.41% while the average robo returned -0.81%. Two of the main drivers here are a heavy allocation to small-cap stocks as well as a tilt towards value. It also has a small allocation to a REIT. REITs broadly have lagged the broader market as many areas of the real estate market have been hit particularly hard by COVID-19.

Over the longer period of three years, the standard Schwab portfolio was the worst performer. It only returned 3.21% annually while the top performer, SigFig, returned 7.24% annually. Over that time, Schwab has had a value tilt and a heavier allocation to small-cap stocks than other robos. There is another issue with Schwab. As we have mentioned in several previous reports, Schwab's portfolio has the largest allocation to cash among robos. While this may be a buffer in a down market, other holdings, like Treasuries, can provide better downside protection. In the third quarter, stocks and bonds were up across the board and Schwab had roughly 10% of its portfolio in cash, creating a drag on performance.

Schwab returned 3.21% annually while the top performer, SigFig, returned 7.24% annually.

3- and 4-Year Results: SigFig Wins Total Portfolio

SigFig has retained its spot as the top performer compared to the Normalized Benchmark over the 3- and 4-year trailing periods ending September 30, 2020. It was the second best equity performer over the 4-year period, returning 10.22% annually. We attribute SigFig's strong

performance to holding more emerging markets than developed as a percentage of its international holdings and its choice to rely on simple total stock market domestic ETFs, which are heavily allocated to the large caps that have performed so well.

Over the 4-year period, Fidelity Go was the top equity performer with an annualized return of 10.32%. Fidelity Go has a straightforward portfolio of proprietary funds with a higher-than-average domestic and large-cap tilt due to its large holding of an S&P 500 ETF. Its fixed income performance lagged, however, posting the second lowest 4-year fixed-income returns. The entirety of the fixed income is in two municipal bond funds. One is a short-duration fund. The Fidelity Go IRA portfolio, which holds a broader based and more treasury-focused fund, significantly outperformed the taxable Fidelity Go portfolio, which allocates all of its fixed income to municipal bonds.

Over the 4-year period, Fidelity Go was the top equity performer with an annual return of 10.32%.

Schwab is nearly the opposite case of Fidelity; it had the worst 4-year equity but the best 4-year fixed-income performance. Schwab has a significant allocation to mid-duration TIPs but also has a more varied approach and holds a wide mix of emerging market bonds, municipals, and high-yield corporates. While the TIPs holdings have performed best, the high-yield offerings did well when markets were less volatile pre-COVID-19.

Over the 3-year period for which we have data on more robos, Axos Invest and TIAA kept their second and third place spots, respectively, for performance compared to the Normalized Benchmark. SoFi also kept its spot as top 3-year equity performer with an 8.25% annual return. Over the 3-year period, the average equity returns were 6.05% annually and the average fixed income returns were 4.26%.

SRI Performance

SRI, or environmental, social, and governance investing (ESG), has been a hot trend in the investing world. Backend Benchmarking started opening SRI portfolios with the same equity-fixed income mix as our other portfolios at each provider to gauge how SRI portfolios compare to the standard option. We track both standard and SRI portfolios at the following eight providers: Betterment, E*Trade, Ellevest, Merrill Edge, Morgan Stanley, TD Ameritrade, TIAA, and Wealthsimple. For the six pairs of portfolios that we have 2-year performance data on, the SRI portfolios have shown promising results, with four of the six SRI portfolios outperforming their standard counterparts relative to the Normalized Benchmark and on an absolute basis. Additionally, all six of these SRI portfolios outperformed their standard counterparts for equity performance. The two cases where the standard portfolio outperformed—Ellevest and TD Ameritrade—were only by a small margin, whereas there were a few examples in which SRI significantly outperformed the standard. The two most notable examples were Morgan Stanley and Wealthsimple.

All six of these SRI portfolios outperformed their standard counterparts for equity performance.

When looking more closely at Wealthsimple, the standard portfolio has minimum volatility funds that are tilted towards value. The SRI option is more neutral weight. Thus, the reason for its outperformance is that it is not tilted towards value stocks, which have underperformed growth. The story with Morgan Stanley is similar but not entirely the same. The standard option does have a slight value tilt. It also has a much lower domestic allocation during a period when U.S. markets have outperformed foreign ones.

Taking a Wide Look

As our accounts at Backend Benchmarking mature, we are seeing more and more evidence that robo advisors are not all the same. For example, there are disparities upwards of nearly

5% annually for equity performance and 2% annually for fixed income performance over the 4-year trailing period. Each robo is making portfolio choices that can have serious implications over the long term. However, the data also suggests that, on average, robo advisors are doing fairly well. They are a cost-effective, low

maintenance option that anyone can access. Our accounts, which are 60-40 targets, have returned 6.76% annually over the last four years. A decade ago, professionally managed portfolios with no minimums did not exist.

Index Returns

	Index	YTD Return	3-Year Return (Annualized)
Domestic	Russell 3000	5.41%	11.61%
International Emerging Markets	MSCI Emerging Markets	-0.93%	2.76%
International Developed Markets	MSCI EAFE	-6.67%	1.19%
Value	Russell 3000 Value	-12.24%	2.09%
Growth	Russell 3000 Growth	23.00%	20.69%
Large Cap	Russell 1000	6.39%	12.34%
Small Cap	Russell 2000	-8.70%	1.74%
US Aggregate Bond	Barclays U.S. Aggregate	6.79%	5.23%
Intermediate Corporate Bonds	Barclays Intermediate Corp.	5.61%	5.14%
Municipal Bonds	Barclays Municipal	3.33%	4.27%

Produced by Backend Benchmarking for BackendB.com

Robo Advisor Average Returns (Taxable 60/40 Portfolios)

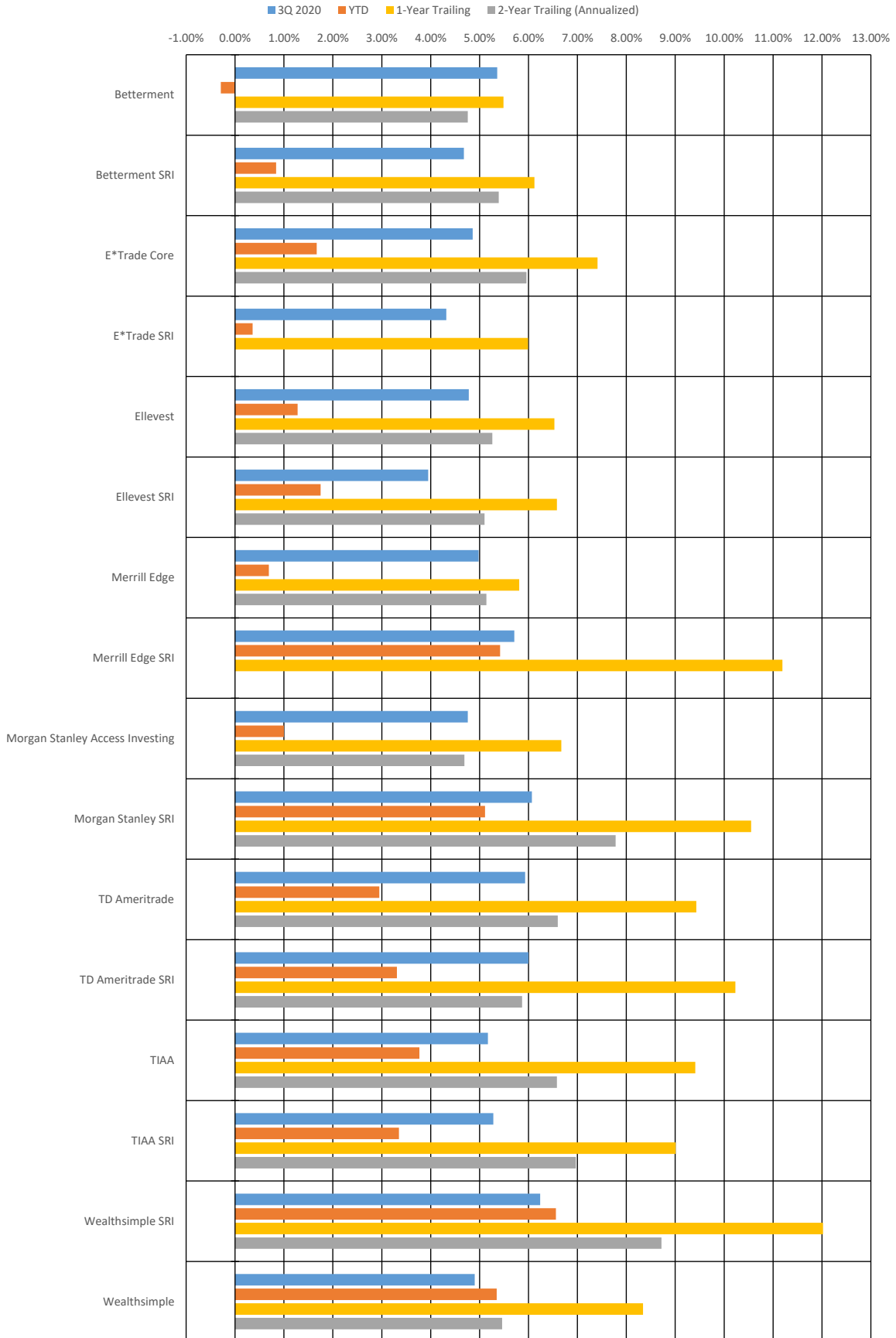
	Q3 2020	YTD	1-Year	2-Year	3-Year	4-Year
Equity	7.58%	-0.81%	7.78%	4.52%	6.05%	8.44%
Fixed Income	1.02%	4.80%	5.20%	6.89%	4.26%	3.36%
Total Portfolio	5.08%	1.88%	7.48%	5.71%	5.60%	6.76%

Produced by Backend Benchmarking for BackendB.com

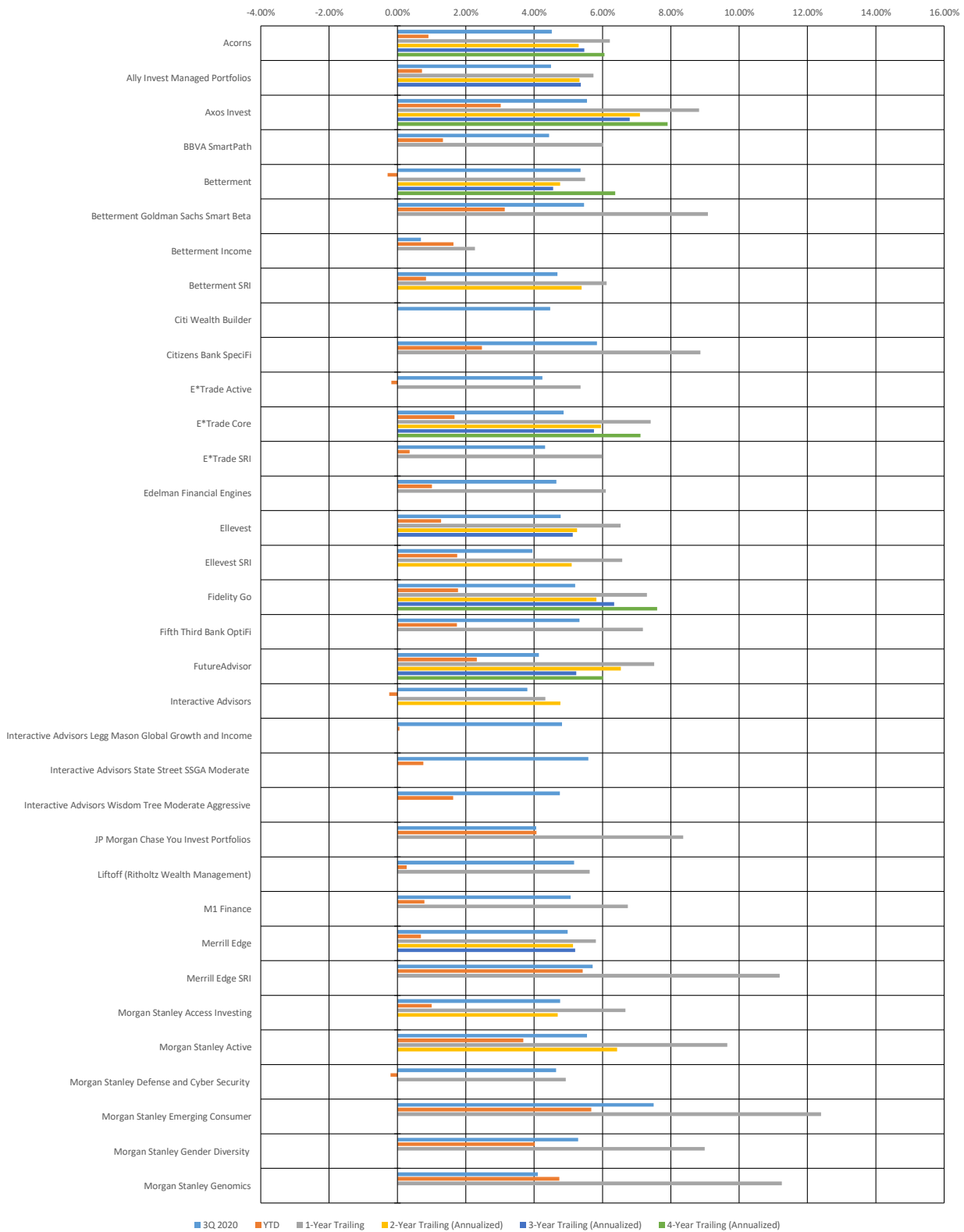
Returns are net of fees and are as of 9/30/2020. All returns for periods longer than one year are annualized.



SRI Account Performance



Taxable Account Performance



Taxable Account Performance (continued from previous page)



Industry Trends and Outlook

- *Robos have 8% adoption across the US, according to Hearts and Wallets*
- *Millennials show higher adoption rates of robos, especially those with more to invest*
- *Fidelity, Bank of America, and Schwab launch new, free financial planning tools that are natural funnels to investment management*
- *Wealthsimple and M1 raise large sums of new funding despite recent industry closures*

Robo Adoption

In September, Hearts and Wallets released a research report that detailed the adoption of digital advisors across the United States. The report stated that roughly 8% of U.S. households have money invested with a robo advisor, according to a survey of over 5,000 participants. When looking at incumbent firms, Schwab reported that 13% of its clients had money invested in a digital platform, while 10% of Vanguard and Fidelity clients reported the same. According to the survey, budgeting app Mint.com and micro-investing platform Acorns each had roughly 30% brand awareness, making them the most popular nationwide. Although this level of adoption and awareness is significant, there is still substantial room for growth. This underscores a theme that, instead of focusing on winning against the competition, incumbent firms can continue to cross-sell across their existing clientele while independents can broaden their brand awareness to achieve growth.

Beyond First-Time Investors

There has been a perception that digital advice is mostly for clients who are new to investing or have a low amount of investable assets. Robo advice is proving to resonate the most with younger and

Nearly half of millennials with more than \$500,000 to invest are using a robo advisor.

wealthier clients. According to the survey, nearly half of millennials with more than \$500,000 to invest are using a robo advisor. While wealthy

millennials are using robo advice en masse, other wealth brackets and age groups much less so.

For example, when looking at the mass affluent households with investable assets between \$50,000 and \$500,000, over 20% of the millennial generation said they use a robo advisor, Generation X close to 15%, and baby boomers close to 5%. Although robos have not taken significant market share from traditional advice today, the battleground for clients is shifting to much younger clients at early stages of wealth accumulation. As the millennial generation matures, traditional advisors may increasingly find that prospective clients have settled already into a financial advice relationship.

A New Wave of Digital Apps

During the last quarter, we saw a wave of new applications and features released by incumbent institutions: Fidelity released Spire, Schwab released Schwab Plan, and Bank of America released Life Plan. All of which are free, have an easy-to-use interface, and provide tools for better financial planning. By increasing access to goal planning, these companies are creating a natural funnel from a free service to their trading or managed account platforms.

By increasing access to goal planning, these companies are creating a natural funnel.

The introduction of these new tools underscores the trend of linking financial planning with checking and savings accounts. Life Plan and Spire allow the user to choose goals that may be

achieved with either a banking product or investment product based on the time-horizon of the goal. Life Plan is accessible to close to three million Bank of America banking clients, giving them a path to Merrill Edge investment services. We see this relationship as a win-win as clients gain financial planning tools and Merrill Edge gains a pipeline of potential investors. We expect this trend of banking services sitting alongside investment services to continue across incumbents and independents alike.

Autopilot by Wealthfront

Bringing automation and goal planning down to the checking and savings account level is on full display at Wealthfront. As part of Wealthfront's new Self-Driving Money rollout, it announced a new feature called Autopilot in September. Autopilot monitors the customers' account daily to ensure they keep only the amount of cash needed, not more. When the balance is above the prescribed amount, a customer then chooses which investment account to deposit cash, with

Users report Autopilot removes the stressful decision of whether or not one should invest their cash.

the goal of maximizing the efficiency of each dollar. According to Wealthfront, the beta test users report that Autopilot removes the stressful decision of whether or not one should invest their cash. This

innovation may do a lot of good in terms of automating the investment process and we look forward to seeing what Wealthfront comes out with next.

Yodlee and Open Banking

In September, Wells Fargo announced it entered into a data agreement with Yodlee. JP Morgan Chase and Schwab already signed such agreements in 2019 and earlier in 2020, respectively. Yodlee is one of the main technology companies that handles connecting third-party apps with a financial institution when individuals want to grant an app permission to access their financial data. Consumers have an increasing number of technologies available that will help

them analyze their financial data, like Mint.com, which helps users track spending and budgeting. Many firms are taking steps to have better control over how companies like Yodlee access consumer's financial data at the firm. Data agreements like these formalize how data can be accessed and can increase the security and accuracy of the data. The formalization of secure ways for consumers to grant access to their financial data is a positive step towards "open banking." A user's financial data belongs to the client and clients should be allowed to securely share their data with third-party apps.

JP Morgan Advisor Hiring Spree

JP Morgan announced they will be hiring hundreds of advisors across the country over the next few years to bolster its remote-advisor offering. These advisors would specifically be there to assist clients remotely, whether that be over a video call, phone call, and/or use of the digital platforms. Boaz

JP Morgan announced they will be hiring hundreds of advisors across the country.

Lahovitsky, who was head of all Flagship financial advisors for Vanguard's Personal Advisor Services, was hired as part of this effort. Hybrid advice offerings—those with access to live advisors—are proving to be winning models in digital advice. Many providers are discovering that a large number of investors are interested in low-cost digital advice but still want the ability to talk to a live advisor. It appears that JP Morgan is moving in the direction of allowing access to live advisors for their growing YouInvest platform.

Wealthsimple and M1 Continue To Raise Capital

Recently, Wealthsimple raised \$114 million and M1 Finance raised \$45 million, marking two of the largest investments in digital advice this year. This comes on the heels of a trend towards robo consolidation, which included the closure of Motif. Wealthsimple's CEO, Mike Katchen, reported that new sign-ups were just below that of TD Bank this year, and Wealthsimple now reports assets over \$8.4 billion CAD. The

combination of being early to the Canadian market along with offering multiple financial services (trading, investing, banking) propelled the success of this independent robo. Meanwhile, M1 continues to raise money as its assets under administration have grown rapidly this year.

M1's AUA grew from \$1 billion in February to over \$2 billion this month.

According to reports from TechCrunch, M1's AUA grew from \$1 billion in February to over \$2 billion this month. The company's

CEO, Brian Barnes, said that M1 has tripled its user base since the start of this year. While the number of independent robo advisors has slimmed, Wealthsimple and M1's recent capital raise shows there is still appetite among investors for growing platforms.

Betterment expands SRI options

Coming on the heels of about 40% growth in U.S. SRI assets between 2016 and 2018, according to USSIF, Betterment announced a revamp and expansion to its SRI offerings. In October, it announced two new Socially Responsible Investment (SRI) options, including Social Impact and Climate Impact. The Climate Impact portfolio focuses on minimizing carbon footprint and fossil fuel reserves while gaining exposure to "green bonds" which fund environmentally friendly projects. The Social Impact portfolio focuses on companies that value gender and ethnicity diversity. The existing SRI portfolio, now called Broad Impact, has a more expansive ESG coverage. Together, these moves highlight Betterment's aggressive push towards capitalizing on a trend that is both important to them and to their customer.



Robo Interview with Chris Costello

- *Insights into the behavior of bloom clients through this year's market volatility*
- *Expanding bloom to programmatically deliver advice on non-retirement accounts*
- *Perspective on who the bloom client is, and what is most important to them*

We had the privilege of speaking with bloom CEO and Co-Founder Chris Costello. Chris talked about how bloom clients reacted to the market volatility, scaling a start-up business, and what is on the horizon for the bloom platform.

This interview has been edited for length and clarity.

Are you able to share the current number of clients and AUM?

As of today, we have a little over \$4.5 billion of AUM across a little more than 29,000 accounts.

What type of clients have you had the most success attracting to bloom? Who is the average bloom client?

These are people who almost exclusively are not working with a financial advisor yet. Oftentimes, it is because of the stage of life they are in – they haven't yet amassed significant wealth to attract the attention of a financial advisor; the average age of our client is about 38 years old.

The average account balance at bloom is over \$100,000. So, it's people that have gotten to the point where they need to make sure this money is working for them.

they are married, maybe they have a family, and they start to take their finances and future more

I think, broadly speaking, that when people get to their 30s, it might correspond to the time in which they are not fresh out of college, maybe

seriously. If you do the math, the average account balance at bloom is over \$100,000. So, it's people that have gotten to the point where they need to make sure this money is working for them in the proper fashion.

What do you think bloom clients care about the most?

Ultimately, the most common words we hear from our clients that have been with us for a while is "peace of mind." It's peace of mind knowing that the critical retirement savings that they have are being watched over, monitored, and adjusted as necessary. Maybe they did not have the time to do it themselves; maybe they didn't quite understand everything to the level that would make them comfortable. So the peace of mind that bloom provides by taking that over for them is something we hear a lot.

The lightning rod that has attracted people to bloom since our inception in 2014 is one of the things that we have made a name for ourselves: building our technology to be able to go in and, in many cases, reduce the amount of hidden investment fees inside of these 401(k)s.

If you stop and ask someone on the street if they have any idea what their expenses are inside their 401(k), most people do not know the answer to that. The employer-sponsored

It's frustrating that the industry has made it really hard for people to figure out what their fees are.

retirement account, for a lot of middle-class Americans, is oftentimes their single largest store of wealth. So it's frustrating that the industry has made it really hard for people to figure out what their fees are. Obviously, if you are paying a lot of fees, that is working counter to what your goals are.

Can you dig into that a little more? As far as reducing hidden fees, how does bloom go about doing that?

Most 401(k) plans have anywhere from 20-40 options you can pick from. We go in and look at

We will narrow it down, and we will select the funds that you have to pick from that have the lowest costs.

all of the options, and our software can pick from those options. We will narrow it down, and we will select the funds that you have to pick from that have the lowest costs. Oftentimes, it's no big

surprise that those are the index funds. Whenever we can, we are trying to use the index funds to build your portfolio. From there, it is all about building an allocation that is appropriate for each of our clients based on their unique time horizon to retirement and their specific risk preferences.

How important is performance to your clients and do you think clients have any realistic way to measure it?

This is another topic we could talk for hours on. I am 47 years old and have been in this industry for over 25 years. Before bloom, I spent the first 18 years of my career working as a financial advisor, generally to wealthy people. Talking about performance is always something that I have struggled with. I think it is a challenge because a lot of people focus way too much on short-term performance.

There is an education gap sometimes with performance, or it's one of these things: "The guy

that works in the cubicle next to me is up 8% this year, and I am only up 7%. What's wrong with bloom?"

What if the guy next to you has everything in his 401(k) in company stock and company stock went through the roof, but you actually had a prudent allocation that was diversified across a lot of different categories and we have not bet the farm on company stock?

The value [that bloom provides] is not chasing this ambiguous "am I beating the market, am I beating my co-worker, did I make 8% or 7%?" The biggest thing people screw themselves up on is their behavior when it comes to their investing. Manically chasing returns or panicking out of the market is one of the biggest destroyers of wealth when it comes to investing.

At the heart of it, save as much as you can, don't micromanage the account, make sure you have a diversified allocation that is more tilted towards stocks the younger you are, minimize fees, and leave it the heck alone. That is the secret to investing. This industry sometimes makes it way too complex. This is the kind of education we try to impart to our clients, which is way more important than measuring whatever you made this last quarter, last year, etc.

During the period of intense market volatility this spring, how did people actually react with their money?

One of the biggest demands we have ever had on our advisor team in the history of the company was in late March of this year when the markets were crashing around the pandemic. We were absolutely flooded with questions from clients after the market had declined by 25%.

One of the biggest demands we have ever had on our advisor team in the history of the company was in late March.

We were getting questions all the time from clients: should we get out of the market? Should I go more conservative? Should I stop contributions? That period of time in late March was one of the most exhausting but also the most rewarding times I have ever had in my career.

We were so busy that I was getting in the client queue and answering questions. In late March, the client queue was blowing up. It felt like, for the three weeks where I immersed myself with the team and helped answer those questions, “holy cow, every one of our clients is panicking.” As it turns out, when we stepped back and actually ran the data, only 4% of our clients made a change to their risk tolerance in March. Of those changes, 40% were actually to go more aggressive. I am proud of that group of people. That means only

That tells me only 2.6% of our clients did the wrong thing. It felt like the sky was falling that month, but it's only because we were getting bombarded with calls.

2.6% of bloom's clients went more conservative in March. That tells me only 2.6% of our clients did the wrong thing. It felt like the sky was falling that month, but it's only because we were getting

bombarded with calls [from concerned clients] all at once. But those calls were still out of a 25,000 client base, so it was a very small fraction of our clients.

Let's dig into 401(k)s and how you guys manage to do what you do at the scale that you do. What are the biggest challenges of working with 401(k)s?

We would have to have a warehouse full of computers and people keying in transactions if we did not have the technology to scale this for us. Our engineering team has had to build the automation to be able to go in and navigate around Fidelity's site, Schwab's site, etc. There are more than 200 different institutions or 401(k) platforms where our clients have accounts.

Almost all of them are powered by automation where the tools go into the account, analyze every option, then we have to be able to go in and robotically place the trades.

I can only deduce that's one big reason why no one has come into the marketplace doing what bloom is doing yet. There is a lot more complexity that goes into trying to manage the automation and tools across so many different institutions.

I can only imagine you have spent some significant development dollars building this technology.

I am actually proud to say that in the grand scheme of things, we have gotten pretty far on not a lot of venture capital dollars. We have only raised \$13 million. I think Wealthfront has raised \$200 million, and Betterment has raised \$250 million. But we are here in Kansas. So, I joke that we know how to stretch a dollar here in the Midwest!

I am actually proud to say that in the grand scheme of things, we have gotten pretty far on not a lot of venture capital dollars.

What are the keys to scaling efficiently when you are dealing with these different custodians, platforms, assets, and plans?

We have a really good team of developers. Being in Kansas City has been an advantage in some ways. We got a lot of press locally in the first years, which really helped us be competitive for talent in the area. One of the biggest things about attracting talent is this is an extremely mission-driven company. We are helping people who, for the most part, big Wall Street firms have not helped very much. Our employees know that we are changing people's lives with the work we are doing.

The challenge more is not necessarily scaling the platform; I think that has gone really well. It's been more around growing the business. Being a direct-to-consumer company is hard; you have to spend a lot of dollars to get the message out there. We have raised \$13 million not \$130 million. Growing and scaling client acquisition is something we are focused more on, not so much worried about scaling the technology.

What is next at bloom?

We are starting to expand our visibility. A lot of times, we have someone who signs up for a 401(k)

plan that bloom is managing, but they have other accounts out there. We are repurposing and deploying some of the technology we have built and enhancing it to be able to give advice on a broader suite of accounts. A lot of that is done manually today [by our live advisors] but we are going to continue to build out the tools and automation that make it convenient for people to consolidate their assets within their bloom login. Coupling the aggregation with the ability for our clients to get advice from us on more things than just retirement savings is definitely in the future for us.



Charts and Tables

Funding and AUM Statistics

Robo	Raised to Date (Millions)	Last Funding Amount (Millions)	Last Funding Date	Post-Money Valuation at Last Funding Round (Millions)	AUM (in millions)	Clients	Source of AUM and Clients Figures
Acorns	\$207	\$105	Dec, 2019	\$860	\$1,822	2,954,678	Recent ADV
Ally Invest Advisors	N/A	N/A	N/A	Acquired TradeKing for \$294 million June, 2016	\$277	32,933	Recent ADV
Axos Invest	N/A	N/A	N/A	Acquired WiseBanyan for undisclosed amount on Oct. 2018	\$206	32,202	Recent ADV
Betterment	\$275	\$70	Aug, 2017	\$800	\$18,100	502,478	Recent ADV
bloom	\$13	\$9	Feb, 2017	N/A	\$4,500	29,000 accounts	Company Representative
Ellevest	\$78	\$33	Mar, 2019	Unknown	\$634	48,891	Recent ADV
FutureAdvisor	N/A	N/A	N/A	Acquired by BlackRock for \$152 million August, 2015	\$1,135	18,660	Recent ADV
M1 Finance	\$98	\$45	Oct, 2020	N/A	\$2,000***	Unknown	News Media
Personal Capital	\$265	\$50	Feb, 2019	Acquired by Empower for \$1 billion June, 2020	\$14,000	24,500	Company Website
Qapital	\$47	\$30	April, 2018	Unknown	\$12	21,894	Recent ADV
Schwab Intelligent Portfolio Products	N/A	N/A	N/A	N/A	\$48,900	Unknown	Company Website
SigFig	\$120	\$50	June, 2018	\$471	\$835	16,530	Recent ADV
SoFi Invest	N/A	N/A	N/A	N/A	\$203	40,453	Recent ADV
TD Ameritrade Selective, Essential, and Personalized Portfolios	N/A	N/A	N/A	N/A	\$19,900	Unknown	Company Representative
T Rowe Price ActivePlus Portfolios	N/A	N/A	N/A	N/A	\$355	Unknown	Company Representative
United Income	N/A	N/A	N/A	Acquired by Capital One for undisclosed amount in Aug. 2019	\$1,199	1,606	Recent ADV
Vanguard Personal Advisor Services	N/A	N/A	N/A	N/A	\$172,000	Unknown	News Media
Wealthfront	\$205	\$75	Jan, 2018	\$500	\$13,588	247,041	Recent ADV
Wealthsimple	\$381 (CAD)	\$114 (CAD)	Oct, 2020	\$1,400 CAD	\$8,400 CAD***	175,000	News Media

All funding and valuation amounts are estimates
Sources: Crunchbase, Pitchbook, News Media

Produced by Backend Benchmarking for BackendB.com

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

Taxable Returns: Total Performance

	Total Portfolio											
	3Q 2020	3Q 2020 Return vs. Benchmark	YTD	YTD 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
Acorns ¹	4.52%	-0.88%	0.91%	-3.14%	6.22%	-3.54%	5.30%	-1.64%	5.47%	-1.27%	6.06%	-1.88%
Ally Financial ⁹	4.49%	-0.83%	0.72%	-3.38%	5.74%	-3.98%	5.33%	-1.63%	5.37%	-1.34%	-	-
Axos Invest ⁸	5.55%	-0.14%	3.02%	-0.86%	8.83%	-1.10%	7.10%	0.23%	6.80%	-0.06%	7.91%	-0.15%
BBVA Compass ⁷	4.44%	-0.96%	1.33%	-3.12%	6.03%	-3.97%	-	-	-	-	-	-
Betterment ²⁷	5.36%	-0.40%	-0.29%	-4.12%	5.49%	-4.48%	4.76%	-2.09%	4.56%	-2.33%	6.37%	-1.76%
Betterment Goldman Sachs Smart Beta ³²	5.46%	0.06%	3.14%	-0.91%	9.09%	-0.67%	-	-	-	-	-	-
Betterment SRI ²⁷	4.68%	-0.72%	0.84%	-3.21%	6.12%	-3.64%	5.39%	-1.55%	-	-	-	-
CitiGroup ⁴⁰	4.47%	-1.00%	-	-	-	-	-	-	-	-	-	-
Citizens Bank ⁷	5.84%	0.15%	2.47%	-1.41%	8.87%	-1.06%	-	-	-	-	-	-
E*Trade Active ²³	4.24%	-1.23%	-0.18%	-4.19%	5.36%	-4.44%	-	-	-	-	-	-
E*Trade ²¹	4.86%	-0.54%	1.67%	-2.38%	7.41%	-2.35%	5.96%	-0.98%	5.75%	-0.99%	7.11%	-0.68%
E*Trade SRI ²³	4.32%	-1.15%	0.36%	-3.65%	5.99%	-3.81%	-	-	-	-	-	-
Edelman Financial Engines ⁴	4.65%	-1.26%	1.01%	-2.72%	6.10%	-3.94%	-	-	-	-	-	-
Ellevest ³⁸	4.78%	-0.32%	1.28%	-2.94%	6.53%	-3.05%	5.26%	-1.75%	5.13%	-1.54%	-	-
Ellevest SRI ³⁸	3.95%	-0.78%	1.75%	-2.66%	6.58%	-2.75%	5.10%	-1.83%	-	-	-	-
Fidelity Go ³³	5.20%	-0.27%	1.77%	-2.24%	7.30%	-2.50%	5.82%	-1.10%	6.34%	-0.43%	7.60%	-0.26%
Fifth Third Bank ⁷	5.33%	-0.07%	1.74%	-2.31%	7.18%	-2.58%	-	-	-	-	-	-
FutureAdvisor ³	4.14%	-1.03%	2.32%	-1.86%	7.51%	-2.12%	6.54%	-0.53%	5.23%	-1.44%	6.02%	-1.60%
Interactive Advisors ²⁴	3.80%	-1.15%	-0.24%	-4.54%	4.33%	-5.15%	4.77%	-2.27%	-	-	-	-
Interactive Advisors Legg Mason Global Growth and Income ²⁴	4.82%	-1.24%	0.06%	-3.57%	-	-	-	-	-	-	-	-
Interactive Advisors State Street SSGA Moderate ²⁴	5.59%	0.19%	0.76%	-2.19%	-	-	-	-	-	-	-	-
Interactive Advisors Wisdom Tree Moderate Aggressive ²⁴	4.75%	-0.42%	1.63%	-2.60%	-	-	-	-	-	-	-	-
JP Morgan Chase You Invest ⁷	4.06%	-0.60%	4.07%	-0.37%	8.36%	-0.92%	-	-	-	-	-	-
Liftoff (Ritholtz Wealth Management) ³	5.17%	-0.23%	0.27%	-3.78%	5.63%	-4.13%	-	-	-	-	-	-
M1 Finance ³⁴	5.07%	-0.77%	0.79%	-2.99%	6.74%	-3.26%	-	-	-	-	-	-
Merrill Edge ³¹	4.98%	-0.49%	0.69%	-3.25%	5.81%	-3.30%	5.14%	-1.74%	5.20%	-1.41%	-	-
Merrill Edge SRI ³¹	5.71%	0.09%	5.42%	1.05%	11.19%	1.19%	-	-	-	-	-	-
Morgan Stanley ¹²	4.76%	-0.93%	1.00%	-2.99%	6.67%	-3.29%	4.69%	-2.20%	-	-	-	-

Returns are net of fees and are as of 9/30/2020. All returns for periods longer than one year are annualized.

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Taxable Returns: Total Performance (continued from previous page)

	Total Portfolio											
	3Q 2020	3Q 2020 Return vs. Benchmark	YTD	YTD 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
Morgan Stanley Active ³	5.55%	-0.14%	3.68%	-0.20%	9.65%	-0.28%	6.43%	-0.44%	-	-	-	-
Morgan Stanley Defense and Cyber Security ⁷	4.64%	-1.49%	-0.20%	-3.90%	4.93%	-5.25%	-	-	-	-	-	-
Morgan Stanley Emerging Consumer ⁷	7.50%	1.44%	5.67%	2.04%	12.40%	2.29%	-	-	-	-	-	-
Morgan Stanley Gender Diversity ⁷	5.29%	-0.17%	4.02%	-0.10%	8.99%	-0.84%	-	-	-	-	-	-
Morgan Stanley Genomics ⁷	4.11%	-0.91%	4.74%	0.27%	11.25%	1.67%	-	-	-	-	-	-
Morgan Stanley Global Frontier ⁷	5.44%	-0.61%	0.58%	-3.17%	6.69%	-3.46%	-	-	-	-	-	-
Morgan Stanley Inflation Conscious ⁷	2.89%	-2.79%	-1.74%	-5.96%	2.36%	-7.66%	-	-	-	-	-	-
Morgan Stanley Robotics ⁷	7.57%	1.44%	8.52%	4.82%	15.83%	5.65%	-	-	-	-	-	-
Morgan Stanley SRI ⁷	6.07%	0.90%	5.11%	0.93%	10.55%	0.92%	7.78%	0.86%	-	-	-	-
Personal Capital ⁴	5.35%	-1.00%	-0.33%	-3.75%	5.50%	-4.74%	3.96%	-2.70%	4.47%	-2.62%	5.95%	-2.69%
Prudential ²⁶	5.00%	-0.40%	2.42%	-1.63%	7.80%	-1.96%	-	-	-	-	-	-
Qapital ³⁰	4.70%	-1.21%	-1.98%	-5.71%	3.25%	-6.79%	-	-	-	-	-	-
Schwab ⁵	4.09%	-1.08%	-2.62%	-6.24%	2.67%	-6.84%	2.44%	-4.29%	3.21%	-3.55%	5.33%	-2.70%
Schwab Domestic Focus ⁵	4.13%	-1.34%	-3.27%	-6.77%	1.86%	-7.75%	-	-	-	-	-	-
SigFig ⁶	5.65%	0.11%	5.31%	1.34%	11.40%	1.55%	8.02%	1.11%	7.24%	0.44%	8.18%	0.25%
SoFi ¹⁷	6.05%	0.65%	4.10%	0.05%	10.21%	0.45%	7.14%	0.20%	6.29%	-0.35%	-	-
TD Ameritrade ¹⁰	5.93%	-0.06%	2.95%	-0.73%	9.43%	-0.65%	6.60%	-0.18%	6.44%	-0.53%	-	-
TD Ameritrade SRI ^{10,C}	6.00%	-0.06%	3.31%	-0.87%	10.23%	-0.29%	5.87%	-1.17%	-	-	-	-
TIAA ⁷	5.17%	-0.30%	3.77%	-0.24%	9.41%	-0.39%	6.58%	-0.34%	6.50%	-0.27%	-	-
TIAA Active ⁷	5.34%	-0.13%	2.12%	-1.89%	8.49%	-1.86%	6.07%	-0.65%	-	-	-	-
TIAA SRI ⁷	5.28%	-0.12%	3.35%	-0.70%	9.01%	-0.75%	6.97%	0.03%	-	-	-	-
Twine (John Hancock) ³	5.96%	-0.10%	2.71%	-0.92%	9.12%	-0.99%	-	-	-	-	-	-
UBS Advice Advantage ⁷	5.29%	-0.84%	0.73%	-3.40%	6.83%	-3.72%	4.36%	-2.65%	-	-	-	-
United Income ¹⁶	4.52%	-0.80%	-2.48%	-6.58%	2.33%	-7.39%	2.70%	-4.26%	-	-	-	-
US Bank ²⁸	5.41%	0.24%	3.65%	-0.53%	9.24%	-0.39%	6.99%	0.08%	-	-	-	-
Vanguard ^{4,A}	5.58%	0.18%	2.13%	-1.92%	8.04%	-1.72%	5.65%	-1.29%	5.95%	-0.79%	7.29%	-0.50%
Vanguard Digital Advisor ⁷	5.25%	0.00%	-	-	-	-	-	-	-	-	-	-
Wealthfront ^{22,B}	4.18%	-1.58%	-0.30%	-4.13%	5.32%	-4.65%	4.19%	-2.66%	5.20%	-1.69%	6.56%	-1.57%

Returns are net of fees and are as of 9/30/2020. All returns for periods longer than one year are annualized.

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Taxable Returns: Total Performance (continued from previous page)

	Total Portfolio											
	3Q 2020	3Q 2020 Return vs. Benchmark	YTD	YTD 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
Wealthfront PassivePlus ²²	4.40%	-0.70%	-0.10%	-4.32%	5.12%	-4.46%	-	-	-	-	-	-
Wealthsimple ¹¹	4.90%	-0.50%	5.35%	1.30%	8.34%	-1.42%	5.46%	-1.48%	5.55%	-1.19%	-	-
Wealthsimple SRI ¹¹	6.24%	0.84%	6.56%	2.51%	12.02%	2.26%	8.72%	1.78%	-	-	-	-
Wells Fargo ¹⁴	6.31%	0.69%	2.85%	-1.07%	8.55%	-1.34%	6.01%	-0.88%	-	-	-	-
Zacks Advantage ²⁹	4.90%	-0.50%	1.72%	-2.33%	7.15%	-2.61%	5.22%	-1.72%	5.68%	-0.95%	-	-

Returns are net of fees and are as of 9/30/2020. All returns for periods longer than one year are annualized.

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Non 60/40 Target Allocation Taxable Returns

	Total						Equity			Fixed Income			% Equity
	3Q 2020	3Q 2020 Return vs. Benchmark	YTD	YTD Return vs. Benchmark	1-Year	1-Year Return vs. Benchmark	3Q 2020	YTD	1-Year	3Q 2020	YTD	1-Year	
Betterment Income ²⁷	0.69%	-0.27%	1.64%	-3.36%	2.27%	-3.20%	-	-	-	0.69%	1.64%	2.27%	0%
TD Ameritrade Income ³⁵	2.23%	-0.28%	1.08%	-3.97%	2.86%	-4.49%	4.97%	-6.09%	-1.74%	1.39%	3.64%	4.47%	20%
TD Ameritrade Managed Risk ³⁵	2.00%	-0.07%	-0.93%	-6.00%	1.04%	-5.81%	*A	*A	*A	*A	*A	*A	1%
TD Ameritrade Opportunistic ¹⁰	2.89%	-1.55%	-1.07%	-5.61%	3.55%	-5.48%	*A	*A	*A	*A	*A	*A	50%
Titan Invest ³	11.76%	3.42%	24.62%	23.00%	38.38%	27.69%	11.81%	24.90%	38.73%	-	-	-	100%
Wealthsimple Halal ¹¹	7.28%	-1.06%	-3.25%	-4.87%	3.63%	-7.06%	7.30%	-3.27%	3.65%	-	-	-	100%

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Returns are net of fees and are as of 9/30/2020. All returns for periods longer than one year are annualized.

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



Taxable Returns: Equity and Fixed-Income Performance

	Equity						Fixed Income					
	3Q 2020	YTD	1-Year	2-Year	3-Year	4-Year	3Q 2020	YTD	1-Year	2-Year	3-Year	4-Year
Acorns ¹	7.11%	-1.36%	6.61%	4.30%	6.46%	8.08%	0.47%	4.76%	5.51%	6.97%	3.90%	2.66%
Ally Financial ⁹	7.07%	-2.50%	5.80%	3.01%	5.19%	-	0.64%	6.18%	5.68%	8.51%	5.31%	-
Axos Invest ⁸	7.87%	1.17%	9.72%	6.22%	7.48%	9.97%	1.53%	5.38%	6.12%	7.87%	4.97%	3.84%
BBVA Compass ⁷	7.08%	-4.21%	3.66%	-	-	-	0.37%	6.78%	6.58%	-	-	-
Betterment ²⁷	7.54%	-3.46%	5.05%	3.07%	4.21%	7.54%	1.22%	3.27%	3.60%	6.47%	4.13%	3.22%
Betterment Goldman Sachs Smart Beta ³²	8.06%	0.98%	9.60%	-	-	-	1.22%	4.60%	6.27%	-	-	-
Betterment SRI ²⁷	7.06%	-1.81%	6.53%	3.95%	-	-	1.11%	3.09%	3.52%	6.48%	-	-
CitiGroup ⁴⁰	*A	-	-	-	-	-	*A	-	-	-	-	-
Citizens Bank ⁷	8.60%	0.85%	10.30%	-	-	-	0.82%	5.80%	6.10%	-	-	-
E*Trade Active ²³	6.49%	-4.28%	4.08%	-	-	-	0.90%	3.26%	3.90%	-	-	-
E*Trade ²¹	7.42%	-1.90%	6.85%	3.42%	5.59%	8.67%	0.78%	6.46%	7.08%	9.27%	5.44%	4.20%
E*Trade SRI ²³	6.64%	-3.43%	5.10%	-	-	-	0.90%	3.25%	3.90%	-	-	-
Edelman Financial Engines ⁴	6.94%	-2.88%	4.73%	-	-	-	-0.02%	5.61%	5.40%	-	-	-
Ellevest ³⁸	7.74%	-0.40%	8.24%	4.94%	6.33%	-	0.83%	1.58%	2.37%	4.43%	2.67%	-
Ellevest SRI ³⁸	7.78%	0.86%	9.55%	5.40%	-	-	0.74%	1.82%	2.58%	4.45%	-	-
Fidelity Go ³³	7.76%	0.15%	8.99%	5.15%	7.53%	10.32%	1.60%	1.11%	1.71%	4.92%	3.27%	2.60%
Fifth Third Bank ³³	7.89%	0.58%	9.30%	-	-	-	1.38%	1.76%	2.28%	-	-	-
FutureAdvisor ⁷	7.34%	-2.16%	6.77%	5.03%	5.06%	7.56%	0.32%	6.71%	6.78%	7.77%	4.86%	3.46%
Interactive Advisors ²⁴	5.99%	-6.25%	1.33%	1.57%	-	-	1.19%	5.91%	6.40%	7.84%	-	-
Interactive Advisors Legg Mason Global Growth and Income ²⁴	6.24%	-2.39%	-	-	-	-	1.80%	7.00%	-	-	-	-
Interactive Advisors State Street SSGA Moderate ²⁴	8.64%	-0.48%	-	-	-	-	1.31%	3.71%	-	-	-	-
Interactive Advisors Wisdom Tree Moderate Aggressive ²⁴	*A	*A	-	-	-	-	*A	*A	-	-	-	-
JP Morgan Chase You Invest ⁷	7.41%	-0.93%	7.74%	-	-	-	0.47%	*A	6.63%	-	-	-
Liftoff (Ritholtz Wealth Management) ³	7.65%	-3.23%	5.29%	-	-	-	1.12%	1.92%	2.19%	-	-	-
M1 Finance ³⁴	7.36%	-1.76%	6.81%	-	-	-	1.26%	6.18%	6.93%	-	-	-
Merrill Edge ³¹	7.52%	-0.77%	8.15%	4.95%	6.60%	-	0.73%	1.16%	1.53%	4.83%	2.94%	-
Merrill Edge SRI ³¹	8.33%	3.21%	12.73%	-	-	-	1.24%	3.60%	3.82%	-	-	-
Morgan Stanley ¹²	7.20%	-2.30%	6.40%	2.98%	-	-	0.35%	5.70%	5.83%	7.37%	-	-

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

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

	Equity						Fixed Income					
	3Q 2020	YTD	1-Year	2-Year	3-Year	4-Year	3Q 2020	YTD	1-Year	2-Year	3-Year	4-Year
Morgan Stanley Active ³	8.12%	1.36%	10.54%	5.19%	-	-	0.87%	5.84%	6.32%	7.63%	-	-
Morgan Stanley Defense and Cyber Security ⁷	6.27%	-3.28%	3.82%	-	-	-	0.87%	5.92%	6.38%	-	-	-
Morgan Stanley Emerging Consumer ⁷	10.31%	4.42%	14.20%	-	-	-	0.90%	5.73%	6.19%	-	-	-
Morgan Stanley Gender Diversity ⁷	7.93%	2.92%	10.96%	-	-	-	1.03%	4.64%	4.87%	-	-	-
Morgan Stanley Genomics ⁷	6.79%	3.16%	15.00%	-	-	-	0.84%	5.48%	5.95%	-	-	-
Morgan Stanley Global Frontier ⁷	7.46%	-2.67%	5.96%	-	-	-	0.85%	5.88%	6.35%	-	-	-
Morgan Stanley Inflation Conscious ⁷	3.59%	-8.78%	-2.82%	-	-	-	1.45%	6.67%	7.17%	-	-	-
Morgan Stanley Robotics ⁷	10.29%	8.76%	19.32%	-	-	-	0.87%	5.92%	6.39%	-	-	-
Morgan Stanley SRI ⁷	9.48%	4.95%	14.11%	8.36%	-	-	1.04%	4.66%	4.88%	6.56%	-	-
Personal Capital ⁴	6.98%	-2.67%	4.96%	2.99%	4.68%	6.96%	1.14%	3.95%	4.61%	5.69%	3.06%	2.48%
Prudential ²⁶	7.52%	-0.54%	7.78%	-	-	-	1.01%	4.39%	5.12%	-	-	-
Qapital ³⁰	6.53%	-5.87%	1.35%	-	-	-	0.97%	5.01%	5.69%	-	-	-
Schwab ⁵	6.06%	-8.21%	-0.43%	-0.31%	2.24%	5.70%	1.86%	4.82%	5.89%	7.10%	4.39%	4.24%
Schwab Domestic Focus ⁵	5.94%	-7.41%	0.00%	-	-	-	1.77%	4.52%	5.17%	-	-	-
SigFig ⁶	8.77%	1.60%	11.11%	6.50%	7.53%	10.22%	0.96%	7.80%	8.16%	8.70%	5.52%	4.01%
SoFi ¹⁷	9.50%	4.59%	14.42%	7.93%	8.25%	-	0.86%	3.28%	3.91%	5.48%	3.45%	-
TD Ameritrade ¹⁰	8.15%	0.34%	9.50%	5.25%	6.69%	-	0.48%	5.31%	5.64%	7.50%	4.32%	-
TD Ameritrade SRI ^{10,C}	8.26%	0.18%	9.61%	5.75%	-	-	0.43%	5.40%	5.77%	7.69%	-	-
TIAA ⁷	8.25%	0.76%	9.87%	5.00%	6.98%	-	0.60%	5.86%	6.12%	7.86%	4.72%	-
TIAA Active ⁷	7.68%	-2.41%	6.30%	4.00%	-	-	1.54%	6.06%	6.75%	7.85%	-	-
TIAA SRI ⁷	7.44%	1.08%	10.21%	6.05%	-	-	1.90%	4.45%	4.84%	7.04%	-	-
Twine (John Hancock) ³	8.11%	1.06%	9.99%	-	-	-	1.05%	4.14%	4.85%	-	-	-
UBS Advice Advantage ⁷	7.07%	-2.26%	6.21%	2.92%	-	-	1.13%	2.47%	3.04%	5.61%	-	-
United Income ¹⁶	6.98%	-6.08%	1.48%	0.38%	-	-	0.49%	2.43%	2.57%	5.30%	-	-
US Bank ²⁸	8.53%	3.69%	12.69%	7.21%	-	-	1.12%	2.57%	3.29%	5.78%	-	-
Vanguard ^{4,A}	8.19%	1.56%	10.63%	5.71%	7.38%	10.09%	1.18%	3.13%	3.69%	5.50%	3.58%	2.84%
Vanguard Digital Advisor ⁷	8.22%	-	-	-	-	-	0.51%	-	-	-	-	-
Wealthfront ^{22,B}	5.73%	-3.91%	4.12%	2.06%	4.98%	7.73%	0.99%	4.31%	4.84%	7.06%	4.47%	3.42%

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

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

	Equity						Fixed Income					
	3Q 2020	YTD	1-Year	2-Year	3-Year	4-Year	3Q 2020	YTD	1-Year	2-Year	3-Year	4-Year
Wealthfront PassivePlus ²²	8.66%	0.61%	8.98%	-	-	-	0.94%	4.30%	4.86%	-	-	-
Wealthsimple ¹¹	6.70%	-1.56%	4.10%	1.63%	4.28%	-	2.04%	15.30%	13.57%	10.91%	6.94%	-
Wealthsimple SRI ¹¹	8.78%	4.00%	13.10%	7.74%	-	-	2.32%	8.94%	8.54%	9.35%	-	-
Wells Fargo ¹⁴	8.99%	1.66%	10.16%	5.43%	-	-	1.42%	3.24%	4.19%	6.69%	-	-
Zacks Advantage ²⁹	7.46%	0.59%	9.23%	5.40%	7.53%	-	0.71%	2.60%	3.02%	4.93%	3.07%	-

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Retirement Returns: Total Performance

	Total Portfolio											
	3Q 2020	3Q 2020 Return vs. Benchmark	YTD	YTD Return vs. Benchmark	1-Year	1-Year Return vs. Benchmark	2-Year	2-Year Return vs. Benchmark	3-Year	3-Year Return vs. Benchmark	4-Year	4-Year Return vs. Benchmark
Ally Financial IRA ⁹	6.45%	-1.29%	-1.88%	-3.67%	5.85%	-4.41%	3.30%	-2.46%	5.23%	-2.03%	-	-
Axos Invest IRA ²⁵	7.62%	-0.05%	1.48%	-0.38%	9.75%	-0.49%	5.86%	0.08%	7.05%	-0.19%	9.51%	-0.10%
Betterment IRA ²⁷	6.77%	-0.53%	-1.58%	-3.75%	5.93%	-4.21%	4.05%	-1.83%	4.89%	-2.22%	7.51%	-1.78%
bloom ⁴¹	6.15%	-1.07%	-	-	-	-	-	-	-	-	-	-
E*Trade IRA ²¹	7.26%	-0.86%	-2.02%	-3.47%	6.56%	-3.77%	3.27%	-2.37%	5.40%	-1.97%	-	-
Fidelity Go IRA ³³	6.74%	-0.41%	1.97%	-0.32%	9.55%	-0.54%	6.03%	0.12%	7.38%	0.32%	-	-
Honest Dollar (Goldman Sachs) IRA ³	7.26%	-0.93%	-1.26%	-2.64%	7.16%	-3.18%	-	-	-	-	-	-
Merrill Edge IRA ³¹	6.82%	-0.85%	-0.75%	-2.89%	7.04%	-3.07%	4.73%	-1.07%	5.72%	-1.42%	-	-
Morgan Stanley IRA ⁷	5.64%	-1.06%	-0.25%	-2.87%	6.70%	-3.21%	4.08%	-1.93%	-	-	-	-
Personal Capital IRA ⁴	6.61%	-1.35%	-2.17%	-3.77%	5.11%	-5.20%	3.20%	-2.49%	4.81%	-2.51%	7.11%	-2.74%
Principal SimpleInvest IRA ⁷	7.64%	-0.48%	-1.89%	-3.34%	-	-	-	-	-	-	-	-
Schwab IRA ²⁰	5.38%	-2.44%	-8.64%	-10.37%	-1.43%	-11.71%	-1.25%	-6.99%	1.72%	-5.56%	5.31%	-4.42%
SigFig IRA ⁶	7.08%	-0.52%	-1.33%	-3.25%	6.65%	-3.57%	4.98%	-0.82%	5.32%	-1.89%	7.92%	-1.63%
SoFi IRA ¹⁸	9.51%	1.24%	4.61%	3.30%	14.43%	4.08%	7.95%	2.36%	8.60%	1.19%	-	-
T Rowe Price IRA ¹³	8.50%	0.23%	1.68%	0.37%	9.93%	-0.42%	6.13%	0.54%	7.49%	0.08%	-	-
TD Ameritrade IRA ¹⁰	7.22%	0.15%	1.52%	-0.82%	9.61%	-0.45%	5.96%	0.03%	6.65%	-0.39%	-	-
TIAA IRA ⁷	7.25%	-0.12%	1.92%	-0.19%	9.96%	-0.20%	5.63%	-0.23%	6.95%	-0.19%	-	-
United Income IRA ¹⁶	7.04%	-1.15%	-4.96%	-6.34%	3.00%	-7.34%	0.26%	-5.35%	-	-	-	-
Wealthsimple IRA ²	5.78%	-0.99%	2.77%	0.20%	7.01%	-2.94%	4.21%	-1.78%	5.35%	-1.57%	-	-
Wells Fargo IRA ¹⁴	7.90%	0.30%	0.33%	-1.59%	8.21%	-2.01%	3.91%	-1.89%	-	-	-	-
Zack's Advantage IRA ⁴	7.23%	-0.51%	0.46%	-1.33%	8.49%	-1.77%	4.58%	-1.18%	-	-	-	-

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Retirement Returns: Equity and Fixed Income Returns

	Equity						Fixed Income					
	3Q 2020	YTD	1-Year	2-Year	3-Year	4-Year	3Q 2020	YTD	1-Year	2-Year	3-Year	4-Year
Ally Financial IRA ⁹	6.86%	-2.70%	5.55%	2.80%	5.13%	-	0.76%	5.48%	5.02%	8.11%	5.21%	-
Axos Invest IRA ²⁵	8.18%	0.98%	9.92%	5.57%	7.15%	9.96%	1.55%	6.31%	7.02%	8.20%	5.27%	4.16%
Betterment IRA ²⁷	7.54%	-3.35%	5.14%	3.08%	4.60%	7.86%	1.10%	4.77%	4.93%	7.38%	4.66%	3.57%
bloom ⁴¹	6.98%	-	-	-	-	-	0.49%	-	-	-	-	-
E*Trade IRA ²¹	7.41%	-2.06%	6.68%	3.35%	5.52%	-	-	-	-	-	-	-
Fidelity Go IRA ³³	7.78%	0.69%	9.56%	5.40%	7.65%	-	0.38%	6.84%	6.77%	8.35%	4.92%	-
Honest Dollar (Goldman Sachs) IRA ³	7.38%	-1.31%	7.18%	-	-	-	-	-	-	-	-	-
Merrill Edge IRA ³¹	7.41%	-1.10%	7.84%	4.80%	6.19%	-	0.61%	-6.30%	-6.03%	1.39%	0.10%	-
Morgan Stanley IRA ⁷	7.05%	-2.10%	6.65%	3.16%	-	-	0.35%	5.57%	5.71%	7.29%	-	-
Personal Capital IRA ⁴	6.90%	-2.61%	4.95%	3.05%	4.81%	7.25%	1.34%	4.10%	5.15%	6.01%	2.75%	2.23%
Principal SimpleInvest IRA ⁷	7.82%	-1.65%	-	-	-	-	-	-	-	-	-	-
Schwab IRA ²⁰	5.77%	-9.29%	-1.62%	-1.40%	1.80%	5.64%	-	-	-	-	-	-
SigFig IRA ⁶	7.70%	-1.39%	7.36%	4.84%	5.60%	8.55%	1.69%	-0.86%	1.01%	6.50%	3.01%	2.51%
SoFi IRA ¹⁸	9.52%	4.63%	14.46%	7.98%	8.47%	-	-	-	-	-	-	-
T Rowe Price IRA ¹³	8.50%	1.71%	9.96%	6.14%	7.50%	-	-	-	-	-	-	-
TD Ameritrade IRA ¹⁰	8.39%	1.15%	10.38%	5.86%	7.20%	-	0.60%	4.51%	5.34%	7.39%	3.91%	-
TIAA IRA ⁷	8.23%	0.86%	9.97%	5.03%	7.04%	-	0.69%	5.93%	6.30%	7.97%	4.71%	-
United Income IRA ¹⁶	7.14%	-5.66%	2.43%	0.01%	-	-	-	-	-	-	-	-
Wealthsimple IRA ²	6.68%	-1.96%	3.71%	1.75%	4.34%	-	2.41%	22.81%	19.91%	14.16%	9.00%	-
Wells Fargo IRA ¹⁴	8.45%	-0.27%	8.29%	3.58%	-	-	1.03%	-1.07%	0.25%	4.79%	-	-
Zack's Advantage IRA ⁴	7.54%	0.36%	8.86%	4.82%	-	-	-	-	-	-	-	-

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Taxable Accounts Facts

Portfolio	Account Minimum	Advisory Fee	Weighted Average Expense Ratio	Initial Target Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Current Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Initial Domestic/ International Equity Split	Current Domestic/ International Equity Split	Tax Efficiency Ratio (% Muni Bonds of Overall Fixed Income)
Acorns	No minimum	\$1/month for Acorns Invest ; \$3/month for Invest + Acorns Later + Acorns Spend; \$5/mo for Acorns Family (includes family services). For balances above \$1 million contact Acorns directly.	0.05%	61%/39%/0%/0%	60%/40%/0%/0%	84%/16%	70%/30%	0%
Ally Financial	\$100	0.30% annually; Also offers 'cash-enhanced' portfolio with 30% invested in cash and no management fee	0.06%	59%/39%/0%/2%	58%/40%/0%/2%	59%/41%	59%/41%	0%
Axos Invest	\$500	0.24% annually if \$500 or over. For balances under \$500 a \$1/mo fee will be applied	0.09%	64%/36%/0%/0%	64%/36%/0%/0%	62%/38%	63%/37%	0%
BBVA Compass	\$10,000	0.75% annually	0.12%	57%/39%/3%/1%	60%/34%/3%/3%	63%/37%	63%/37%	0%
Betterment	Digital: No minimum; Premium: \$100,000	Digital: 0.25%; Premium: 0.40% (unlimited chat and calls with advisor), 0.30% above \$2M	0.09%	65%/35%/0%/0%	67%/33%/0%/0%	49%/51%	57%/43%	37%
Betterment Goldman Sachs Smart Beta	Digital: No minimum; Premium: \$100,000	Digital: 0.25%, 0.15% above \$2M; Premium: 0.40% (unlimited chat and calls with advisor), 0.10% discount on balance above \$2M	0.12%	60%/40%/0%/0%	59%/41%/0%/0%	57%/43%	71%/29%	33%
Betterment Income	Digital: No minimum; Premium: \$100,000	Digital: 0.25%, 0.15% above \$2M; Premium: 0.40% (unlimited chat and calls with advisor), 0.10% discount on balance above \$2M	0.18%	0%/100%/0%/0%	0%/100%/0%/0%	-	-	0%
Betterment SRI	Digital: No minimum; Premium: \$100,000	Digital: 0.25%; Premium: 0.40% (unlimited chat and calls with advisor), 0.30% above \$2M	0.15%	60%/40%/0%/0%	61%/39%/0%/0%	50%/50%	50%/50%	59%
CitiGroup	\$1,500	0.55% annually	0.17%	61%/36%/0%/3%	38%/21%/0%/2%	72%/28%	83%/17%	1%
Citizens Bank	\$2,000	0.50% annually	0.07%	64%/36%/0%/1%	66%/32%/0%/1%	54%/46%	57%/43%	0%
E*Trade Active	\$500	0.30% annually	0.12%	61%/35%/0%/3%	61%/37%/0%/1%	65%/35%	65%/35%	100%
E*Trade	\$500	0.30% annually	0.09%	60%/39%/0%/1%	60%/39%/0%/1%	75%/25%	65%/35%	0%
E*Trade SRI	\$500	0.30% annually	0.15%	61%/35%/0%/4%	61%/37%/0%/2%	65%/35%	65%/35%	100%
Edelman Financial Engines	\$5,000	1.75% annually on accounts under \$400,000. Lower at different tiers over \$400,000	0.11%	67%/30%/0%/3%	64%/31%/0%/5%	80%/20%	76%/24%	1%

Current allocations as of 9/30/2020. Due to rounding, may not add to 100%.
Weighted average expense ratio calculations exclude cash holdings from the portfolio.

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Taxable Accounts Facts (continued from previous page)

Portfolio	Account Minimum	Advisory Fee	Weighted Average Expense Ratio	Initial Target Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Current Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Initial Domestic/ International Equity Split	Current Domestic/ International Equity Split	Tax Efficiency Ratio (% Muni Bonds of Overall Fixed Income)
Ellevest	Digital: No minimum; Private Client: \$1 million	\$1/mo, \$5/mo, \$9/mo - all of which offer investing, debit card, and increased access to discounts for coaching and financial planning based on tier level	0.07%	62%/36%/0%/2%	56%/43%/0%/1%	71%/29%	61%/39%	95%
Ellevest SRI	Digital: No minimum; Private Client: \$1 million	\$1/mo, \$5/mo, \$9/mo - all of which offer investing, debit card, and increased access to discounts for coaching and financial planning based on tier level	0.17%	56%/43%/0%/1%	47%/51%/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%/40%/0%/1%	71%/29%	70%/30%	100%
Fifth Third Bank	\$5,000	0.50% annually	0.20%	60%/40%/0%/1%	58%/41%/0%/1%	70%/30%	69%/31%	100%
FutureAdvisor	\$5,000	0.50% annually	0.07%	58%/41%/0%/1%	54%/45%/0%/1%	49%/51%	70%/30%	0%
Interactive Advisors	\$100 minimum. Some portfolio selections require a higher minimum.	Interactive Advisor Portfolios range from 0.08% to 0.30% annually; Manager Portfolios range from 0.25% to 1.5% annually	0.13%	54%/46%/0%/0%	54%/44%/0%/1%	55%/45%	54%/46%	31%
Interactive Advisors Legg Mason Global Growth and Income	\$100 minimum. Some portfolio selections require a higher minimum.	Interactive Advisor Portfolios range from 0.08% to 0.30% annually; Manager Portfolios range from 0.25% to 1.5% annually	0.42%	69%/29%/0%/2%	69%/29%/0%/1%	79%/21%	71%/29%	0%
Interactive Advisors State Street SSGA Moderate	\$100 minimum. Some portfolio selections require a higher minimum.	Interactive Advisor Portfolios range from 0.08% to 0.30% annually; Manager Portfolios range from 0.25% to 1.5% annually	0.28%	64%/31%/2%/3%	61%/35%/2%/2%	66%/34%	65%/35%	0%
Interactive Advisors Wisdom Tree Moderate Aggressive	\$100 minimum. Some portfolio selections require a higher minimum.	Interactive Advisor Portfolios range from 0.08% to 0.30% annually; Manager Portfolios range from 0.25% to 1.5% annually	0.25%	54%/30%/14%/2%	62%/32%/14%/1%	62%/38%	58%/42%	1%

Current allocations as of 9/30/2020. Due to rounding, may not add to 100%.
Weighted average expense ratio calculations exclude cash holdings from the portfolio.

Produced by Backend Benchmarking for BackendB.com

Taxable Accounts Facts (continued from previous page)

Portfolio	Account Minimum	Advisory Fee	Weighted Average Expense Ratio	Initial Target Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Current Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Initial Domestic/ International Equity Split	Current Domestic/ International Equity Split	Tax Efficiency Ratio (% Muni Bonds of Overall Fixed Income)
JP Morgan Chase You Invest	\$500	0.35% annually	0.10%	50%/48%/0%/2%	51%/46%/0%/2%	55%/45%	58%/42%	1%
Liftoff (Ritholtz Wealth Management)	\$5,000	0.40% annually	0.08%	60%/40%/0%/0%	59%/41%/0%/0%	57%/43%	56%/44%	36%
M1 Finance	\$100 minimum for taxable accounts, \$500 minimum for retirement accounts	No advisory fee	0.05%	66%/34%/0%/0%	64%/35%/0%/1%	61%/39%	63%/37%	0%
Merrill Edge	Guided Investing: \$5,000; Guided Investing with an Advisor: \$20,000	Guided Investing: 0.45% annually (digital only); Guided Investing with an Advisor: 0.85% annually	0.07%	60%/39%/0%/1%	60%/35%/0%/5%	66%/34%	76%/24%	75%
Merrill Edge SRI	Guided Investing: \$5,000; Guided Investing with an Advisor: \$20,000	Guided Investing: 0.45% annually (digital only); Guided Investing with an Advisor: 0.85% annually	0.26%	59%/37%/0%/4%	64%/32%/0%/4%	65%/35%	75%/25%	6%
Morgan Stanley	\$5,000	0.35% annually	0.08%	65%/30%/0%/5%	66%/33%/0%/1%	45%/55%	48%/52%	0%
Morgan Stanley Active	\$5,000	0.35% annually	0.40%	64%/35%/0%/1%	66%/33%/0%/1%	44%/56%	51%/49%	0%
Morgan Stanley Defense and Cyber Security	\$5,000	0.35% annually	0.44%	64%/29%/0%/8%	71%/28%/0%/1%	58%/42%	59%/41%	0%
Morgan Stanley Emerging Consumer	\$5,000	0.35% annually	0.49%	64%/29%/0%/8%	72%/27%/0%/1%	57%/43%	38%/62%	0%
Morgan Stanley Gender Diversity	\$5,000	0.35% annually	0.44%	60%/37%/0%/3%	63%/36%/0%/1%	68%/32%	69%/31%	9%
Morgan Stanley Genomics	\$5,000	0.35% annually	0.42%	49%/45%/0%/6%	57%/42%/0%/1%	56%/44%	60%/40%	0%
Morgan Stanley Global Frontier	\$5,000	0.35% annually	0.58%	66%/29%/0%/5%	71%/28%/0%/1%	40%/60%	42%/58%	0%
Morgan Stanley Inflation Conscious	\$5,000	0.35% annually	0.44%	58%/30%/3%/9%	63%/32%/3%/1%	63%/37%	62%/38%	0%
Morgan Stanley Robotics	\$5,000	0.35% annually	0.48%	66%/28%/0%/5%	73%/26%/0%/1%	52%/48%	56%/44%	0%
Morgan Stanley SRI	\$5,000	0.35% annually	0.48%	64%/35%/0%/1%	62%/37%/0%/1%	56%/44%	64%/36%	9%
Personal Capital	\$100,000	0.89% annually for the first \$1 million; lower at different tiers over \$1 million	0.10%	69%/25%/5%/1%	70%/25%/4%/1%	70%/30%	71%/29%	0%

Current allocations as of 9/30/2020. Due to rounding, may not add to 100%.

Produced by Backend Benchmarking for BackendB.com

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

Taxable Accounts Facts (continued from previous page)

Portfolio	Account Minimum	Advisory Fee	Weighted Average Expense Ratio	Initial Target Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Current Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Initial Domestic/ International Equity Split	Current Domestic/ International Equity Split	Tax Efficiency Ratio (% Muni Bonds of Overall Fixed Income)
Prudential	\$5,000	0.79% annually for first \$100K; lower at different tiers above \$100K	0.08%	60%/38%/0%/2%	62%/36%/0%/2%	80%/20%	79%/21%	0%
Qapital	\$10	Complete: \$6 per month; Master: \$12 per month for additional non-investing features	0.14%	67%/29%/0%/4%	69%/28%/0%/3%	70%/30%	69%/31%	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%	56%/31%/2%/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%	62%/27%/0%/11%	78%/22%	74%/26%	61%
SigFig	\$2,000	No fee for the first \$10k; 0.25% annually for balance over \$10k	0.07%	62%/37%/0%/1%	59%/40%/0%/1%	58%/42%	59%/41%	0%
SoFi	\$1	No management fee	0.04%	52%/48%/0%/0%	62%/38%/0%/0%	67%/33%	71%/29%	65%
TD Ameritrade	Essential Portfolios: \$5,000, or \$500 if automatic recurring deposits are set up; Selective Portfolios: \$25,000	Essential Portfolios: 0.30% annually; Selective Portfolios: tiered at a higher fee level depending on account balance and portfolio selected	0.05%	65%/33%/0%/1%	72%/27%/0%/2%	65%/35%	59%/41%	0%
TD Ameritrade Income	Essential Portfolios: \$5,000, or \$500 if automatic recurring deposits are set up; Selective Portfolios: \$25,000	Essential Portfolios: 0.30% annually; Selective Portfolios: tiered at a higher fee level depending on account balance and portfolio selected	0.60%	21%/78%/0%/1%	20%/78%/0%/1%	72%/38%	48%/52%	0%
TD Ameritrade Managed Risk	Essential Portfolios: \$5,000, or \$500 if automatic recurring deposits are set up; Selective Portfolios: \$25,000	Essential Portfolios: 0.30% annually; Selective Portfolios: tiered at a higher fee level depending on account balance and portfolio selected	1.20%	9%/49%/41%/1%	1%/66%/25%/8%	29%/71%	100%/0%	0%
TD Ameritrade Opportunistic	Essential Portfolios: \$5,000, or \$500 if automatic recurring deposits are set up; Selective Portfolios: \$25,000	Essential Portfolios: 0.30% annually; Selective Portfolios: tiered at a higher fee level depending on account balance and portfolio selected	0.13%	43%/53%/0%/4%	50%/48%/0%/1%	53%/47%	59%/41%	0%

Current allocations as of 9/30/2020. Due to rounding, may not add to 100%.
Weighted average expense ratio calculations exclude cash holdings from the portfolio.

Produced by Backend Benchmarking for BackendB.com

Taxable Accounts Facts (continued from previous page)

Portfolio	Account Minimum	Advisory Fee	Weighted Average Expense Ratio	Initial Target Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Current Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Initial Domestic/ International Equity Split	Current Domestic/ International Equity Split	Tax Efficiency Ratio (% Muni Bonds of Overall Fixed Income)
TD Ameritrade SRI	Essential Portfolios: \$5,000, or \$500 if automatic recurring deposits are set up; Selective Portfolios: \$25,000	Essential Portfolios: 0.30% annually; Selective Portfolios: tiered at a higher fee level depending on account balance and portfolio selected	0.26%	67%/29%/0%/3%	71%/28%/0%/1%	59%/41%	59%/41%	0%
TIAA	\$5,000	0.30% annually	0.07%	61%/37%/0%/2%	61%/38%/0%/1%	71%/29%	63%/37%	0%
TIAA Active	\$5,000	0.30% annually	0.64%	73%/26%/0%/1%	62%/37%/0%/1%	66%/34%	60%/40%	0%
TIAA SRI	\$5,000	0.30% annually	0.34%	60%/39%/0%/1%	60%/39%/0%/1%	71%/29%	62%/38%	4%
Titan Invest	\$100	For deposits of \$10,000 or more, 1% annually. For deposits less than \$10,000, \$5 monthly instead.	0.03%	100%/0%/0%/0%	100%/0%/0%/0%	100%/0%	100%/0%	4%
Twine (John Hancock)	\$5	0.60% annually	0.07%	69%/29%/0%/2%	68%/29%/0%/3%	64%/36%	64%/36%	0%
UBS Advice Advantage	\$10,000	0.75% annually	0.15%	68%/27%/0%/5%	72%/26%/0%/2%	59%/41%	58%/42%	78%
United Income	\$300,000	0.99% annually, lower at different tiers above \$1 million	0.16%	59%/40%/0%/1%	61%/38%/0%/1%	51%/49%	59%/41%	0%
US Bank	\$5,000	0.24% annually	0.15%	60%/39%/0%/1%	59%/40%/0%/1%	59%/41%	70%/30%	93%
Vanguard Personal Advisor Services ^A	\$50,000	Vanguard Personal Advisor Services 0.30% annually for the first \$5 million; lower at different tiers over \$5 million	0.07%	60%/40%/0%/0%	64%/36%/0%/0%	60%/40%	66%/34%	100%
Vanguard Digital Advisor	\$3,000	Vanguard Digital Advisor Services all-in fee capped at 0.20% annually	0.05%	58%/38%/0%/4%	59%/39%/0%/2%	59%/41%	65%/35%	1%
Wealthfront ^B	\$500	0.25% annually	0.10%	65%/35%/0%/0%	68%/31%/0%/0%	67%/33%	66%/34%	100%
Wealthfront PassivePlus	\$500	0.25% annually	0.14%	45%/35%/19%/0%	50%/32%/18%/0%	60%/40%	62%/38%	100%
Wealthsimple	Basic: No minimum; Black: \$100,000	Basic: 0.50% fee on accounts less than \$100k; Black: 0.40% on accounts greater than \$100k	0.11%	60%/40%/0%/0%	59%/38%/2%/0%	66%/34%	40%/60%	0%

Current allocations as of 9/30/2020. Due to rounding, may not add to 100%.

Produced by Backend Benchmarking for BackendB.com

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

Taxable Accounts Facts (continued from previous page)

Portfolio	Account Minimum	Advisory Fee	Weighted Average Expense Ratio	Initial Target Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Current Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Initial Domestic/ International Equity Split	Current Domestic/ International Equity Split	Tax Efficiency Ratio (% Muni Bonds of Overall Fixed Income)
Wealthsimple Halal	Basic: No minimum; Black: \$100,000	Basic: 0.50% fee on accounts less than \$100k; Black: 0.40% on accounts greater than \$100k	0.00%	100%/0%/0%/0%	99%/0%/0%/1%	58%/42%	54%/46%	0%
Wealthsimple SRI	Basic: No minimum; Black: \$100,000	Basic: 0.50% fee on accounts less than \$100k; Black: 0.40% on accounts greater than \$100k	0.14%	60%/40%/0%/0%	59%/38%/2%/1%	69%/31%	45%/55%	0%
Wells Fargo	\$5,000	0.35% annually; discounted to 0.30% if subscribed to other specific Wells Fargo products	0.13%	63%/34%/0%/3%	67%/30%/0%/3%	77%/23%	78%/22%	0%
Zacks Advantage	\$25,000	0.70% on accounts less than \$100K; 0.50% on accounts between \$100K and \$250K; 0.35% on accounts \$250K and above	0.09%	57%/34%/0%/9%	64%/32%/0%/4%	72%/28%	84%/16%	93%

Current allocations as of 9/30/2020. Due to rounding, may not add to 100%.

Produced by Backend Benchmarking for BackendB.com

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



Retirement Account Facts

Portfolio	Account Minimum	Advisory Fee	Weighted Average Expense Ratio	Initial Target Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Current Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Initial Domestic/ International Equity Split	Current Domestic/ International Equity Split
Ally Financial IRA	\$100	0.30% annually; Also offer Cash-enhanced portfolio with 30% invested in cash and no management fee	0.05%	93%/15%/0%/2%	94%/14%/0%/13%	60%/40%	61%/39%
Axos Invest IRA	\$500	0.24% annually if \$500 or over. For balances under \$500 a \$1/mo fee will be applied	0.05%	92%/18%/0%/0%	91%/18%/0%/0%	60%/40%	61%/39%
Betterment IRA	Digital: No minimum; Premium: \$100,000	Digital: 0.25%; Premium: 0.40% (unlimited chat and calls with advisor), 0.30% above \$2M	0.06%	87%/13%/0%/0%	88%/11%/0%/0%	47%/53%	57%/43%
bloom	No minimum	Essentials: \$95/year; Standard: \$120/year; Unlimited: \$250/year	0.07%	86%/14%/0%/0%	88%/12%/0%/0%	65%/35%	66%/34%
E*Trade IRA	\$500	0.30% annually	0.12%	98%/0%/0%/2%	98%/0%/0%/2%	75%/25%	64%/36%
Fidelity Go IRA	\$1,000	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%/15%/0%/1%	71%/29%	71%/29%
Honest Dollar (Goldman Sachs) IRA	\$1,000	0.25% annually	0.05%	99%/0%/0%/1%	98%/0%/0%/2%	68%/32%	72%/28%
Merrill Edge IRA	Guided Investing: \$5,000; Guided Investing with an Advisor: \$20,000	Guided Investing: 0.45% annually (digital only); Guided Investing with an Advisor: 0.85% annually	0.05%	89%/9%/0%/2%	91%/3%/0%/5%	64%/36%	72%/28%
Morgan Stanley IRA	\$5,000	0.35% annually	0.07%	79%/15%/0%/6%	80%/19%/0%/1%	47%/53%	49%/51%
Personal Capital IRA	\$100,000	0.89% annually for the first \$1 million; lower at different tiers over \$1 million	0.08%	91%/3%/2%/4%	93%/3%/3%/1%	69%/31%	70%/30%
Principal SimpleInvest IRA	\$1,000	0.40% annually	0.46%	98%/0%/0%/2%	98%/0%/0%/2%	64%/36%	65%/35%
Schwab IRA	Intelligent Portfolios: \$5,000; Intelligent Portfolios Premium: \$25,000	Intelligent Portfolios: No fee (digital only); Intelligent Portfolios Premium: \$300 initial planning fee, \$30/month subscription	0.19%	94%/0%/0%/6%	93%/0%/0%/7%	54%/46%	51%/49%
SigFig IRA	\$2,000	No fee for the first \$10k; 0.25% annually for balance over \$10k	0.08%	91%/9%/0%/0%	90%/9%/0%/0%	45%/55%	47%/53%
SoFi IRA	No minimum	No management fee	0.02%	100%/0%/0%/0%	100%/0%/0%/0%	66%/34%	71%/29%

Current allocations as of 09/30/2020. Due to rounding, may not add to 100%.
Weighted average expense ratio calculations exclude cash holdings from the portfolio.

Produced by Backend Benchmarking for BackendB.com

Retirement Account Facts (continued from previous page)

Portfolio	Account Minimum	Advisory Fee	Weighted Average Expense Ratio	Initial Target Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Current Asset Allocation (Equities/ Fixed Income/ Miscellaneous/ Cash)	Initial Domestic/ International Equity Split	Current Domestic/ International Equity Split
T Rowe Price IRA ¹³	\$50,000	No advisory fee	0.79%	100%/0%/0%/0%	100%/0%/0%/0%	63%/37%	66%/34%
TD Ameritrade IRA	Essential Portfolios: \$5,000, or \$500 if automatic recurring deposits are set up; Selective Portfolios: \$25,000	Essential Portfolios: 0.30% annually; Selective Portfolios: tiered at a higher fee level depending on account balance and portfolio selected	0.05%	83%/15%/0%/1%	85%/14%/0%/1%	65%/35%	60%/40%
TIAA IRA	\$5,000	0.30% annually	0.07%	88%/11%/0%/1%	87%/11%/0%/2%	72%/28%	61%/39%
United Income IRA	\$300,000	0.99% annually, lower at different tiers above \$1 million	0.21%	99%/0%/0%/1%	98%/0%/0%/2%	51%/49%	57%/43%
Wealthsimple IRA	Basic: No minimum; Black: \$100,000	Basic: 0.50% fee on accounts less than \$100k; Black: 0.40% on accounts greater than \$100k	0.11%	80%/20%/0%/0%	79%/18%/2%/0%	66%/34%	41%/59%
Wells Fargo IRA	\$5,000	0.35% annually; discounted to 0.30% if subscribed to other specific Wells Fargo products	0.12%	91%/7%/0%/2%	93%/5%/0%/2%	67%/33%	70%/30%
Zack's Advantage IRA	\$25,000	0.70% on accounts less than \$100K; 0.50% on accounts between \$100K and \$250K; 0.35% on accounts \$250K and above	0.08%	93%/0%/0%/7%	96%/0%/0%/4%	62%/38%	85%/15%

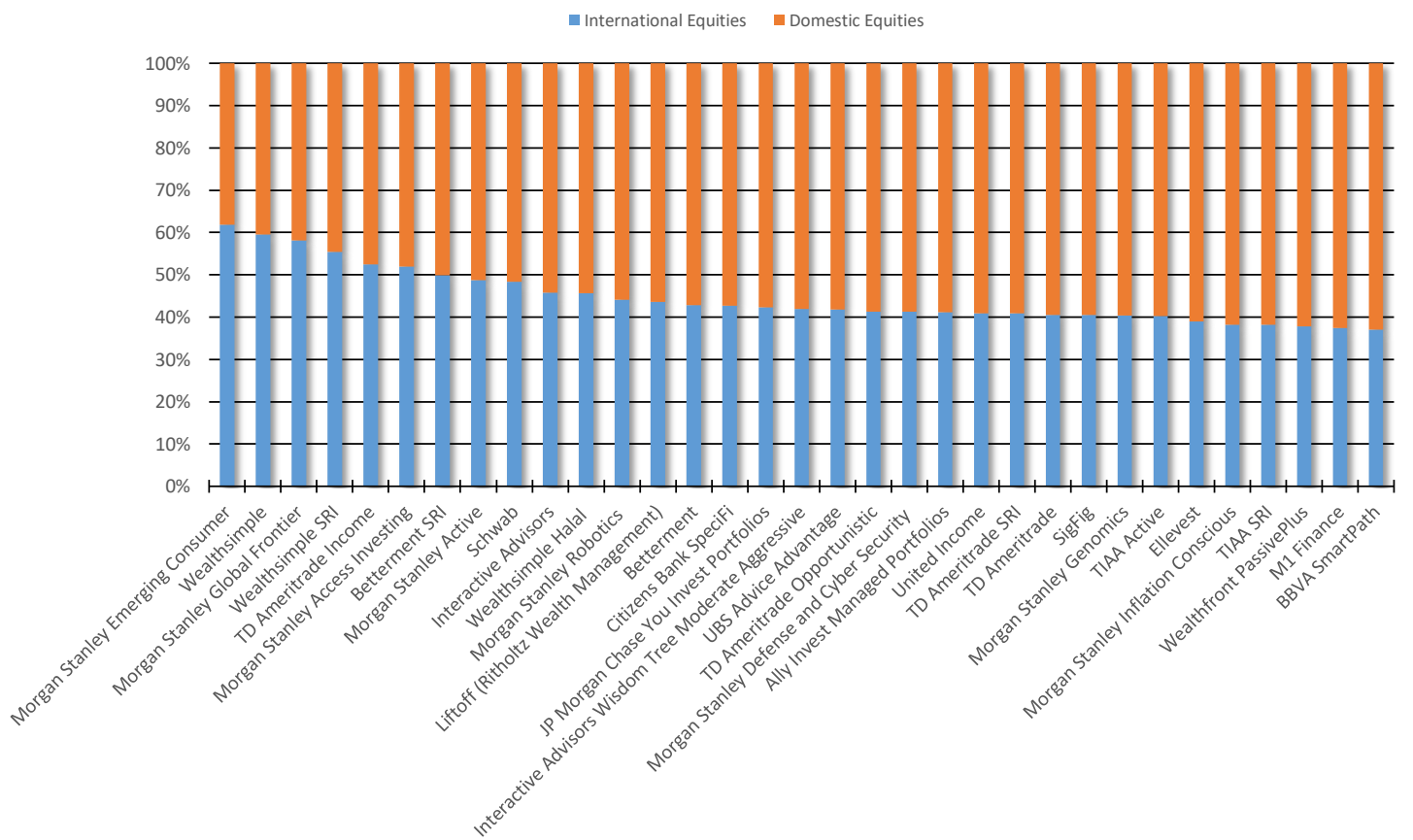
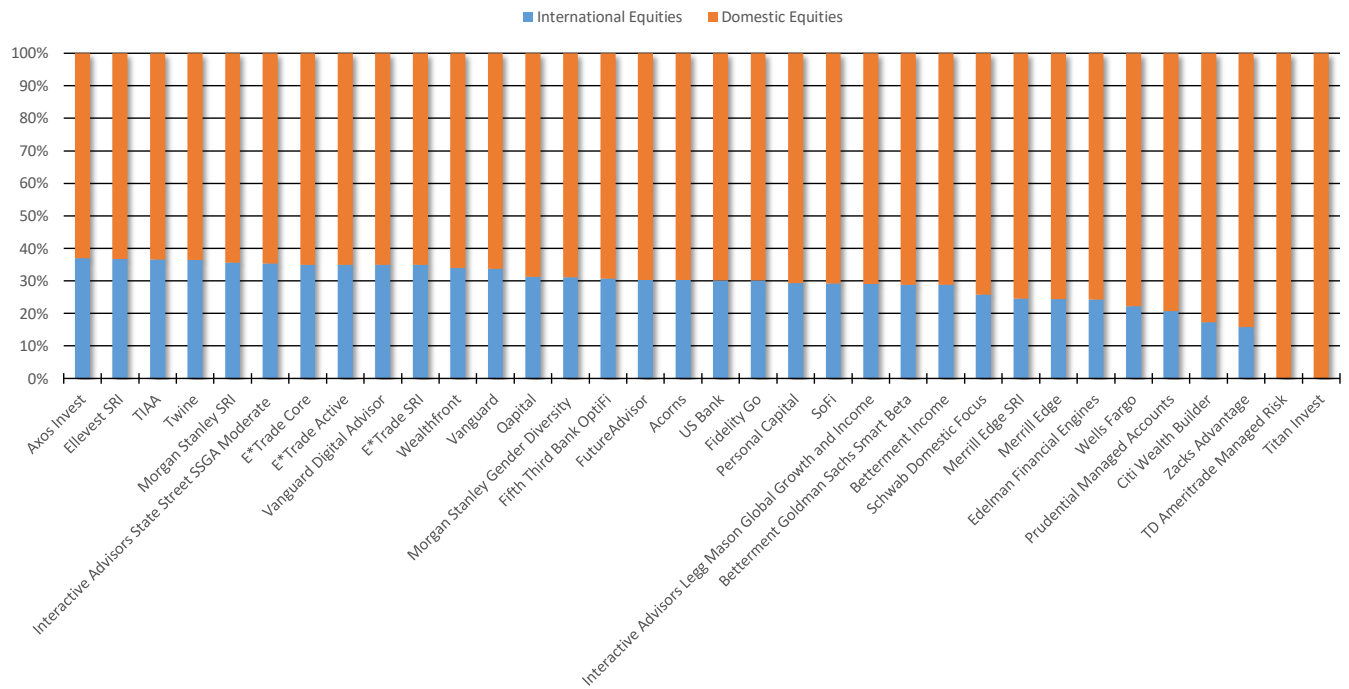
Current allocations as of 09/30/2020. Due to rounding, may not add to 100%.

Produced by Backend Benchmarking for BackendB.com

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

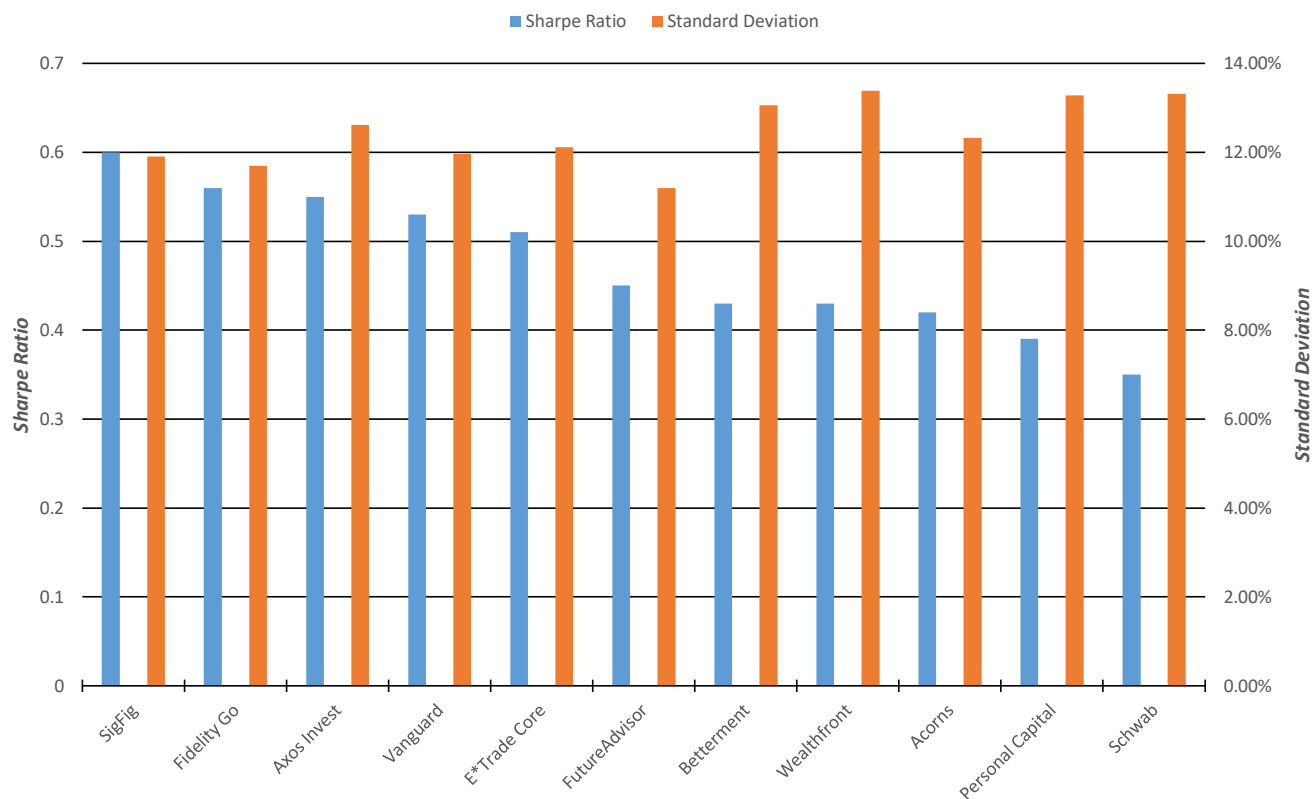


International Allocation of Total Equity for Taxable Robos



Taxable Risk/Return Charts and Tables

4-Year Risk/Return Statistics of Taxable Robos

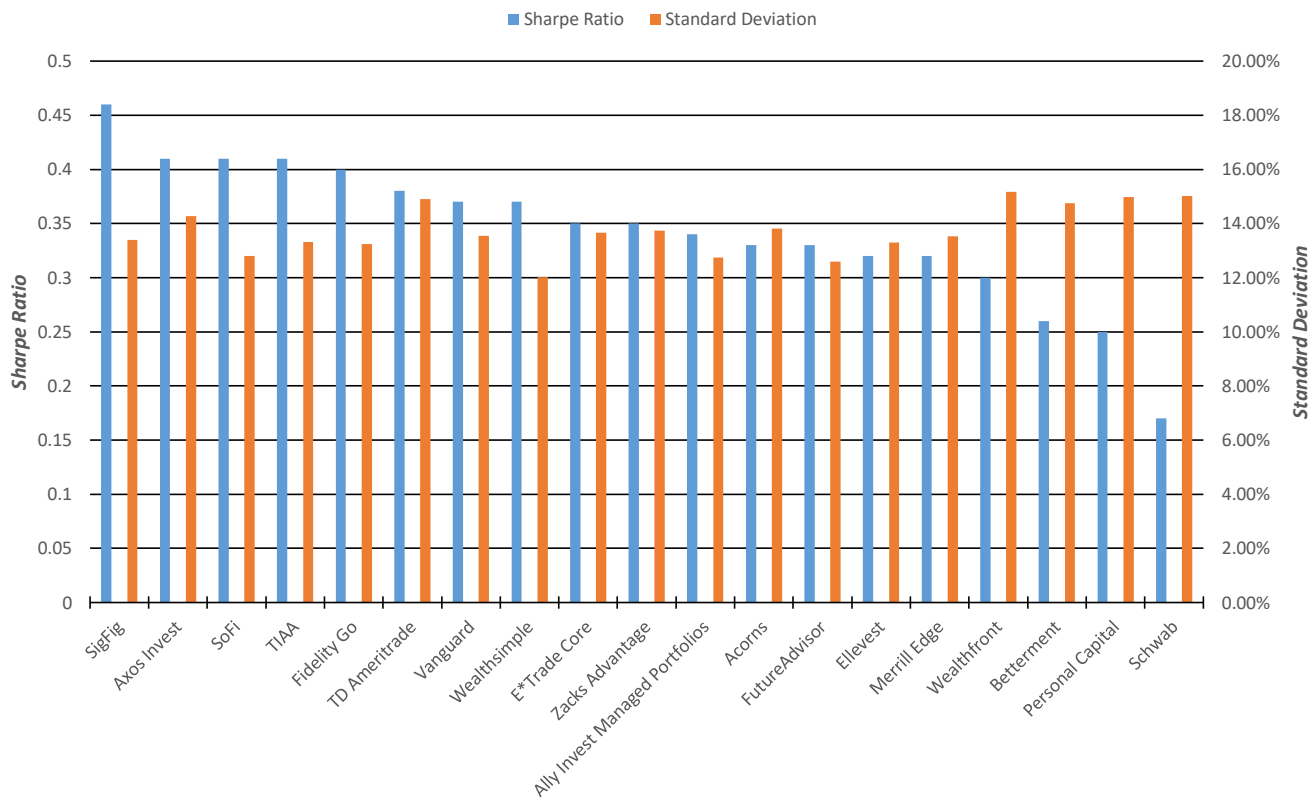


	Acorns	Axos Invest	Betterment	E*Trade Core	Fidelity Go	FutureAdvisor	Personal Capital	Schwab
Standard Deviation	12.33%	12.62%	13.06%	12.11%	11.69%	11.20%	13.28%	13.32%
Sharpe Ratio	0.42	0.55	0.43	0.51	0.56	0.45	0.39	0.35

	SigFig	Vanguard	Wealthfront
Standard Deviation	11.90%	11.96%	13.39%
Sharpe Ratio	0.60	0.53	0.43

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

3-Year Risk/Return Statistics of Taxable Robos



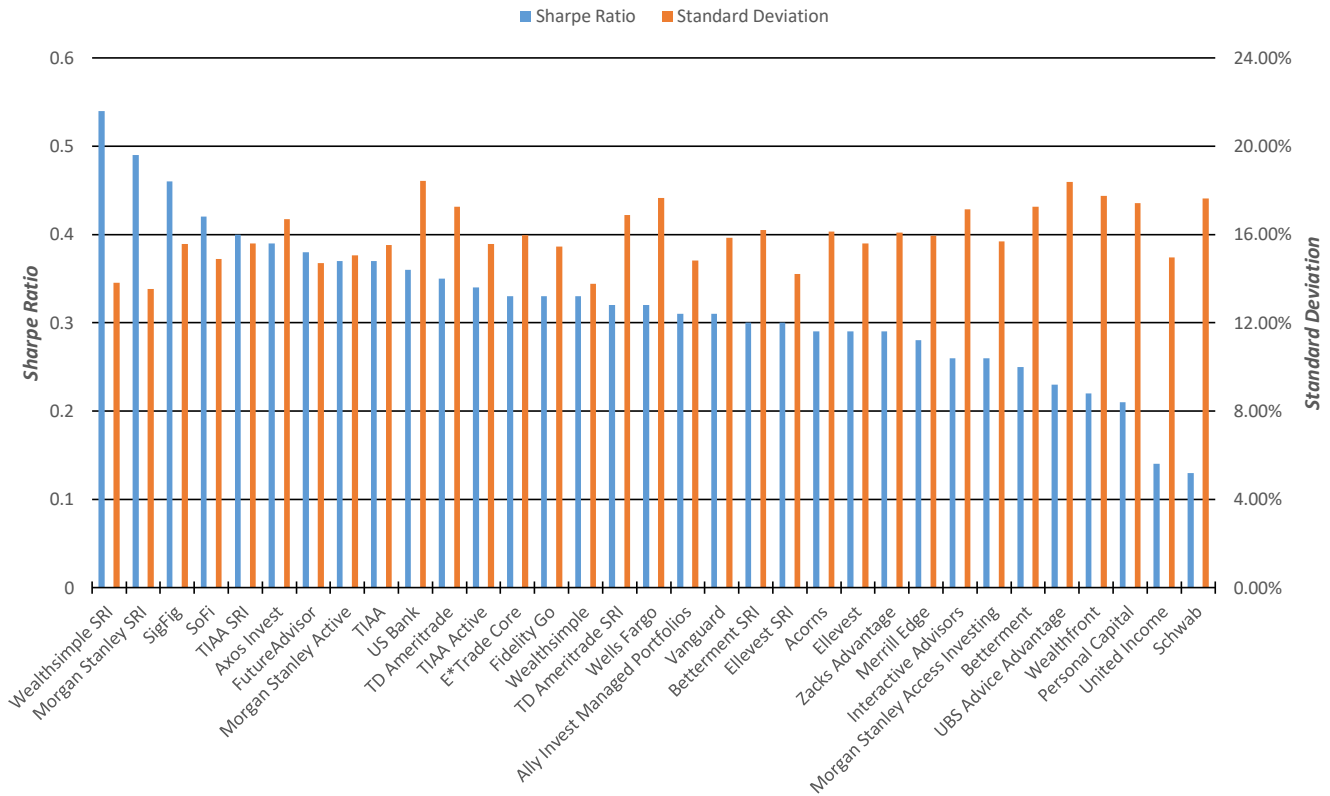
	Acorns	Ally Invest Managed Portfolios	Axos Invest	Betterment	E*Trade Core	Ellevest	Fidelity Go	FutureAdvisor
Standard Deviation	13.81%	12.75%	14.27%	14.75%	13.67%	13.29%	13.24%	12.60%
Sharpe Ratio	0.33	0.34	0.41	0.26	0.35	0.32	0.40	0.33

	Merrill Edge	Personal Capital	Schwab	SigFig	SoFi	TD Ameritrade	TIAA	Vanguard
Standard Deviation	13.53%	14.97%	15.02%	13.39%	12.80%	14.91%	13.32%	13.55%
Sharpe Ratio	0.32	0.25	0.17	0.46	0.41	0.38	0.41	0.37

	Wealthfront	Wealthsimple	Zacks Advantage
Standard Deviation	15.17%	12.02%	13.73%
Sharpe Ratio	0.30	0.37	0.35

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

2-Year Risk/Return Statistics of Taxable Robos



	Acorns	Ally Invest Managed Portfolios	Axos Invest	Betterment	Betterment SRI	E*Trade Core	Ellevest	Ellevest SRI
Standard Deviation	16.14%	14.81%	16.69%	17.25%	16.20%	15.97%	15.59%	14.22%
Sharpe Ratio	0.29	0.31	0.39	0.25	0.30	0.33	0.29	0.30

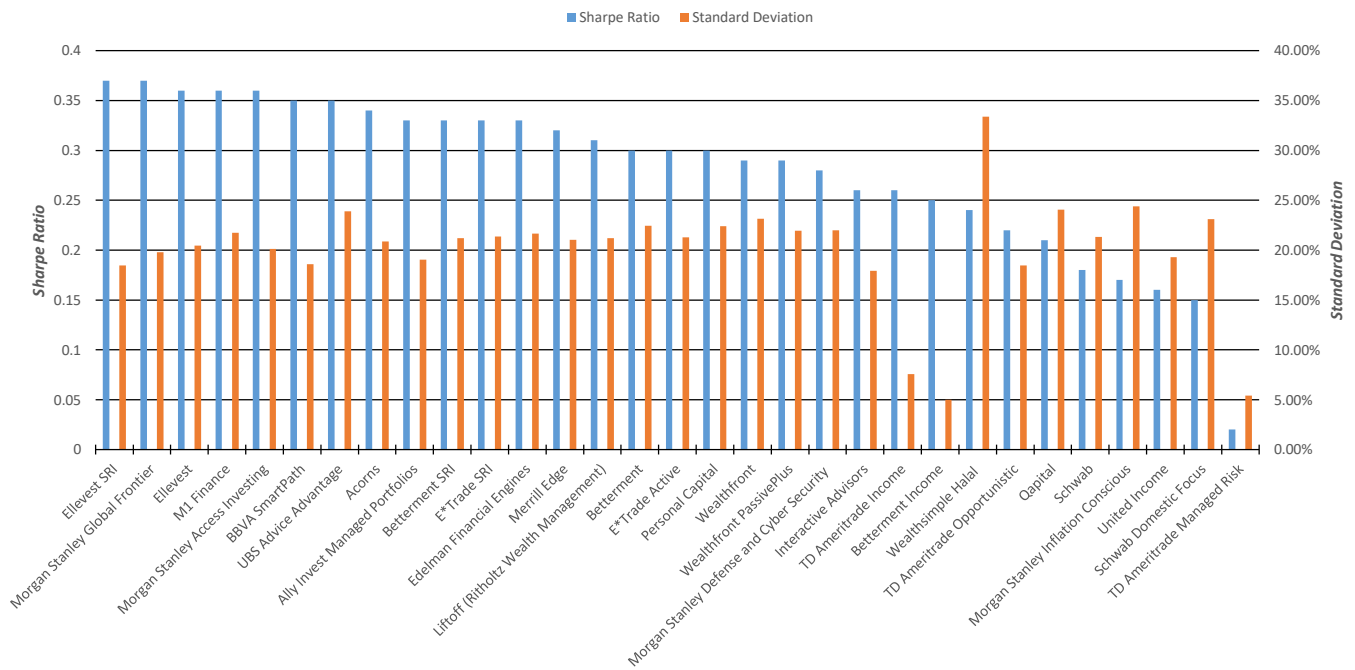
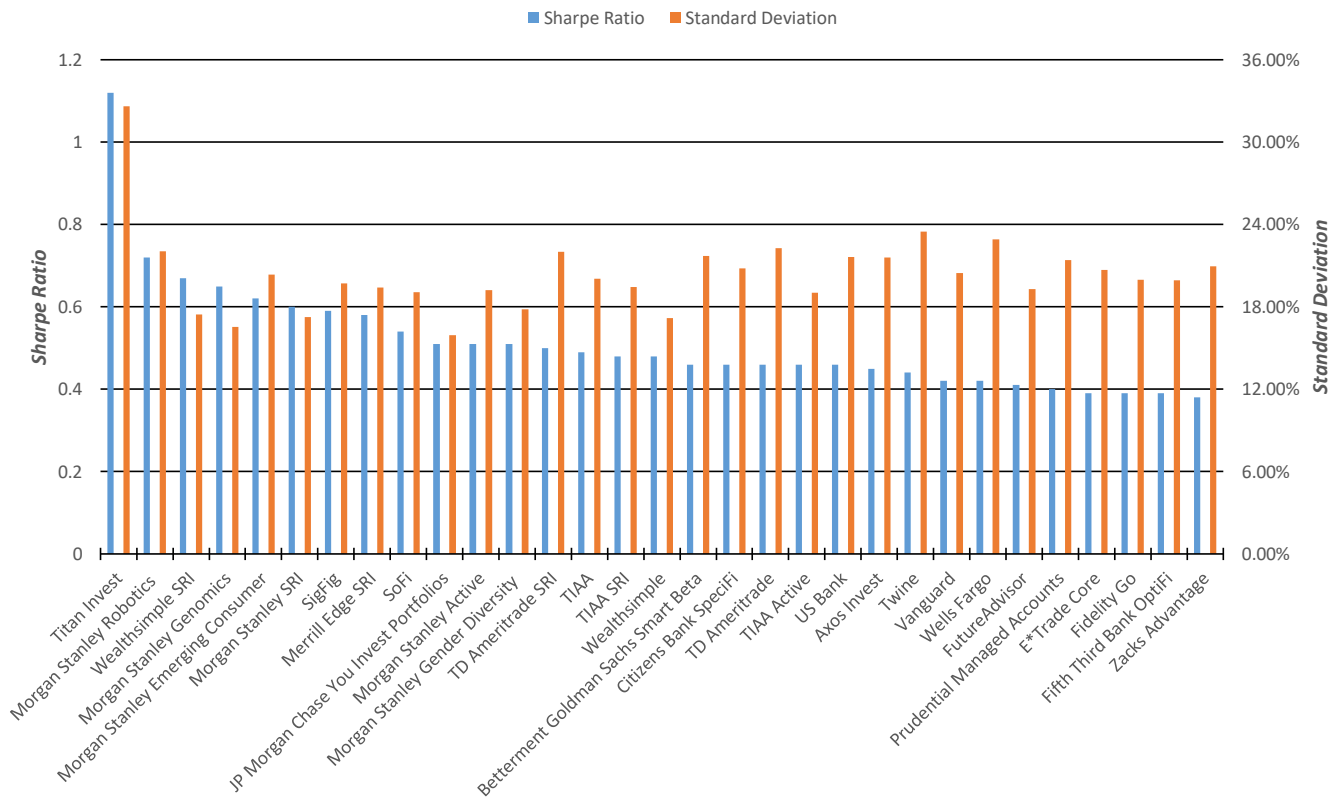
	Fidelity Go	FutureAdvisor	Interactive Advisors	Merrill Edge	Morgan Stanley Access Investing	Morgan Stanley Active	Morgan Stanley SRI	Personal Capital
Standard Deviation	15.45%	14.70%	17.14%	15.94%	15.68%	15.06%	13.52%	17.41%
Sharpe Ratio	0.33	0.38	0.26	0.28	0.26	0.37	0.49	0.21

	Schwab	SigFig	SoFi	TD Ameritrade	TD Ameritrade SRI	TIAA	TIAA Active	TIAA SRI
Standard Deviation	17.64%	15.56%	14.89%	17.26%	16.88%	15.53%	15.56%	15.60%
Sharpe Ratio	0.13	0.46	0.42	0.35	0.32	0.37	0.34	0.40

	UBS Advice Advantage	United Income	US Bank	Vanguard	Wealthfront	Wealthsimple	Wealthsimple SRI	Wells Fargo	Zacks Advantage
Standard Deviation	18.39%	14.95%	18.42%	15.84%	17.75%	13.77%	13.81%	17.65%	16.09%
Sharpe Ratio	0.23	0.14	0.36	0.31	0.22	0.33	0.54	0.32	0.29

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

1-Year Risk/Return Statistics of Taxable Robos



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

	Acorns	Ally Invest Managed Portfolios	Axos Invest	BBVA SmartPath	Betterment	Betterment Goldman Sachs Smart Beta	Betterment Income	Betterment SRI
Standard Deviation	20.85%	19.03%	21.59%	18.59%	22.44%	21.72%	4.99%	21.19%
Sharpe Ratio	0.34	0.33	0.45	0.35	0.30	0.46	0.25	0.33

	Citizens Bank Specifi	E*Trade Active	E*Trade Core	E*Trade SRI	Edelman Financial Engines	Ellevest	Ellevest SRI	Fidelity Go
Standard Deviation	20.80%	21.26%	20.67%	21.35%	21.65%	20.46%	18.46%	19.97%
Sharpe Ratio	0.46	0.30	0.39	0.33	0.33	0.36	0.37	0.39

	Fifth Third Bank OptiFi	FutureAdvisor	Interactive Advisors	JP Morgan Chase You Invest Portfolios	Liftoff (Ritholtz Wealth Management)	MI Finance	Merrill Edge	Merrill Edge SRI
Standard Deviation	19.94%	19.31%	17.92%	15.93%	21.21%	21.75%	21.02%	19.41%
Sharpe Ratio	0.39	0.41	0.26	0.51	0.31	0.36	0.32	0.58

	Morgan Stanley Access Investing	Morgan Stanley Active	Morgan Stanley Defense and Cyber Security	Morgan Stanley Emerging Consumer	Morgan Stanley Gender Diversity	Morgan Stanley Genomics	Morgan Stanley Global Frontier	Morgan Stanley Inflation Conscious
Standard Deviation	20.13%	19.22%	21.97%	20.35%	17.82%	16.55%	19.78%	24.38%
Sharpe Ratio	0.36	0.51	0.28	0.62	0.51	0.65	0.37	0.17

	Morgan Stanley Robotics	Morgan Stanley SRI	Personal Capital	Prudential Managed Accounts	Qcapital	Schwab	Schwab Domestic Focus	SigFig
Standard Deviation	22.05%	17.26%	22.38%	21.39%	24.05%	21.30%	23.11%	19.70%
Sharpe Ratio	0.72	0.60	0.30	0.40	0.21	0.18	0.15	0.59

	SoFi	TD Ameritrade	TD Ameritrade Income	TD Ameritrade Managed Risk	TD Ameritrade Opportunistic	TD Ameritrade SRI	TIAA	TIAA Active
Standard Deviation	19.08%	22.27%	7.56%	5.41%	18.48%	22.00%	20.06%	19.04%
Sharpe Ratio	0.54	0.46	0.26	0.02	0.22	0.50	0.49	0.46

	TIAA SRI	Titan Invest	Twine	UBS Advice Advantage	United Income	US Bank	Vanguard	Wealthfront
Standard Deviation	19.43%	32.60%	23.48%	23.87%	19.29%	21.62%	20.48%	23.15%
Sharpe Ratio	0.48	1.12	0.44	0.35	0.16	0.46	0.42	0.29

	Wealthfront PassivePlus	Wealthsimple	Wealthsimple Halal	Wealthsimple SRI	Wells Fargo	Zacks Advantage
Standard Deviation	21.95%	17.19%	33.36%	17.45%	22.93%	20.95%
Sharpe Ratio	0.29	0.48	0.24	0.67	0.42	0.38

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

Retirement Risk/Return

4-Year Risk/Return Statistics of Retirement Robos

	Axos Invest IRA	Betterment IRA	Personal Capital IRA	Schwab IRA	SigFig IRA
Standard Deviation	17.51%	16.83%	17.83%	18.22%	17.47%
Sharpe Ratio	0.52	0.43	0.39	0.30	0.44

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

3-Year Risk/Return Statistics of Retirement Robos

	Ally Invest IRA	Axos Invest IRA	Betterment IRA	E*Trade Core IRA	Fidelity Go IRA	Merrill Edge IRA	Personal Capital IRA	Schwab IRA
Standard Deviation	20.63%	19.80%	19.01%	21.78%	18.05%	19.66%	20.15%	20.54%
Sharpe Ratio	0.27	0.36	0.26	0.27	0.39	0.30	0.25	0.11

	SigFig IRA	SoFi IRA	T Rowe Price ActivePlus Portfolios IRA	TD Ameritrade IRA	TIAA Personal Portfolios IRA	Wealthsimple IRA
Standard Deviation	19.67%	20.33%	22.82%	18.49%	18.81%	15.36%
Sharpe Ratio	0.28	0.42	0.36	0.35	0.36	0.31

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

2-Year Risk/Return Statistics of Retirement Robos

	Ally Invest IRA	Axos Invest IRA	Betterment IRA	E*Trade Core IRA	Fidelity Go IRA	Honest Dollar IRA	Merrill Edge IRA	Morgan Stanley IRA
Standard Deviation	24.08%	23.05%	22.12%	25.40%	21.03%	24.90%	22.91%	19.30%
Sharpe Ratio	0.18	0.29	0.21	0.19	0.30	0.39	0.24	0.21

	Personal Capital IRA	Schwab IRA	SigFig IRA	SoFi IRA	T Rowe Price ActivePlus Portfolios IRA	TD Ameritrade IRA	TIAA Personal Portfolios IRA	United Income IRA
Standard Deviation	23.51%	24.04%	22.83%	23.38%	25.93%	21.47%	21.83%	24.68%
Sharpe Ratio	0.18	0.00	0.25	0.37	0.29	0.30	0.28	0.07

	Wealthsimple IRA	Wells Fargo IRA	Zack's Advantage IRA
Standard Deviation	17.59%	24.06%	24.28%
Sharpe Ratio	0.22	0.21	0.23

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

1-Year Risk/Return Statistics of Retirement Robos

	Ally Invest IRA	Axos Invest IRA	Betterment IRA	E*Trade Core IRA	Fidelity Go IRA	Honest Dollar IRA	Merrill Edge IRA	Morgan Stanley IRA
Standard Deviation	30.93%	29.44%	28.47%	32.37%	26.88%	32.35%	29.50%	24.71%
Sharpe Ratio	0.30	0.42	0.31	0.32	0.43	0.34	0.34	0.34

	Personal Capital IRA	Schwab IRA	SigFig IRA	SoFi IRA	T Rowe Price ActivePlus Portfolios IRA	TD Ameritrade IRA	TIAA Personal Portfolios IRA	United Income IRA
Standard Deviation	30.34%	31.21%	29.32%	29.26%	32.52%	27.33%	27.96%	31.54%
Sharpe Ratio	0.28	0.08	0.33	0.57	0.42	0.43	0.44	0.22

	Wealthsimple IRA	Wells Fargo IRA	Zack's Advantage IRA
Standard Deviation	21.65%	30.94%	31.24%
Sharpe Ratio	0.37	0.37	0.38

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



Normalized Benchmark

Equity Portfolio

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

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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%

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

Taxable Normalized Benchmark Returns

	3Q 2020	YTD	1-Year	2-Year	3-Year	4-Year
Acorns Normalized Benchmark	5.40%	4.05%	9.76%	6.94%	6.74%	7.94%
Ally Invest Managed Portfolios Normalized Benchmark	5.32%	4.10%	9.72%	6.96%	6.71%	-
Axos Invest Normalized Benchmark	5.69%	3.88%	9.93%	6.87%	6.86%	8.06%
BBVA SmartPath Normalized Benchmark	5.40%	4.45%	10.00%	-	-	-
Betterment Normalized Benchmark	5.76%	3.83%	9.97%	6.85%	6.89%	8.13%
Betterment Goldman Sachs Smart Beta Normalized Benchmark	5.40%	4.05%	9.76%	-	-	-
Betterment Income Normalized Benchmark	0.96%	5.00%	5.47%	-	-	-
Betterment SRI Normalized Benchmark	5.40%	4.05%	9.76%	6.94%	-	-
Citi Wealth Builder Normalized Benchmark	5.47%	-	-	-	-	-
Citizens Bank Specifi Normalized Benchmark	5.69%	3.88%	9.93%	-	-	-
E*Trade Active Normalized Benchmark	5.47%	4.01%	9.80%	-	-	-
E*Trade Core Normalized Benchmark	5.40%	4.05%	9.76%	6.94%	6.74%	7.79%
E*Trade SRI Normalized Benchmark	5.47%	4.01%	9.80%	-	-	-
Edelman Financial Engines Normalized Benchmark	5.91%	3.73%	10.04%	-	-	-
Ellevest Normalized Benchmark	5.10%	4.22%	9.58%	7.01%	6.67%	-
Ellevest SRI Normalized Benchmark	4.73%	4.41%	9.33%	6.93%	-	-
Fidelity Go Normalized Benchmark	5.47%	4.01%	9.80%	6.92%	6.77%	7.86%
Fifth Third Bank Optifi Normalized Benchmark	5.40%	4.05%	9.76%	-	-	-
FutureAdvisor Normalized Benchmark	5.17%	4.18%	9.63%	7.07%	6.67%	7.62%
Interactive Advisors Normalized Benchmark	4.95%	4.30%	9.48%	7.04%	-	-
Interactive Advisors Legg Mason Global Growth and Income Normalized Benchmark	6.06%	3.63%	-	-	-	-
Interactive Advisors State Street SSGA Moderate Normalized Benchmark	5.40%	2.95%	-	-	-	-
Interactive Advisors Wisdom Tree Moderate Aggressive Normalized Benchmark	5.17%	4.23%	-	-	-	-
JP Morgan Chase You Invest Portfolios Normalized Benchmark	4.66%	4.44%	9.28%	-	-	-
Liftoff (Ritholtz Wealth Management) Normalized Benchmark	5.40%	4.05%	9.76%	-	-	-
M1 Finance Normalized Benchmark	5.84%	3.78%	10.00%	-	-	-
Merrill Edge Normalized Benchmark	5.47%	3.94%	9.11%	6.88%	6.61%	-
Merrill Edge SRI Normalized Benchmark	5.62%	4.37%	10.00%	-	-	-
Morgan Stanley Access Investing Normalized Benchmark	5.69%	3.99%	9.96%	6.89%	-	-
Morgan Stanley Active Normalized Benchmark	5.69%	3.88%	9.93%	6.87%	-	-
Morgan Stanley Defense and Cyber Security Normalized Benchmark	6.13%	3.70%	10.18%	-	-	-
Morgan Stanley Emerging Consumer Normalized Benchmark	6.06%	3.63%	10.11%	-	-	-
Morgan Stanley Gender Diversity Normalized Benchmark	5.46%	4.12%	9.83%	-	-	-
Morgan Stanley Genomics Normalized Benchmark	5.02%	4.47%	9.58%	-	-	-
Morgan Stanley Global Frontier Normalized Benchmark	6.05%	3.75%	10.15%	-	-	-
Morgan Stanley Inflation Conscious Normalized Benchmark	5.68%	4.22%	10.02%	-	-	-
Morgan Stanley Robotics Normalized Benchmark	6.13%	3.70%	10.18%	-	-	-
Morgan Stanley SRI Normalized Benchmark	5.17%	4.18%	9.63%	6.92%	-	-

Returns are net of fees and are as of 9/30/2020. All returns for periods longer than one year are annualized.

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Taxable Normalized Benchmark Returns (continued from previous page)

	3Q 2020	YTD	1-Year	2-Year	3-Year	4-Year
Personal Capital Normalized Benchmark	6.35%	3.42%	10.24%	6.66%	7.09%	8.64%
Prudential Managed Accounts Normalized Benchmark	5.40%	4.05%	9.76%	-	-	-
Qapital Normalized Benchmark	5.91%	3.73%	10.04%	-	-	-
Schwab Normalized Benchmark	5.17%	3.62%	9.51%	6.73%	6.76%	8.03%
Schwab Domestic Focus Normalized Benchmark	5.47%	3.50%	9.61%	-	-	-
SigFig Normalized Benchmark	5.54%	3.97%	9.85%	6.91%	6.80%	7.93%
SoFi Normalized Benchmark	5.40%	4.05%	9.76%	6.94%	6.64%	-
TD Ameritrade Normalized Benchmark	5.99%	3.68%	10.08%	6.78%	6.97%	-
TD Ameritrade Income Normalized Benchmark	2.51%	5.05%	7.35%	-	-	-
TD Ameritrade Managed Risk Normalized Benchmark	2.07%	5.07%	6.85%	-	-	-
TD Ameritrade Opportunistic Normalized Benchmark	4.44%	4.54%	9.03%	-	-	-
TD Ameritrade SRI Normalized Benchmark	6.06%	4.18%	10.52%	7.04%	-	-
TIAA Normalized Benchmark	5.47%	4.01%	9.80%	6.92%	6.77%	-
TIAA Active Normalized Benchmark	5.47%	4.01%	10.35%	6.72%	-	-
TIAA SRI Normalized Benchmark	5.40%	4.05%	9.76%	6.94%	-	-
Titan Invest Normalized Benchmark	8.34%	1.62%	10.69%	-	-	-
Twine Normalized Benchmark	6.06%	3.63%	10.11%	-	-	-
UBS Advice Advantage Normalized Benchmark	6.13%	4.13%	10.55%	7.01%	-	-
United Income Normalized Benchmark	5.32%	4.10%	9.72%	6.96%	-	-
US Bank Normalized Benchmark	5.17%	4.18%	9.63%	6.91%	-	-
Vanguard Normalized Benchmark	5.40%	4.05%	9.76%	6.94%	6.74%	7.79%
Vanguard Digital Advisor Normalized Benchmark	5.25%	-	-	-	-	-
Wealthfront Normalized Benchmark	5.76%	3.83%	9.97%	6.85%	6.89%	8.13%
Wealthfront PassivePlus Normalized Benchmark	5.10%	4.22%	9.58%	-	-	-
Wealthsimple Normalized Benchmark	5.40%	4.05%	9.76%	6.94%	6.74%	-
Wealthsimple Halal Normalized Benchmark	8.34%	1.62%	10.69%	-	-	-
Wealthsimple SRI Normalized Benchmark	5.40%	4.05%	9.76%	6.94%	-	-
Wells Fargo Normalized Benchmark	5.62%	3.92%	9.89%	6.89%	-	-
Zacks Advantage Normalized Benchmark	5.40%	4.05%	9.76%	6.94%	6.63%	-

Returns are net of fees and are as of 9/30/2020. All returns for periods longer than one year are annualized.

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Retirement Normalized Benchmark Returns

	3Q 2020	YTD	1-Year	2-Year	3-Year	4-Year
Ally Invest IRA Normalized Benchmark	7.74%	1.79%	10.26%	5.76%	7.26%	-
Axos Invest IRA Normalized Benchmark	7.67%	1.86%	10.24%	5.78%	7.24%	9.61%
Betterment IRA Normalized Benchmark	7.30%	2.17%	10.14%	5.88%	7.11%	9.29%
bloom Normalized Benchmark	7.22%	-	-	-	-	-
E*Trade Core IRA Normalized Benchmark	8.12%	1.45%	10.33%	5.64%	7.37%	-
Fidelity Go IRA Normalized Benchmark	7.15%	2.29%	10.09%	5.91%	7.06%	-
Honest Dollar IRA Normalized Benchmark	8.19%	1.38%	10.34%	-	-	-
Merrill Edge IRA Normalized Benchmark	7.67%	2.14%	10.11%	5.80%	7.14%	-
Morgan Stanley IRA Normalized Benchmark	6.70%	2.62%	9.91%	6.01%	-	-
Personal Capital IRA Normalized Benchmark	7.96%	1.60%	10.31%	5.69%	7.32%	9.85%
Principal SimpleInvest IRA Normalized Benchmark	8.12%	1.45%	-	-	-	-
Schwab IRA Normalized Benchmark	7.82%	1.73%	10.28%	5.74%	7.28%	9.73%
SigFig IRA Normalized Benchmark	7.60%	1.92%	10.22%	5.80%	7.21%	9.55%
SoFi IRA Normalized Benchmark	8.27%	1.31%	10.35%	5.59%	7.41%	-
T Rowe Price ActivePlus Portfolios IRA Normalized Benchmark	8.27%	1.31%	10.35%	5.59%	7.41%	-
TD Ameritrade IRA Normalized Benchmark	7.07%	2.34%	10.06%	5.93%	7.04%	-
TIAA Personal Portfolios IRA Normalized Benchmark	7.37%	2.11%	10.16%	5.86%	7.14%	-
United Income IRA Normalized Benchmark	8.19%	1.38%	10.34%	5.61%	-	-
Wealthsimple IRA Normalized Benchmark	6.77%	2.57%	9.95%	5.99%	6.92%	-
Wells Fargo IRA Normalized Benchmark	7.60%	1.92%	10.22%	5.80%	-	-
Zack's Advantage IRA Normalized Benchmark	7.74%	1.79%	10.26%	5.76%	-	-

Returns are net of fees and are as of 9/30/2020. 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 Q1 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 AUM 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, Wells Fargo 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 was 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 shortterm 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*.
 - 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.
- A On June 19, 2017, Vanguard removed Backend Benchmarking’s primary Vanguard account from the Vanguard Personal Advisor Services program. As of June 20, 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 portfolios’ initial target allocations 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 transaction 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 shares and fractional cent transactions’ rounding errors are introduced into our tracking. Starting March 31, 2020, we implemented a new process at quarter end 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 09/30/2020 the total size of the position was 38,974 shares of Schwab common stock, 17,657 shares of JP Morgan Chase common stock, and 5,864 shares of Goldman Sachs common stock. As of 09/30/2020 accounts discretionarily managed by Condor Capital Management held bonds issued by the following companies: Morgan Stanley, Bank of America, Goldman Sachs, Wells Fargo, ETrade, Citi Group, JP Morgan Chase, Citizens Financial Group, and Capital One.

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

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