

# Robo-Advisers:

## What They Do and How to Beat Them



**Jaclyn N. McClellan, CFA**

Associate Financial Analyst, AAI

Editor and Product Manager, Dividend Investing

[jmccllellan@aaii.com](mailto:jmccllellan@aaii.com)



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# Overview

- What is a robo-adviser?
- Robo-advisers by AUM
- Comparing performance
- Compare fees to traditional advisers
- How do robos handle volatility?
- Buzz words robos use
- Tax efficiency, rebalancing, tax-loss harvesting
- Asset allocations from robos
- Choosing funds yourself
- My conclusions

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# What Is a Robo-Adviser?

A **robo-adviser** is an online investment service that provides automated portfolio management and advice.

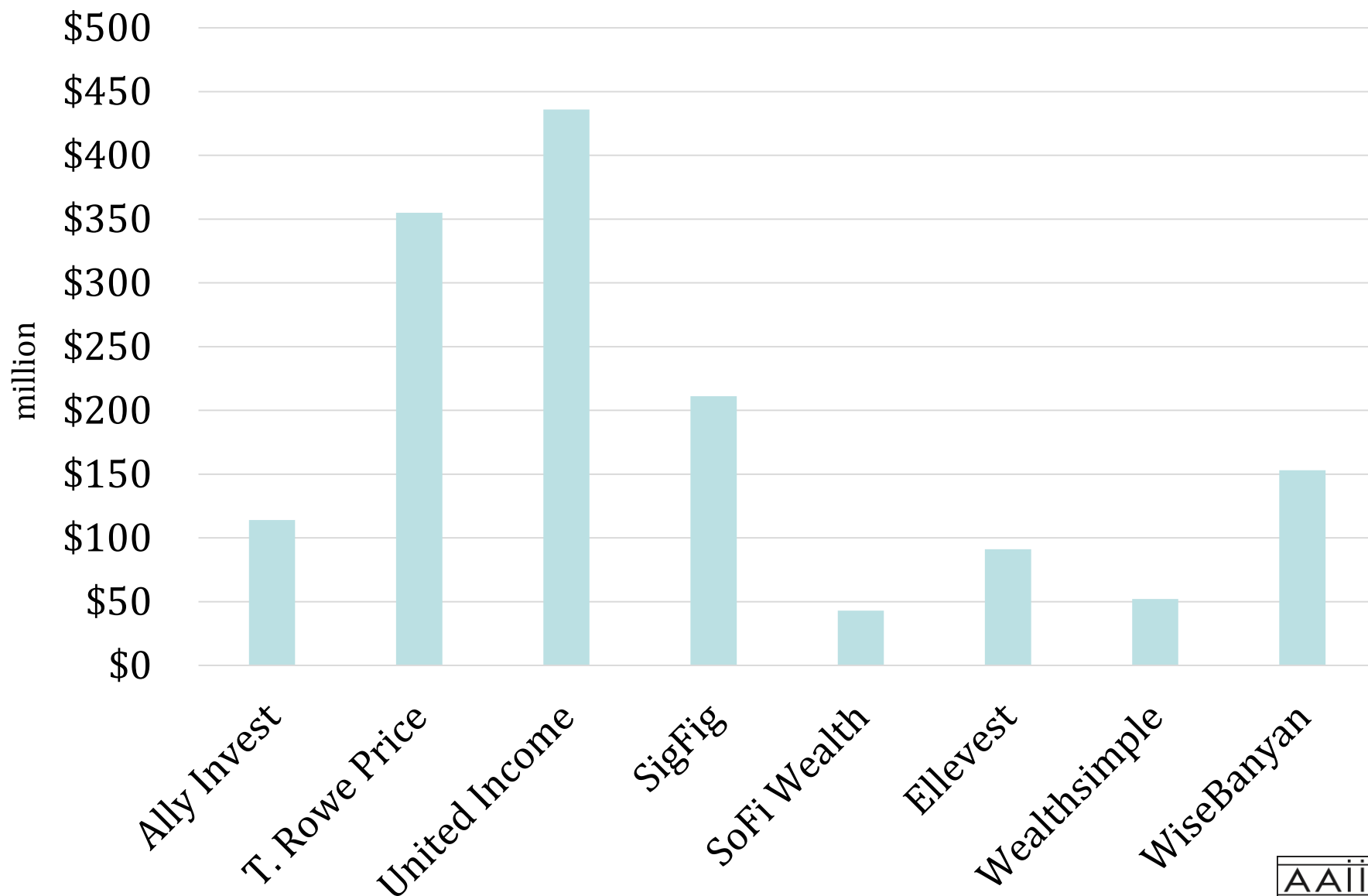
- Passive investing (for the most part)
- Automated algorithms
- Asset allocation models
- Automated investment “advice”
- Rebalancing
- Diversification
- “Tax-efficient” investing

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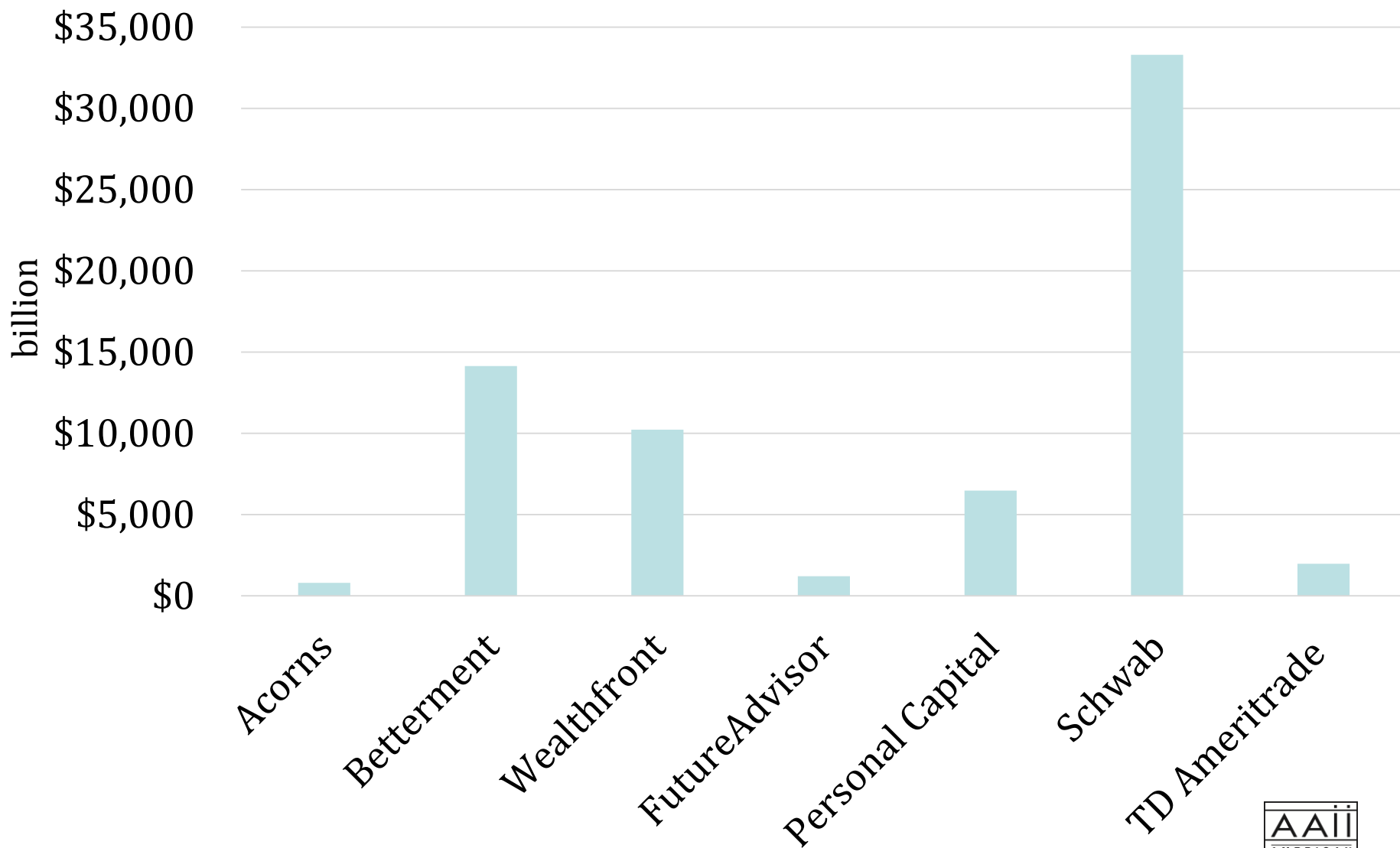
# Industry Trends

- **Checking and Debt options:** Acorns, Stash and SoFi announced checking account and debt card options (all on waitlists). Wealthfront said it's exploring a possible checking and savings account feature.
- **Developing personal finance goal planning:** Wealthfront announced it will continue to enhance "Path," its financial planning tool. Envestnet is planning to launch a personal finance app.
- **Incorporating "held-away" accounts:** Betterment is going to start incorporating goals from held-away retirement accounts, and give advice on held-away accounts.
- **Digital/virtual assistants:** JP Morgan is piloting a digital assistant for their treasury service division. Virtual assistants have been launched at Bank of America and Wells Fargo.
- **Adding more human advice:** Betterment added a tier that includes advice from a live professional.

## Robos With Less Than \$500 Mil in AUM



## Robos With More Than \$500 Mil in AUM



# Examples of Risk Profile Questions

## Questions:

- What are you looking for in a financial adviser?
- What is your current age?
- What is your annual pretax income?
- Which of the following best describes your household?  
(Single, married, dual income, retired, etc.)
- What is the total value of your cash and liquid investments?
- When deciding how to invest your money, which do you care about more? (max gains, min losses, both equally)
- The global stock market is often volatile. If your entire investment portfolio lost 10% of its value in a month during a market decline, what would you do?

*Questions asked by Wealthfront*

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# What type of **investments** do they use?

Most robo-services use exchange-traded funds (ETFs), but not all *only* use ETFs.

Some use other assets classes including:

- InteractiveBrokers: ETFs, stocks, ADRs, REITs, options
- Personal Capital: Stocks, ETFs
- MarketRiders: ETFs, mutual funds
- Alpha Architect: Active ETFs
- Asset Builder: Dimensional Fund Advisor mutual funds (DFAs)
- Schwab Intelligent Portfolios: ETFs



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# Comparing Performance

“If you’re looking at performance, you would need to create equally weighted portfolios at each robo service. None of the robos are an actual fund. Each customer gets a different portfolio depending on their goals, risks, etc.”

- Betterment

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# Comparing Performance

- Different inception dates
- Many different portfolios: don't have one performance #
- Allocations change over time and only company/clients know when
- Many companies present backtested or model-based performance figures online
- If performance is shown, not all of them show a benchmark
- If you attempt to benchmark on your own, make sure you pick something that is “apples to apples”

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# Comparing Performance

Disclose performance:

- Ally Financial
- TD Ameritrade
- Personal Capital
- Wealthfront
- Wealthsimple
- T. Rowe Price
- SigFig (cumulative only)

## Asset Builder Performance

Portfolio	3 Years Ann'l	5 Years Ann'l	Since Inception*
Portfolio 5	2.0%	2.3%	5.2%
Portfolio 6	2.8%	2.8%	5.7%
Portfolio 7	4.0%	4.0%	6.5%
Portfolio 8	5.0%	4.8%	7.1%
Portfolio 9	5.9%	5.6%	7.6%
Portfolio 10	6.8%	6.3%	8.0%
Portfolio 12	7.8%	7.1%	8.5%
Portfolio 14	8.7%	7.9%	9.1%
Data as of July 2018			
*Inception 05/1998			
Performance is based on model portfolios			

## Ally Invest Performance

Portfolio	2011	2012	2013	2014	2015	2016	2017	Ann'l Return	Cumultve Return
Conservative	5.3%	7.1%	3.0%	6.6%	0.5%	4.2%	6.1%	4.7%	37.6%
Moderate	2.7%	9.6%	8.3%	6.3%	0.0%	6.0%	9.9%	6.1%	50.9%
Moderate Growth	0.0%	12.0%	13.9%	6.0%	-0.6%	7.7%	13.8%	7.4%	64.7%
Growth	-2.8%	14.4%	19.7%	5.7%	-1.3%	9.4%	17.9%	8.7%	78.9%
Aggressive Growth	-5.0%	16.1%	24.2%	5.4%	-1.8%	10.6%	21.0%	9.6%	90.0%
Ally performance is based on model portfolios (backtested)									
No data as of date disclosed									
Updated Aug 2018									

# Wealthfront's average annual net-of-fees, pre-tax returns

Last updated on 07/31/2018

Risk Score	10.0	1 YEAR RETURN	3 YEAR RETURN	5 YEAR RETURN	SINCE INCEPTION
Taxable portfolios		9.83%	8.75%	7.68%	8.65%
Personal, Joint, and Trust accounts					Since 10/12/2011
Comparative benchmark		10.40%	8.96%	8.01%	9.47%
					Since 10/12/2011
Tax-advantaged portfolios		6.72%	7.71%	7.49%	8.73%
Roth, Traditional, and SEP IRAs					Since 12/15/2011
Comparative benchmark		8.03%	8.40%	8.01%	9.42%
					Since 12/15/2011

# Wealthfront's average annual net-of-fees, pre-tax returns

Last updated on 07/31/2018

Risk Score	5.0	1 YEAR RETURN	3 YEAR RETURN	5 YEAR RETURN	SINCE INCEPTION
Taxable portfolios		8.20%	7.33%	6.95%	8.36%
Personal, Joint, and Trust accounts					Since 10/03/2011
Comparative benchmark		8.57%	7.64%	7.40%	8.81%
					Since 10/03/2011
Tax-advantaged portfolios		6.31%	7.28%	7.33%	7.76%
Roth, Traditional, and SEP IRAs					Since 10/21/2011
Comparative benchmark		5.86%	7.40%	7.57%	8.25%
					Since 10/21/2011

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## TD Ameritrade

	Q2 2018	YTD	1 Year	Since Inception
Conservative	0.61%	-1.53%	1.45%	2.67%
Moderate	-0.54%	-1.30%	3.15%	4.74%
Moderate Growth	-0.32%	-1.04%	4.49%	6.27%
Growth	-0.16%	-0.73%	6.88%	9.01%
Aggressive	-0.06%	-0.52%	8.70%	11.51%

Inception: 4/30/16



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# New “Robo Report”

- Created by Condor Capital Management
- Updated quarterly and includes commentary, asset allocation, performance and risk figures
- Actually invested in these portfolios (IRA and taxable)
- Goal was to present the same risk profile within each robo:  
For taxable accounts a moderate allocation was targeted (approx. 60% stocks/40% bonds) for an investor in a high tax bracket
- For IRAs the goal was to have the “most aggressive” allocation

## Performance From Q2 2018 Robo Report

	Q2 2018	Q2 Ret. Above/Below Benchmark	YTD	1 Year Trailing	2 Year Trailing (Annualized)
Acorns	1.59%	0.89%	0.01%	6.16%	6.73%
Ally Financial	0.41%	-0.27%	-0.28%	6.38%	--
Betterment	-0.80%	-1.55%	-1.97%	5.64%	8.61%
Betterment SRI	-0.27%	-0.94%	-1.06%	--	--
Capital One	0.75%	0.16%	-0.09%	--	8.95%
E*Trade	0.51%	-0.16%	-0.46%	6.36%	--
Ellevest	0.42%	-0.28%	-0.17%	6.53%	--
Fidelity Go	1.32%	0.64%	0.34%	7.94%	6.58%
FutureAdvisor	-0.91%	-1.56%	-1.46%	4.85%	--
Merill Edge	0.70%	0.03%	-0.42%	6.34%	--
Morgan Stanley	-0.61%	-1.36%	-1.04%	--	--
Morgan Stanley SRI	-0.22%	-0.95%	-1.34%	--	8.39%
Personal Capital	0.70%	-0.17%	-0.45%	6.90%	9.48%
Schwab	-0.20%	-0.98%	-0.53%	7.07%	9.33%

## Performance From Q2 2018 Robo Report

	Q2 2018	Q2 Ret. Above/Below Benchmark	YTD	1 Year Trailing	2 Year Trailing (Annualized)
SigFig	-0.19%	-0.87%	-0.64%	7.30%	--
SoFi	0.28%	-0.39%	0.11%	6.27%	--
TD Ameritrade	-0.15%	-0.90%	-0.72%	7.28%	--
TIAA	0.50%	-0.18%	-0.01%	6.95%	--
TIAA SRI	0.13%	-0.54%	-0.32%	--	--
United Income	-0.30%	-0.97%	-0.85%	--	--
USAA	0.24%	-0.52%	-0.63%	--	9.11%
Vanguard	0.90%	0.25%	0.14%	7.32%	9.25%
Wealthfront	1.23%	0.48%	0.15%	8.76%	--
Wealthsimple	1.46%	0.78%	0.23%	7.51%	--
Wealthsimple SRI	0.54%	-0.13%	--	--	--
Wells Fargo	1.01%	0.31%	0.18%	--	9.17%
WiseBanyan	0.89%	0.16%	-0.23%	6.99%	--
Zack's Advantage	1.06%	0.44%	0.25%	--	--

## ■ *Year-to-Date Top Performers*

	Best	2nd	3rd
Total Portfolio	Acorns	Wealthsimple	Merrill Edge
Equity	Wells Fargo	Acorns	Zack's Advantage
Fixed Income	SoFi	Vanguard	Ellevest

*Produced by Backend Benchmarking for TheRoboReport.com™*

## ■ *1-Year Trailing Top Performers*

	Best	2nd	3rd
Total Portfolio	Wealthfront	Fidelity Go	Vanguard
Equity	Wealthfront	Fidelity Go	TIAA
Fixed Income	Fidelity Go	Wealthsimple	SoFi

*Produced by Backend Benchmarking for TheRoboReport.com™*

## ■ *2-Year Trailing Top Performers*

	Best	2nd	3rd
Total Portfolio	Vanguard	SigFig	E*Trade
Equity	E*Trade	SigFig	Vanguard
Fixed Income	Schwab	SigFig	Betterment

\* Total Portfolio winners are based on the Portfolio's return above/below the normalized benchmark.

*Produced by Backend Benchmarking for TheRoboReport.com™*

## 2-Year Trailing Risk/Return Statistics

	Acorns <sup>1</sup>	Betterment <sup>15</sup>	E*Trade (ETF) <sup>3</sup>	Future-Advisor <sup>3</sup>	Personal Capital <sup>4</sup>
Annualized StdDev, %	6.99%	6.86%	6.51%	6.21%	7.39%
Sharpe Ratio	0.83	1.1	1.2	0.9	1

	Schwab <sup>5</sup>	SigFig <sup>6</sup>	Vanguard <sup>4,A</sup>	Wealthfront (Risk 4.0) <sup>10,B</sup>	WiseBanyan <sup>8</sup>
Annualized StdDev, %	7.00%	6.80%	6.08%	6.84%	6.64%
Sharpe Ratio	1.19	1.21	1.31	1.19	1.21

*This analysis produced with the help of Markov Process International, Inc.*

*Produced by Backend Benchmarking for TheRoboReport.com™*

## AAII ETF Guide Category Average Returns

	Last Quarter	Last 1 Year	Last 3 Years	Last 5 Years
Large-Cap	3.0%	13.4%	13.8%	12.8%
Mid-Cap	3.3%	13.5%	13.6%	12.0%
Small-Cap	8.1%	16.7%	16.8%	12.7%
Balanced	1.9%	2.9%	3.4%	4.2%
Balanced Global	0.1%	4.6%	3.9%	4.3%
Global Stock	0.8%	10.2%	8.1%	8.4%
Foreign Stock	-1.4%	7.0%	5.8%	6.7%
Emerging Mkt Stock	-8.6%	6.4%	5.7%	3.3%
ST General Bond	0.4%	1.2%	1.1%	1.9%
IT General Bond	-0.3%	-0.7%	-0.8%	2.5%
LT General Bond	-1.9%	-0.9%	-1.1%	4.4%
Corp. HY Bond	0.9%	2.5%	2.4%	4.1%
General Int'l Bond	-2.3%	1.7%	1.3%	0.0%
HY Int'l Bond	-2.2%	1.8%	2.0%	3.7%
Emerging Int'l Bond	-5.2%	-1.1%	-1.3%	1.9%

*Performance through June 30, 2018*

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# Understanding Fees

- Robos have lower fees than “traditional” advisers because of technology and automation
- When a range is provided, the higher the initial amount, the lower the fee
- Also when a range is provided, the higher management fees are for robos with personal adviser services (not just computers)
- In general, many robos don’t have “in person” offerings, which some investors are willing to pay a premium for

FIRM	PROGRAM	BROKER-DEALER?	ADVISORY FEE*	AVERAGE FUND FEE**	TOTAL ESTIMATED FEE
Ameriprise	Managed Accounts & Financial Planning Service	YES	1.75% — 3.00%	0.50%	2.25% — 3.50%
UBS	Portfolio Management Program	YES	2.50%	0.44%	2.94%
Morgan Stanley	Select UMA Program	YES	2.00% — 2.50%	0.42%	2.42% — 2.92%
Wells Fargo	Private Investment Management	YES	1.50% — 2.00%	0.43%	1.93% — 2.43%
Merrill Lynch	Personal Investment Advisory	YES	1.00% — 2.00%	0.33%	1.33% — 2.33%
JP Morgan	Mutual Fund Advisory Portfolio	YES	1.15% — 1.45%	0.41%	1.56% — 1.86%
Edward Jones	Unified Managed Account Model	YES	1.25% — 1.35%	0.45%	1.70% — 1.80%
Personal Capital	Investment Services/Wealth Management	NO	0.79% — 0.89%	0.08%	0.87% — 0.97%
Charles Schwab	Schwab Intelligent Advisory	YES	0.28%	0.16%†	0.44%
Vanguard	Personal Advisor Services	YES	0.30%	0.08%	0.38%

Source:  
Personal  
Capital



# Robo-Adviser Fees

Robo-Adviser	Management Fee	Expense Ratio	Trading Fee (Commission)
Acorns	\$1, \$2, \$3/Mo. - 0.25% of AUM	0.04% - 0.20%	\$0
Alpha Architect	0.25% of AUM	0.05%-0.63%	Very Small
Ally Financial	0.30% of AUM	ND	\$0
AssetBuilder	0.20%-0.45% of AUM	0.24%-0.45%	\$11.95/trade
Betterment	0.25%-0.50% of AUM	0.03%-0.25%	\$0
Capital One	0.90% of AUM	ND	ND
Ellevest	0.25% - 0.50% of AUM	0.06% - 0.16%	ND
E*Trade	0.30% - 1.25% of AUM	0.05% - 0.11%	ND
Fidelity Go	0.35%-1.15% of AUM	0.00%	\$0
InteractiveBrokers	0.20%-1.50% of AUM	0.08%-1.5%	\$1/100 shares
Merrill Edge	0.45% of AUM	0.07% - 0.12%	\$0
Morgan Stanley	0.35% of AUM	ND	\$0
Personal Capital	0.49%-0.89% of AUM	0.08% Avg.	\$0
Rebalance IRA	0.50% of AUM	0.05% - 0.15%	\$35 @ rebal.
Schwab	0.00%	0.03%-0.65%	\$0
<i>ND = Not Disclosed</i>			
<i>*Sometimes use ETFs that charge commissions</i>			

## Robo-Adviser Fees

Robo-Adviser	Management Fee	Expense Ratio	Trading Fee (Commission)
SigFig	0%-0.25% of AUM	0.07% - 0.15%	\$0*
SoFi	0.25% of AUM	0.11% WAvg.	ND
TD Ameritrade	0.30% of AUM	0.06% - 0.08%	\$0
TIAA	0.30% of AUM	ND	ND
T. Rowe Price	0.00%	0.55% - 0.81% WAvg.	\$0
United Income	0.45% - 0.80% of AUM	ND	ND
USAA	0.50% of AUM	ND	\$0
Vanguard	0.30% of AUM	ND	ND
Wealthfront	0.00% - 0.25% of AUM	0.12% Avg.	\$0
Wealthsimple	0.40% - 0.50% of AUM	0.04% - 0.48%	\$0
Wells Fargo	0.40% - 0.50% of AUM	0.15% Avg.	\$0
WiseBanyan	0%-0.24% of AUM	0.03% - 0.69%	\$0
Zack's Advantage	0.35% - 0.70% of AUM	ND	ND
<i>ND = Not Disclosed</i>			
<i>*Sometimes use ETFs that charge commissions</i>			

# How Robos Handle Volatility

Most of the robo services said that they focus on a “long-term” strategy and therefore do not make day-to-day decisions on volatility.

-Volatility is managed by rebalancing and diversification

If you pay trading fees more rebalancing in volatile markets can lead to more costs



# How Robos Handle Volatility

There are exceptions like [Alpha Architect](#). They shift clients “out of risky assets” and into safe-haven assets like cash and Treasuries, called “downside protection technology.”

-In the case of other active robos, it’s “up to the portfolio manager”



# What type of advice do they give?

Each robo-adviser differs in what type of investment advice they give. The robos that offer in-person advisers offer more robust advice and recommendations.

For example, Betterment says, “We give you personalized advice, based not only on your Betterment portfolios, but on all of your wealth. We’ll tell you how to allocate your money across stocks and bonds, how much to invest each month, and how much your outside investments are costing you in fees and idle cash.”

They also mention “customizing advice and building a personalized investment plan and portfolio for each goal.”

# What type of advice do they give?

## Tax Guidance:

- Betterment
- Personal Capital
- Schwab Intelligent Portfolios
- Vanguard
- WiseBanyan

## Retirement Withdrawal Guidance:

- Alpha Architect
- Asset Builder
- Betterment
- InteractiveBrokers
- Personal Capital
- Rebalance IRA
- Schwab Intelligent Portfolios
- Vanguard Personal Advisor

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# What type of advice do they give?

## “Hands on” Advisory Services:

- Betterment Plus or Betterment Premium
- Ellevest
- Merrill Edge
- Personal Capital
- Schwab Intelligent Advisory
- TD Ameritrade Selective Portfolios
- Fidelity Wealth Management Advisory

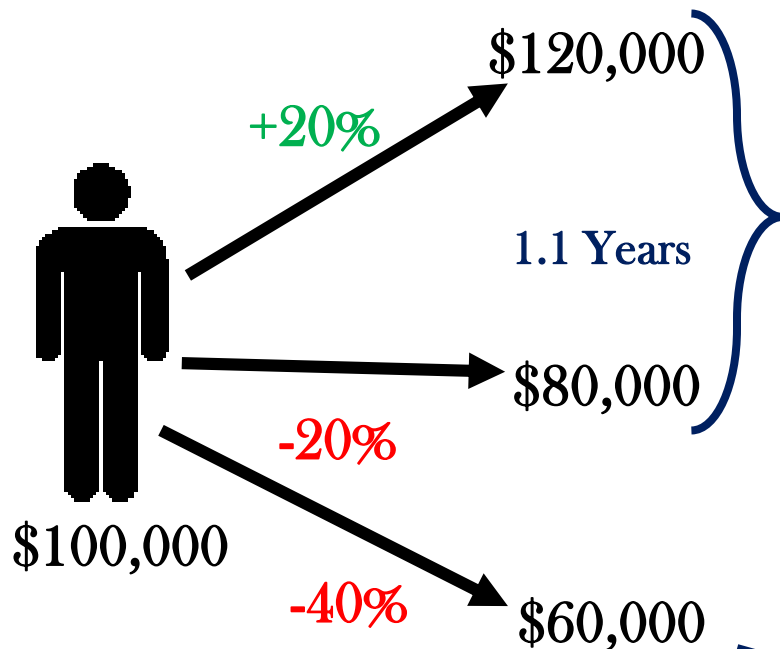
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# Buzz Words

- Tax-loss harvesting
- Tax efficiency
- Maximize returns
- Indexing
- Rebalancing
- Modern portfolio theory (MPT)
- Risk-return
- Mean-variance optimization (MVO)
- Capital asset pricing model (CAPM)



# Tax-Loss Harvesting



Not harvesting losses:  
 $(\$20,000) \times 20\% = \$4,000$

Harvesting losses:  
 $(\$20,000 - \$20,000) \times 20\% = \$0$

Harvesting losses:  
 $(\$20,000 - \$40,000) \times 20\% = -\$4,000$

Can only deduct \$3,000;  
Carry the \$1,000 loss forward to  
next year

Tax rate: 37%

Long-term return tax rate: 20%

Short-term return tax rate: 37%

# Tax Efficiency

Asset Class	Benefits
U.S. Stocks	Capital growth, long-run inflation protection, tax efficiency
Foreign Developed Stocks	Capital growth, long-run inflation protection, tax efficiency
Emerging Market Stocks	Capital growth, long-run inflation protection, tax efficiency
Dividend Growth Stocks	Capital growth, income, long-run inflation protection, tax efficiency
U.S. Government Bonds	Income, low historical volatility, diversification
Corporate Bonds	Income, low historical volatility, diversification
Emerging Market Bonds	Income, diversification
Municipal Bonds	Income, low historical volatility, diversification, tax efficiency
TIPS	Income, low historical volatility, diversification, inflation protection
Real Estate	Income, diversification, inflation protection
<i>Source: Wealthfront</i>	

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# Tax Efficiency

**Tax-Cost Ratio (%):** Measures how much of a fund's annualized return is reduced by the taxes paid on distributions, assuming the maximum marginal tax rate. A tax-cost ratio of 0.0% indicates that the fund did not pay any taxable income or make capital gains distributions. A 3.0% tax-cost ratio means that each year, investors lost an average of 3.0% of their assets to taxes. The lower the ratio, the more tax-efficient the fund.

High tax-cost ratio >> invest in tax-sheltered account

# Rebalancing

Rebalancing attempts to adjust the composition of a portfolio back to its intended allocation. Positions drift over time as capital markets change. Usually based on: asset class weightings, calendar intervals, or combo of both.

“If an asset class has drifted above its target allocation by a sufficient amount, the asset class is sold to bring it back to its target allocation. The cash received from the sale is allocated to the asset classes that are underweight.

If an asset class has drifted below its target allocation by a sufficient amount, additional shares of the asset class are bought to bring it up to its target allocation. To make this purchase, overweight asset classes are sold down until there is enough cash to make the purchase.”

-Charles Schwab

You can do this!



# Rebalancing



$$\begin{array}{r} \$110,000 \\ \text{Total} \\ \text{Portfolio} \\ \text{Value} \end{array} \div \begin{array}{r} 20 \\ \text{Stocks} \end{array} = \begin{array}{r} \$5,500 \\ \text{Average} \\ \text{Position} \\ \text{Value} \end{array}$$

$$\begin{array}{r} \$15,000 \\ \text{Hot Stock} \\ \text{Position} \\ \text{Value} \end{array} \div \begin{array}{r} \$5,500 \\ \text{Average} \\ \text{Position} \\ \text{Value} \end{array} = \begin{array}{r} 2.7 \\ \text{Relative} \\ \text{Position Size} \\ \text{of Hot Stock} \end{array} \longrightarrow \begin{array}{r} 1.5 \\ \text{Target} \\ \text{Position Size} \\ \text{for Hot Stock} \end{array}$$

$$\begin{array}{r} \$5,500 \\ \text{Average} \\ \text{Position} \\ \text{Value} \end{array} \times \begin{array}{r} 1.5 \\ \text{Target} \\ \text{Position Size} \\ \text{for Hot Stock} \end{array} = \begin{array}{r} \$8,250 \\ \text{Target} \\ \text{Position Value} \\ \text{for Hot Stock} \end{array} \longrightarrow \begin{array}{l} \text{Sell } \$6,750 \\ \text{Worth of Hot Stock Shares} \\ \text{to Reduce Position Size to} \\ \text{1.5 Times Average} \end{array}$$

Source: April  
2016 AAI  
Journal

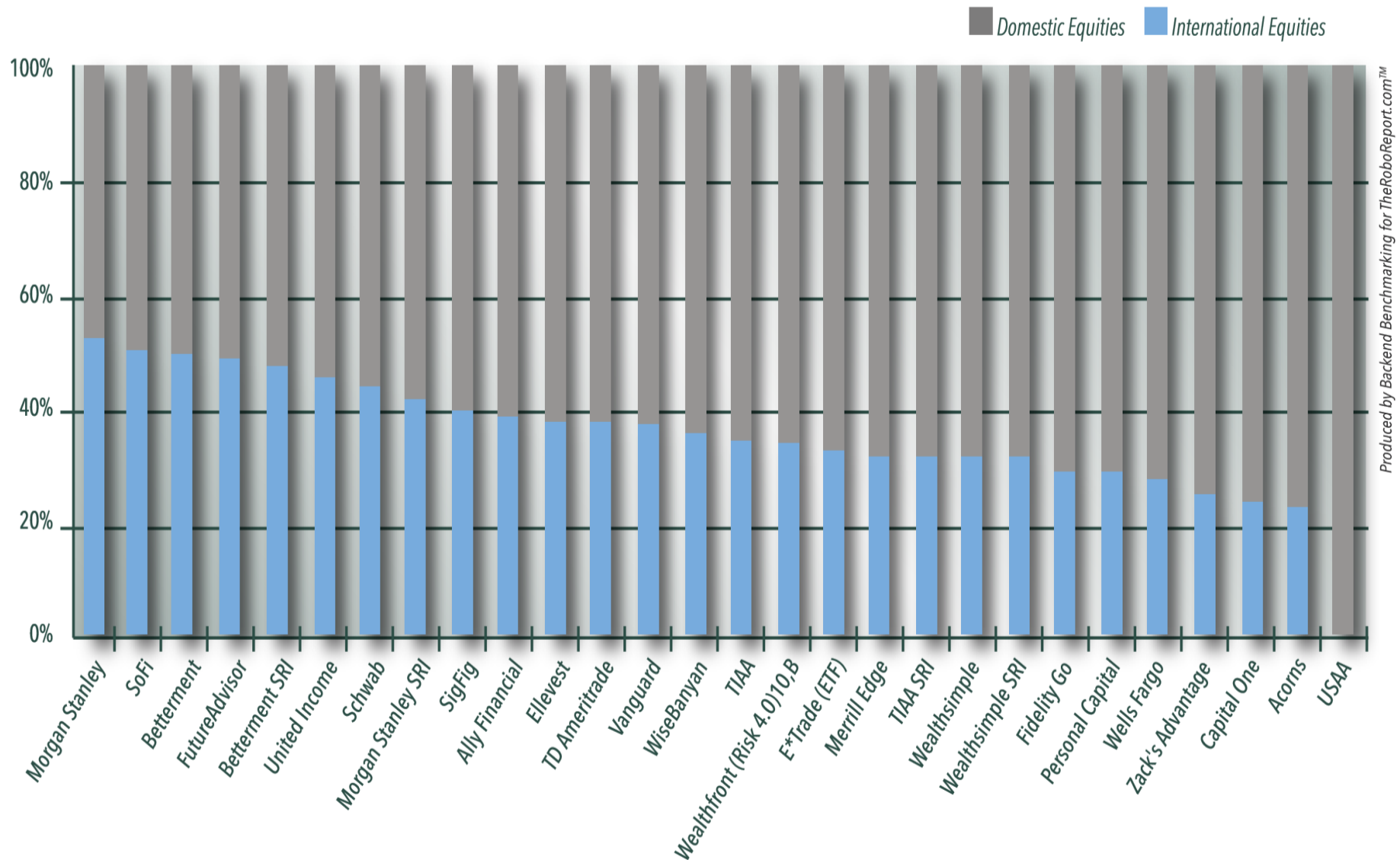
## Robo Report Taxable Asset Allocation

	Equities	Fixed Income	Misc.	Cash
Acorns	62%	38%	0%	0%
Ally Financial	61%	37%	0%	2%
Betterment	60%	40%	0%	0%
Capital One	56%	43%	0%	1%
E*Trade	59%	39%	0%	2%
Ellevest	55%	43%	0%	1%
Fidelity Go	60%	39%	0%	1%
FutureAdvisor	54%	44%	0%	2%
Merrill Edge	54%	43%	0%	3%
Morgan Stanley	65%	34%	0%	1%
Personal Capital	70%	24%	4%	1%
Schwab	61%	26%	2%	11%

## Robo Report Taxable Asset Allocation

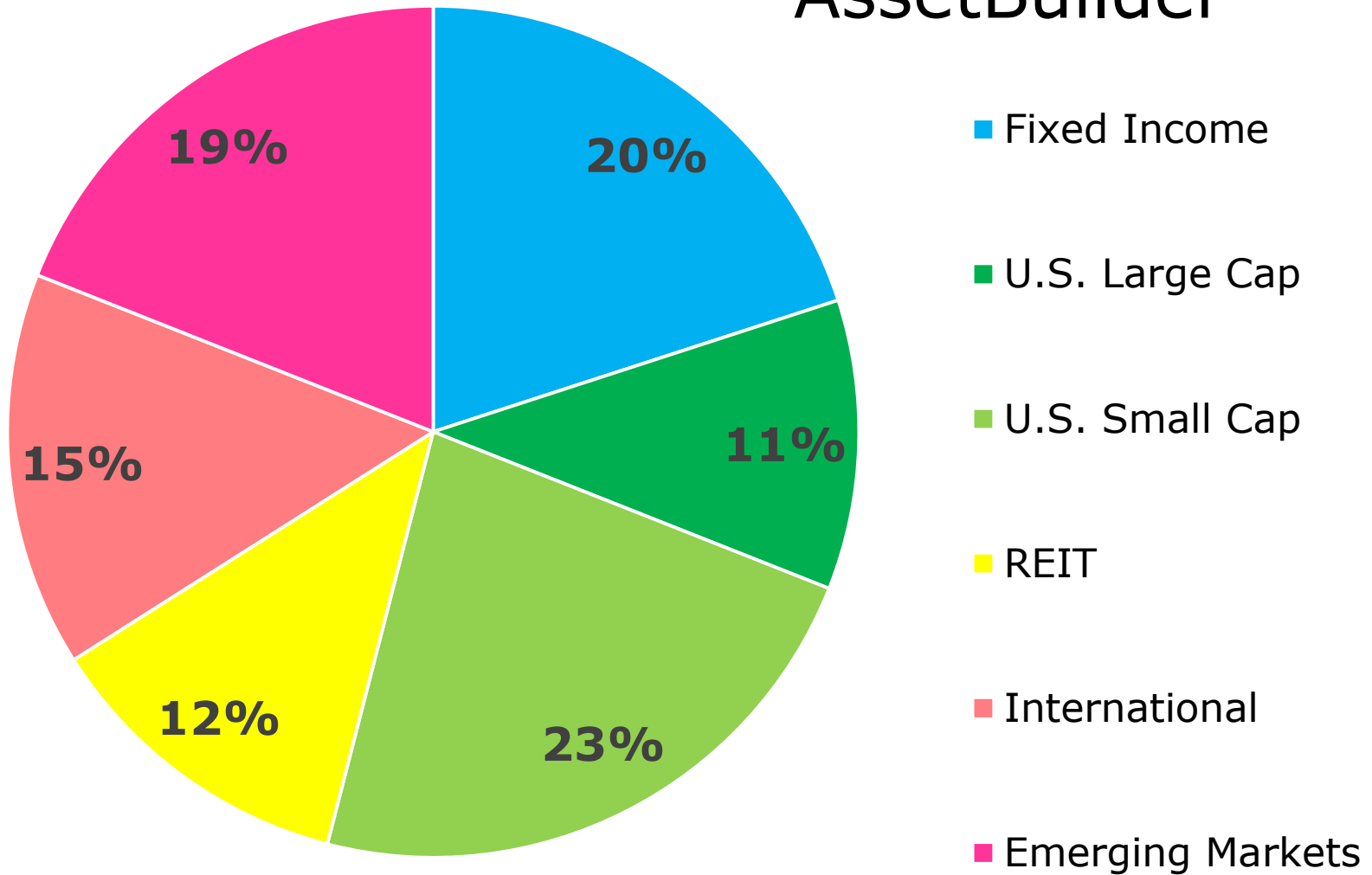
	Equities	Fixed Income	Misc.	Cash
SigFig	60%	39%	0%	1%
SoFi	60%	40%	0%	0%
TD Ameritrade	71%	27%	0%	3%
TIAA	61%	37%	0%	2%
United Income	60%	38%	0%	3%
USAA	61%	37%	0%	2%
Vanguard	63%	37%	0%	0%
Wealthfront	65%	34%	0%	1%
Wealthsimple	61%	38%	0%	1%
Wells Fargo	63%	33%	0%	4%
WiseBanyan	64%	36%	0%	0%
Zack's Advantage	58%	32%	0%	10%

## International Allocation of Total Equity

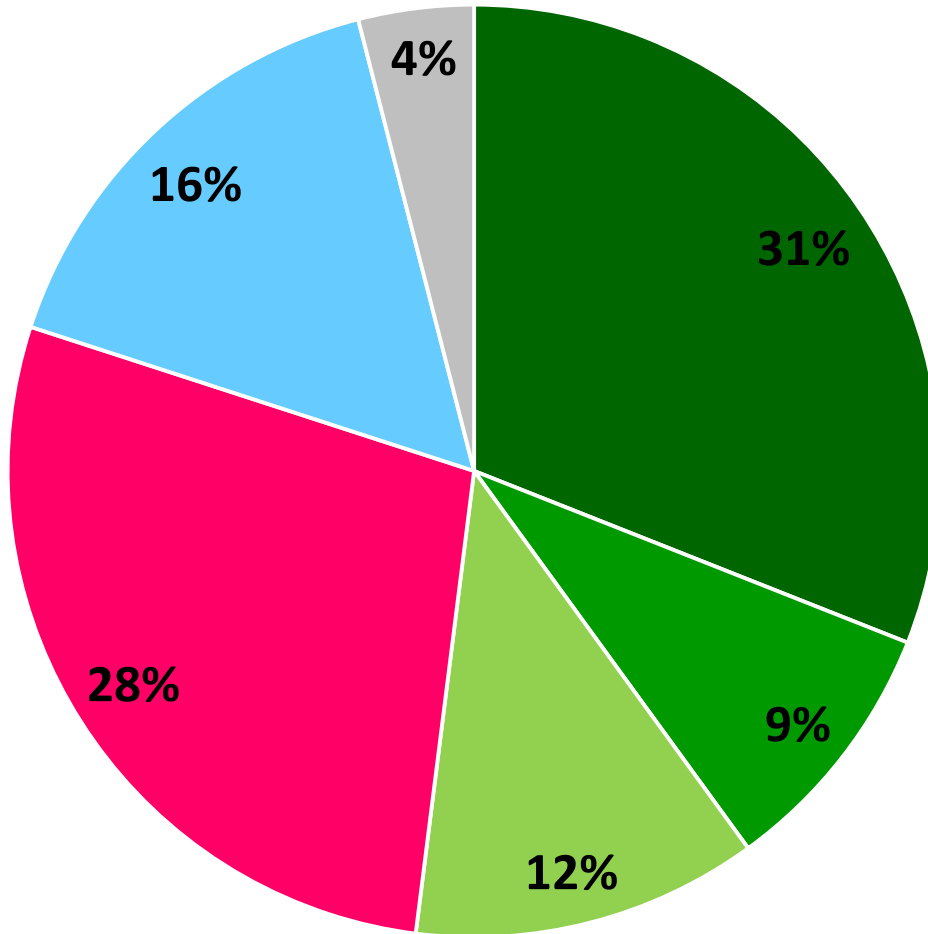




## AssetBuilder

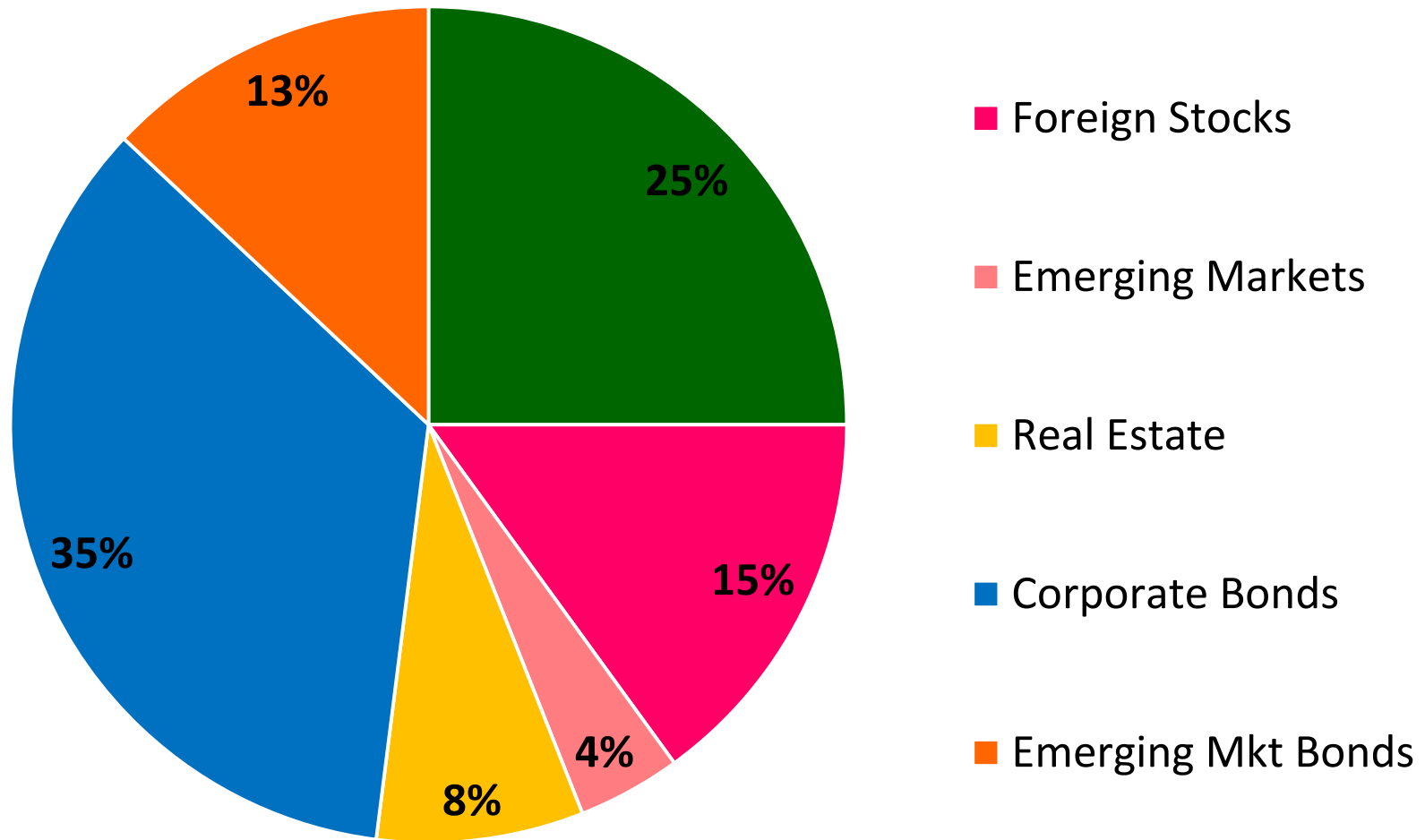


## E\*Trade

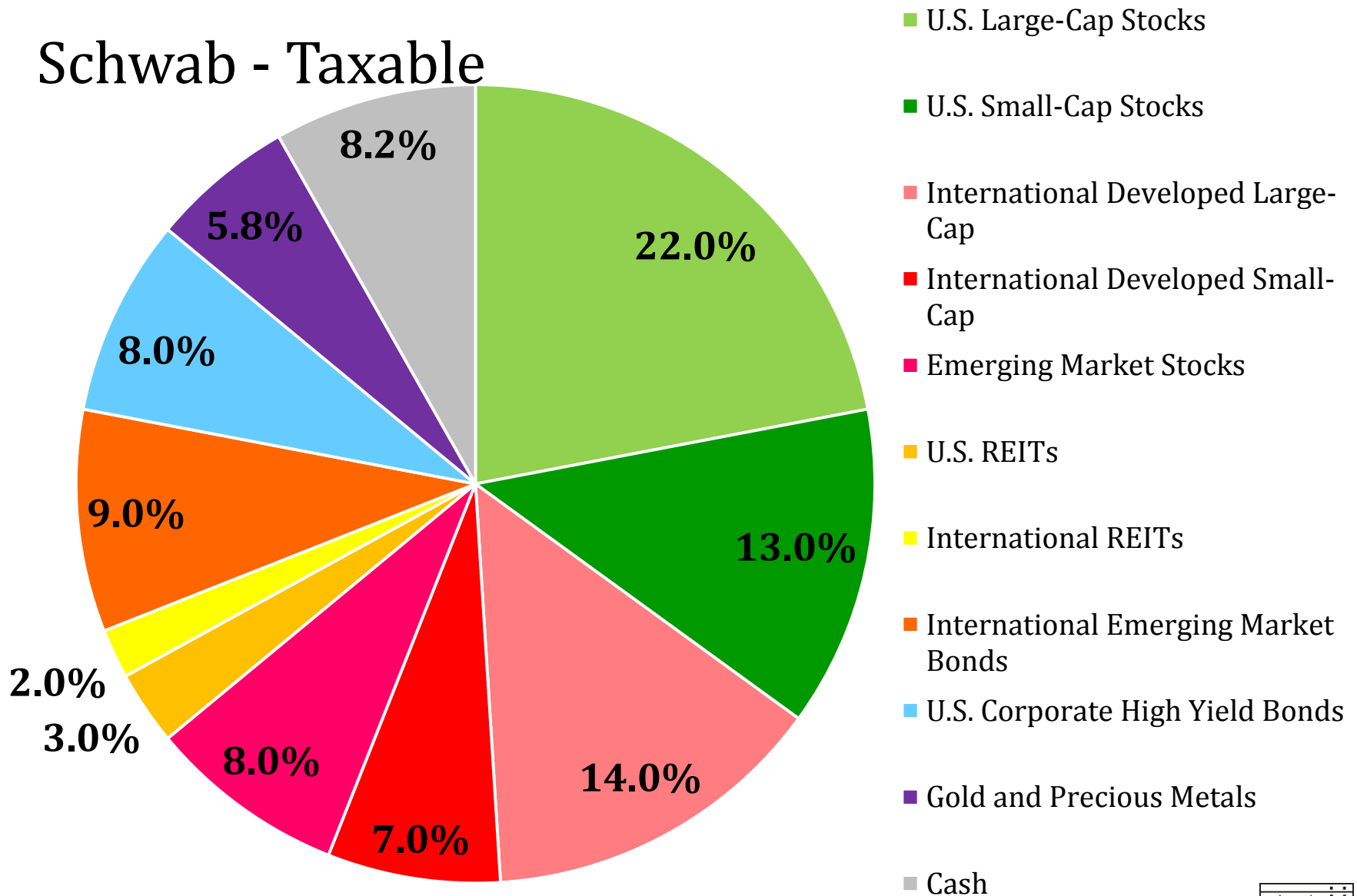


- Large-Cap Blend
- Large-Cap Value
- Small-Mid Cap
- Developed and Emerging Market Equity
- Core Fixed Income
- Cash

## Wealthfront



## Schwab - Taxable



# ETF Selection

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Robos (generally) say they look for ETFs that:

- Minimize cost and tracking error
  - Offer “ample” market liquidity
  - Minimize the lending of their underlying securities
  - Assist in diversifying the client’s portfolio
  - Most robos use Vanguard funds and in some cases one ETF represents large, mid and small-cap equity allocations
- \*\*several robos disclose what securities are used!**

# AAII Asset Allocation Models



## Aggressive Investor

90% Diversified Stock

### Suggested Allocation Breakdowns

20% Large-Cap Stocks  
20% Mid-Cap Stocks  
20% Small-Cap Stocks  
20% International Stocks  
10% Emerging Markets Stocks  
10% Intermediate Bonds  
0% Short-Term Bonds



## Moderate Investor

70% Diversified Stock

### Suggested Allocation Breakdowns

20% Large-Cap Stocks  
20% Mid-Cap Stocks  
10% Small-Cap Stocks  
15% International Stocks  
5% Emerging Markets Stocks  
30% Intermediate Bonds  
0% Short-Term Bonds



## Conservative Investor

50% Diversified Stock

### Suggested Allocation Breakdowns

25% Large-Cap Stocks  
10% Mid-Cap Stocks  
10% Small-Cap Stocks  
5% International Stocks  
0% Emerging Markets Stocks  
40% Intermediate Bonds  
10% Short-Term Bonds

Source: AAIL.com

# AAII Asset Allocation Models

		PORTFOLIO ALLOCATION		
		Aggressive	Moderate	Conservative
<i>Stocks</i>	Large-Cap Stocks VFINX	20%	20%	25%
	Mid-Cap Stocks PESPX	20%	20%	10%
	Small-Cap Stocks NAESX	20%	10%	10%
	International Stocks SWISX	20%	15%	5%
	Emerging Markets Stocks (VEIEX)	10%	5%	0%
<i>Fixed Income</i>	Intermediate Bonds VFITX	10%	30%	40%
	Short-Term Bonds VFISX	0%	0%	10%

## Portfolio Return

YTD:	3.3%	2.4%	2.2%
1 Year:	10.9%	8.2%	6.5%
5 Years:	8.8%	7.4%	6.3%
10 Years:	7.7%	6.9%	6.3%

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# DIY Robo

1. Decide your intended asset classes
2. Choose funds with comparatively low expenses, good return history, assets above \$400 million, that tend to outperform their respective category
3. Invest in them based on your desired asset allocation
4. Rebalance annually



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# Recommendations for Choosing a Robo

1. Read the “About Us” section
2. Read the FAQ Section
  - Fees, rebalancing, portfolio review, security types, communication, guidance, performance
3. Download and read the full disclosures
4. Think about what services you actually need and see if they offer them. Do not make exceptions.
5. Make sure you have constant access to your account information and ability to monitor all the transactions
6. Fees, fees, fees! Ask about hidden fees



# Benefits vs. Caveats



- Lack of involvement/responsibility
- Relatively decent investments
- Relatively decent returns
- “Tax-efficient” investing
- Computers > humans
- Integration with big money management
- Automatic rebalancing

- Lack of disclosure
- No face-to-face interaction
- Less comprehensive advice
- Passive investment vehicles that individual investors could replicate
- Incomplete Investment Policy Statement (IPS)
- Possible conflicts of interest
- Too much rebalancing could affect momentum of returns
- Possible conflicts with fiduciary standard

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# My Conclusions

- Robos have a place in today's investment arena
- Great for people who want to “set it and forget it”
- Robos will develop over time
- They will continue to integrate with “regular” advisers
- Are less expensive than in person advisers, but you could invest (without the additional management fees) on your own
- Not great if you are going to want to ask a lot of questions (for the services that don't offer in-person advisers)
- Depends on how complex your financial situation is (taxes as well)

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# References

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AAII Asset Allocation Models

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