Backtest Portfolio Asset Allocation

Portfolio Backtesting Overview

This portfolio backtesting tool allows you to construct one or more portfolios based on the selected mutual funds, ETFs, and stocks. You can analyze and backtest portfolio returns, risk characteristics, style exposures, and drawdowns. The results cover both returns and fund fundamentals based portfolio style analysis along with risk and return decomposition by each portfolio asset. You can compare up to three different portfolios against the selected benchmark, and you can also specify any periodic contribution or withdrawal cashflows and the preferred portfolio rebalancing strategy.

The related asset class level portfolio modeling tool allows you to analyze and compare asset class level portfolios with a longer time horizon starting from 1972, and you can use the dynamic allocation backtest tool to analyze portfolios where assets or their weights have been adjusted over time.

Portfolio Analysis Results (Jan 2016 - Mar 2025) Link

PDF Excel

Note:

- The time period was constrained by the available data for Vanguard S&P 500 ETF (VOO) [Oct 2010 - Mar 2025]. You can extend the available time period by using Vanguard 500 Index Investor (VFINX), which is the oldest share class of the fund.
- The time period of the results is limited to 10 years for free tier accounts.

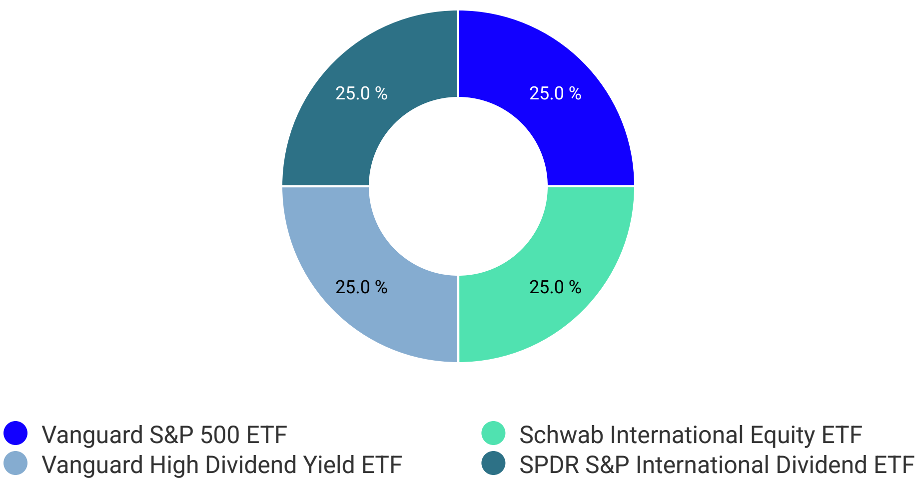
Portfolio 1

Ticker	Name	Allocation
VOO	Vanguard S&P 500 ETF	25.00%
SCHF	Schwab International Equity ETF	25.00%
VYM	Vanguard High Dividend Yield ETF	25.00%

Edit Portfolio Save Portfolio

Ticker	Name	Allocation
DWX	SPDR S&P International Dividend ETF	25.00%

Edit Portfolio Save Portfolio



Highlights

Return

Annualized Return

Portfolio Return

9.5%

Risk

Volatility and Drawdown

Standard Deviation

13.9%

Drawdown

22.5%

Portfolio Growth

$10,000 invested in January 1, 2016 would be worth $23,058 as of March 31, 2025, which represents a cumulative return of 130.58%.

Return

Over the period, the portfolio generated a return of 9.45% per year, with 73 out of 111 or

65.77% of months positive. The best year for the portfolio was 2019 with 24.48% return (Insights Available) and the worst year over the period was 2022 with -11.61% return (Insights Available).

Risk

The maximum drawdown of the portfolio was 22.45% from January 1, 2020 to March 31, 2020 (Insights Available) with a recovery time of 8 months. The risk adjusted return of the portfolio, measured by the Sharpe Ratio, was 0.58.

Insights

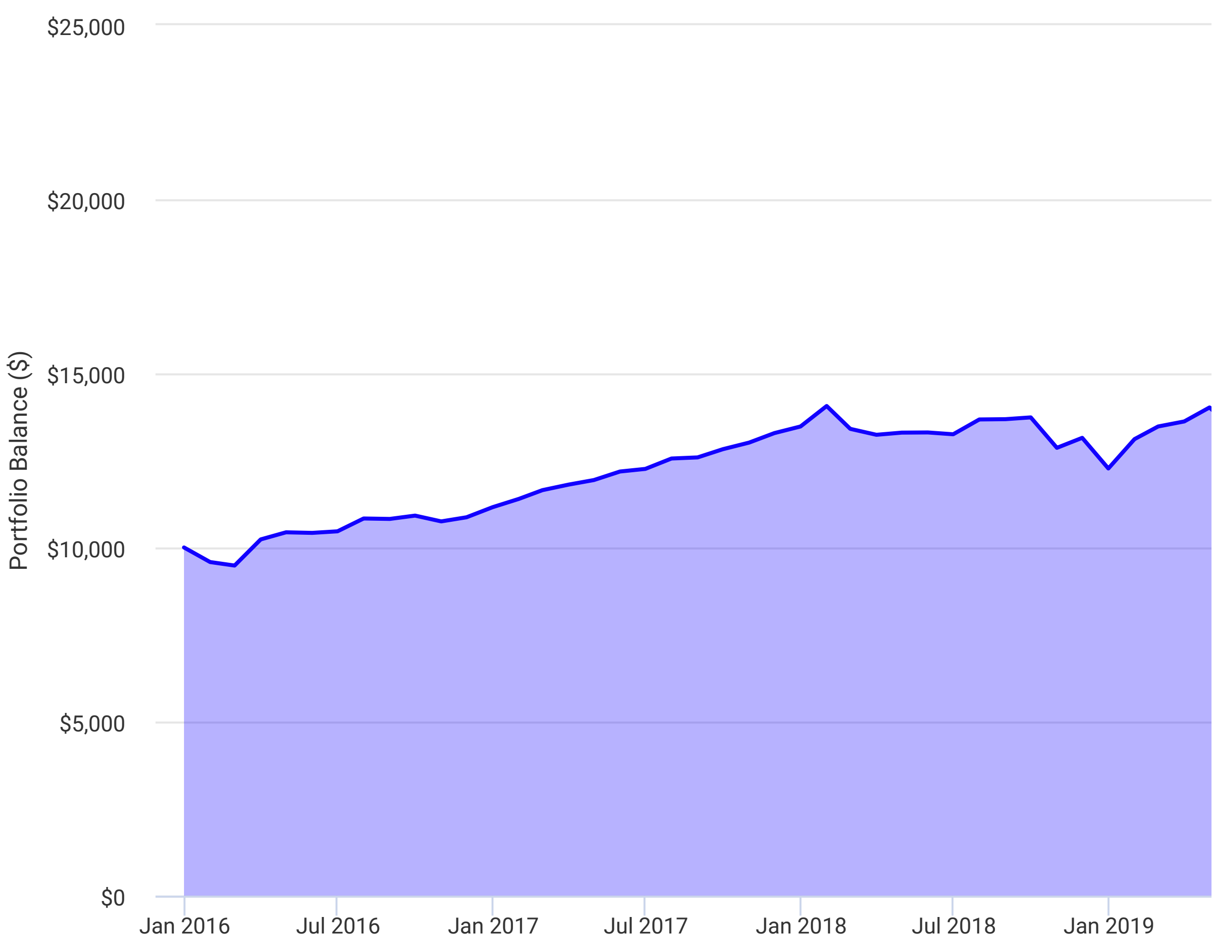
Gain valuable insights into key market drivers that likely impacted performance during the period.

To view insights, click the insight links in the summary

Performance Summary

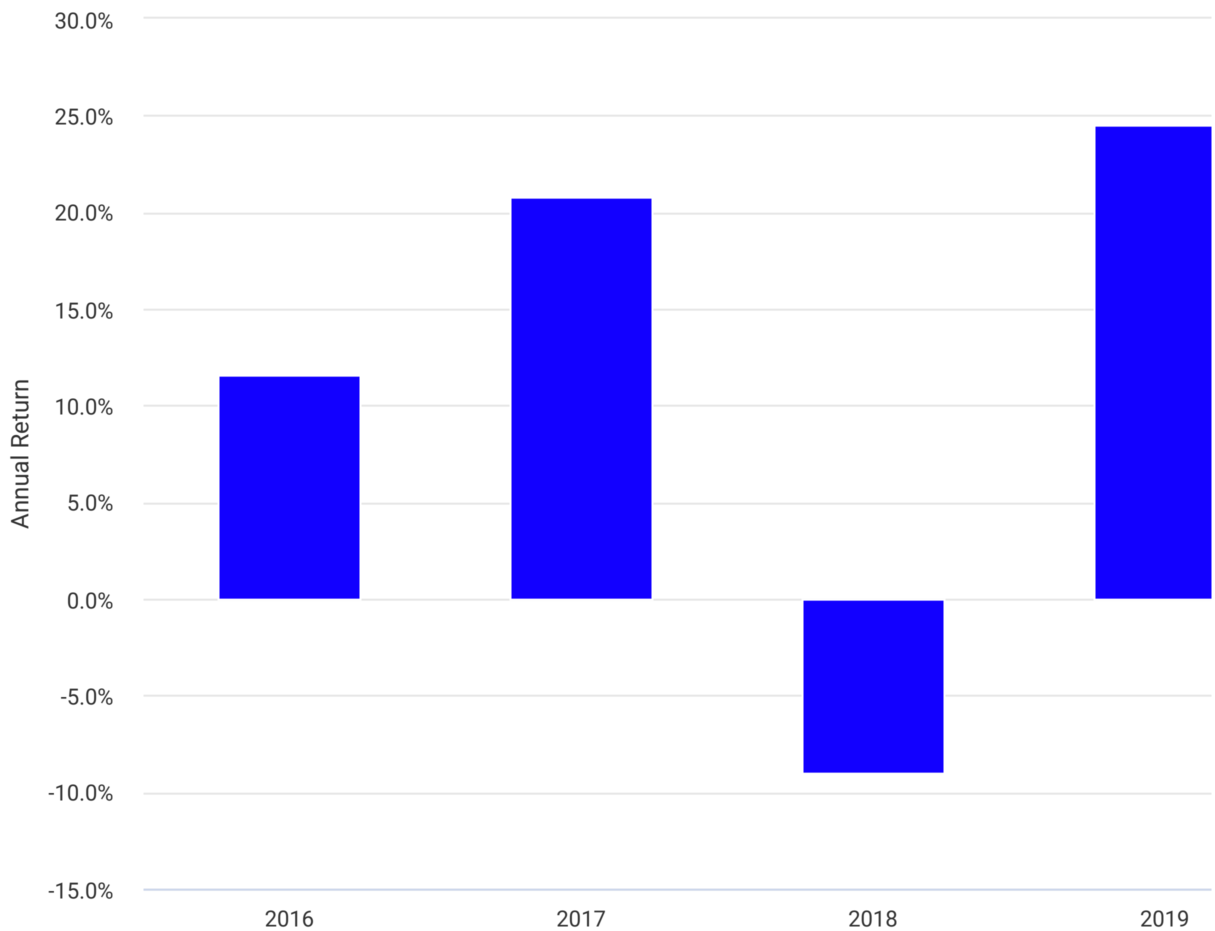
Metric	Portfolio 1
Start Balance	$10,000
End Balance	$23,058
Annualized Return (CAGR)	9.45%
Standard Deviation	13.89%
Best Year	24.48%
Worst Year	-11.61%
Maximum Drawdown	-22.45%
Sharpe Ratio	0.58
Sortino Ratio	0.85

Portfolio Growth



Logarithmic scale Inflation adjusted

Annual Returns



Trailing Returns

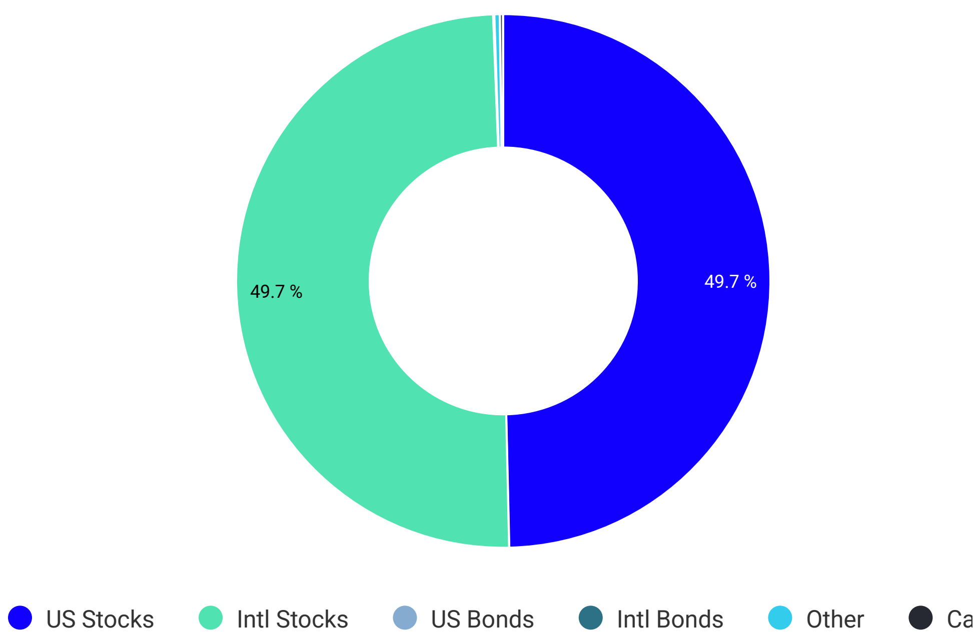
Name	Total Return			Annualized Return			Annualized Standard Deviation	
	3 Month	Year To Date	1 year	3 year	5 year	Full	3 year	5 year
Portfolio 1	3.52%	3.52%	9.40%	6.96%	14.26%	9.45%	15.34%	14.57%

Trailing return and volatility are as of last calendar month ending March 2025

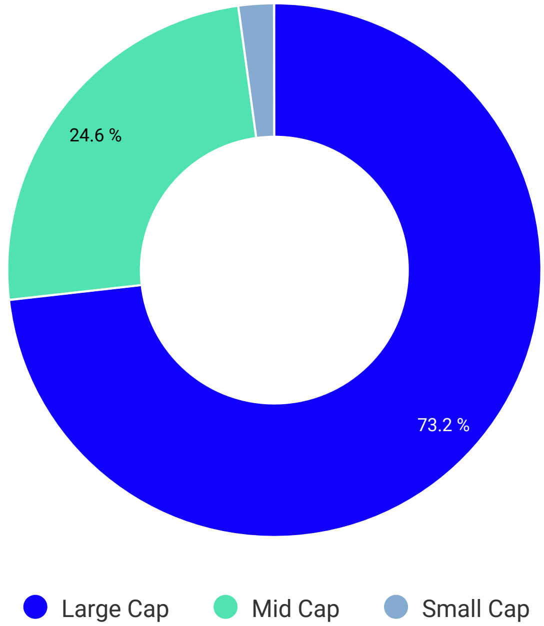
Holdings Based Style Analysis for Portfolio 1

				Yield		Expense Ratio			Contributi	
Ticker	Name	Category	Weight	SEC	TTM	Net	Gross	P/E	Return	
VOO	Vanguard S&P 500 ETF	Large Blend	25.00%	1.30%	1.36%	0.03%	0.03%	24.92	$4,831	26
SCHF	Schwab International Equity ETF	Foreign Large Blend	25.00%	2.56%	3.07%	0.06%	0.06%	16.04	$2,442	26
VYM	Vanguard High Dividend Yield ETF	Large Value	25.00%	2.67%	2.86%	0.06%	0.06%	19.16	$3,756	24
DWX	SPDR S&P International Dividend ETF	Foreign Large Value	25.00%	3.59%	4.07%	0.45%	0.45%	17.12	$2,030	22
			100.00%	**2.53%**	**2.84%**	**0.15%**	**0.15%**	**19.31**	**$13,058**	**100**

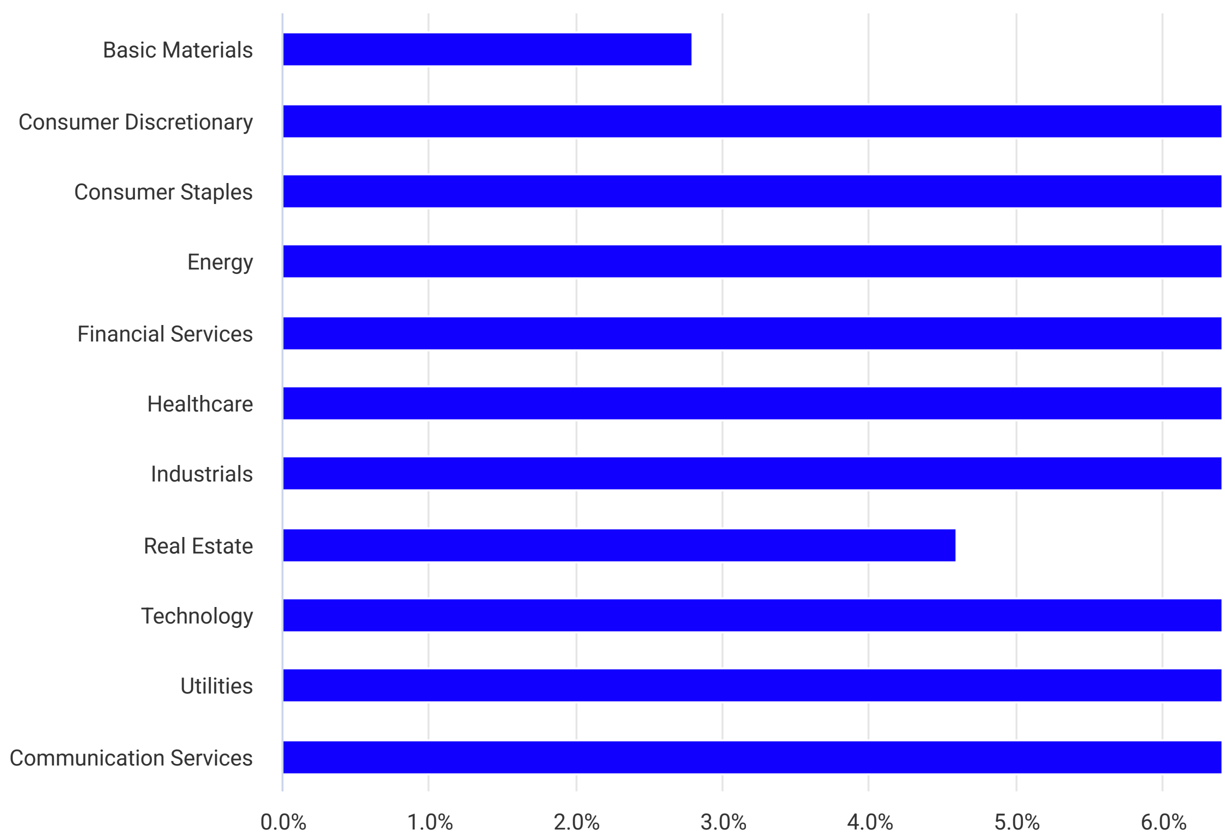
Asset Allocation



Equity Market Capitalization



Equity Sectors



Risk and Return Metrics

Metric	Portfolio 1
Arithmetic Mean (monthly)	0.84%
Arithmetic Mean (annualized)	10.51%
Geometric Mean (monthly)	0.76%
Geometric Mean (annualized)	9.45%
Standard Deviation (monthly)	4.01%
Standard Deviation (annualized)	13.89%
Downside Deviation (monthly)	2.64%
Maximum Drawdown	-22.45%
Benchmark Correlation	0.94
Beta(*)	0.81
Alpha (annualized)	-0.79%
R^2	87.55%
Sharpe Ratio	0.58
Sortino Ratio	0.85
Treynor Ratio (%)	9.93
Calmar Ratio	0.35
Modigliani–Modigliani Measure	11.30%
Active Return	-3.35%
Tracking Error	5.79%
Information Ratio	-0.58
Skewness	-0.58
Excess Kurtosis	1.55
Historical Value-at-Risk (5%)	6.16%
Analytical Value-at-Risk (5%)	5.74%
Conditional Value-at-Risk (5%)	8.80%

* U.S. Stock Market is used as the benchmark for calculations. Value-at-risk metrics are monthly values.

Metric	Portfolio 1
Upside Capture Ratio (%)	78.31
Downside Capture Ratio (%)	85.75
Safe Withdrawal Rate	15.28%
Perpetual Withdrawal Rate	5.76%
Positive Periods	73 out of 111 (65.77%)
Gain/Loss Ratio	0.89

* U.S. Stock Market is used as the benchmark for calculations. Value-at-risk metrics are monthly values.

Annual Returns

Year	Inflation	Portfolio 1 Return	Portfolio 1 Balance	Vanguard S&P 500 ETF (VOO)	Schwab International Equity ETF (SCHF)	Vanguard High Dividend Yield ETF (VYM)	SPDR S&P International Dividend ETF (DWX)
2025	1.33%	3.52%	$23,058	-4.29%	6.92%	1.74%	9.73%
2024	2.89%	12.10%	$22,273	24.98%	3.29%	17.59%	2.53%
2023	3.35%	16.50%	$19,869	26.32%	18.34%	6.57%	14.76%
2022	6.45%	-11.61%	$17,055	-18.19%	-14.79%	-0.46%	-13.00%
2021	7.04%	19.24%	$19,295	28.78%	11.41%	26.21%	10.56%
2020	1.36%	5.97%	$16,182	18.29%	9.50%	1.14%	-5.06%
2019	2.29%	24.48%	$15,271	31.35%	22.24%	24.07%	20.25%
2018	1.91%	-8.95%	$12,268	-4.50%	-14.32%	-5.91%	-11.08%
2017	2.11%	20.77%	$13,475	21.77%	26.00%	16.42%	18.90%
2016	2.07%	11.57%	$11,157	12.17%	3.03%	17.05%	14.04%

Annual return for 2025 is from 01/01/2025 to 03/31/2025

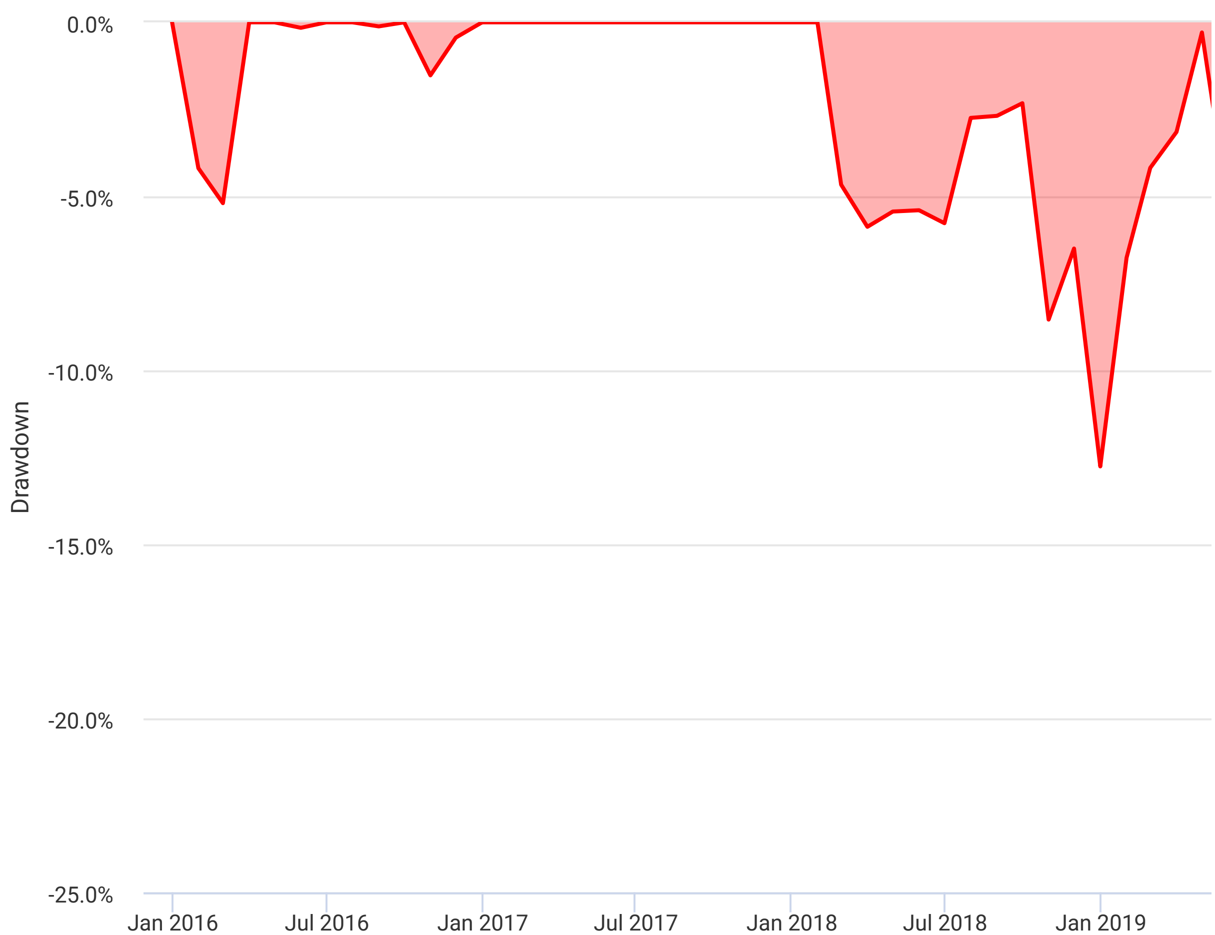
Monthly Returns

Year	Month	Portfolio 1 Return	Portfolio 1 Balance	Vanguard S&P 500 ETF (VOO)	Schwab International Equity ETF (SCHF)	Vanguard High Dividend Yield ETF (VYM)	SPDR S&P International Dividend ETF (DWX)
2025	3	-1.11%	$23,058	-5.61%	-0.05%	-3.16%	4.18%
2025	2	1.44%	$23,317	-1.27%	2.43%	1.28%	3.32%
2025	1	3.20%	$22,986	2.69%	4.43%	3.74%	1.93%
2024	12	-3.69%	$22,273	-2.34%	-3.57%	-4.59%	-4.40%
2024	11	3.30%	$23,127	5.89%	0.41%	5.45%	0.90%
2024	10	-2.73%	$22,388	-0.95%	-5.01%	-0.33%	-4.89%
2024	9	1.53%	$23,015	2.18%	0.86%	1.33%	1.70%
2024	8	3.18%	$22,669	2.39%	3.16%	2.44%	4.88%
2024	7	3.60%	$21,970	1.16%	2.86%	4.83%	5.90%
2024	6	0.22%	$21,206	3.57%	-1.59%	-0.32%	-0.99%
2024	5	4.02%	$21,159	5.03%	4.62%	3.03%	3.36%
2024	4	-3.49%	$20,342	-4.01%	-3.46%	-3.74%	-2.67%

Show 12 entries Showing 1 to 12 of 111 entries

First Previous Next Last

Drawdowns



Historical Market Stress Periods

Stress Period	Start	End	Portfolio 1
COVID-19 Start	Jan 2020	Mar 2020	-22.45%

Drawdowns for Portfolio 1

Rank	Start	End	Length	Recovery By	Recovery Time	Underwater Period	Drawdown
1	Jan 2020	Mar 2020	3 months	Nov 2020	8 months	11 months	-22.45%
2	Jan 2022	Sep 2022	9 months	Dec 2023	1 year 3 months	2 years	-21.87%
3	Feb 2018	Dec 2018	11 months	Jun 2019	6 months	1 year 5 months	-12.76%
4	Jan 2016	Feb 2016	2 months	Mar 2016	1 month	3 months	-5.20%
5	Sep 2021	Sep 2021	1 month	Oct 2021	1 month	2 months	-4.01%
6	Dec 2024	Dec 2024	1 month	Feb 2025	2 months	3 months	-3.69%
7	Apr 2024	Apr 2024	1 month	May 2024	1 month	2 months	-3.49%
8	Oct 2024	Oct 2024	1 month	Nov 2024	1 month	2 months	-2.73%
9	Nov 2021	Nov 2021	1 month	Dec 2021	1 month	2 months	-2.59%
10	Jul 2019	Aug 2019	2 months	Sep 2019	1 month	3 months	-1.96%

Worst 10 drawdowns included above

Portfolio Assets

Ticker	Name	CAGR	Stdev	Best Year	Worst Year	Max Drawdown	Sharpe Ratio	Sortino Ratio
VOO	Vanguard S&P 500 ETF	13.50%	15.50%	31.35%	-18.19%	-23.91%	0.77	1.18
SCHF	Schwab International Equity ETF	6.86%	15.34%	26.00%	-14.79%	-27.49%	0.38	0.56
VYM	Vanguard High Dividend Yield ETF	10.78%	14.41%	26.21%	-5.91%	-23.97%	0.64	0.99
DWX	SPDR S&P International Dividend ETF	5.97%	13.73%	20.25%	-13.00%	-24.12%	0.35	0.49

Portfolio Asset Performance

	Total Return			Annualized Return		Expense Ratio	
Name	3 Month	Year To Date	1 year	3 year	5 year	Net	Gross
Vanguard S&P 500 ETF	-4.29%	-4.29%	8.34%	9.02%	18.55%	0.03%	0.03%
Schwab International Equity ETF	6.92%	6.92%	4.61%	5.64%	12.07%	0.06%	0.06%
Vanguard High Dividend Yield ETF	1.74%	1.74%	9.77%	8.01%	16.34%	0.06%	0.06%
SPDR S&P International Dividend ETF	9.73%	9.73%	13.25%	3.93%	8.92%	0.45%	0.45%

Trailing returns as of last calendar month ending March 2025

Monthly Correlations

Ticker	Name	VOO	SCHF	VYM	DWX	Portfolio 1
VOO	Vanguard S&P 500 ETF	1.00	0.86	0.90	0.75	0.94
SCHF	Schwab International Equity ETF	0.86	1.00	0.86	0.92	0.97
VYM	Vanguard High Dividend Yield ETF	0.90	0.86	1.00	0.80	0.95
DWX	SPDR S&P International Dividend ETF	0.75	0.92	0.80	1.00	0.92

Portfolio Return Decomposition

Ticker	Name	Portfolio 1
VOO	Vanguard S&P 500 ETF	$4,831
SCHF	Schwab International Equity ETF	$2,442
VYM	Vanguard High Dividend Yield ETF	$3,756
DWX	SPDR S&P International Dividend ETF	$2,030

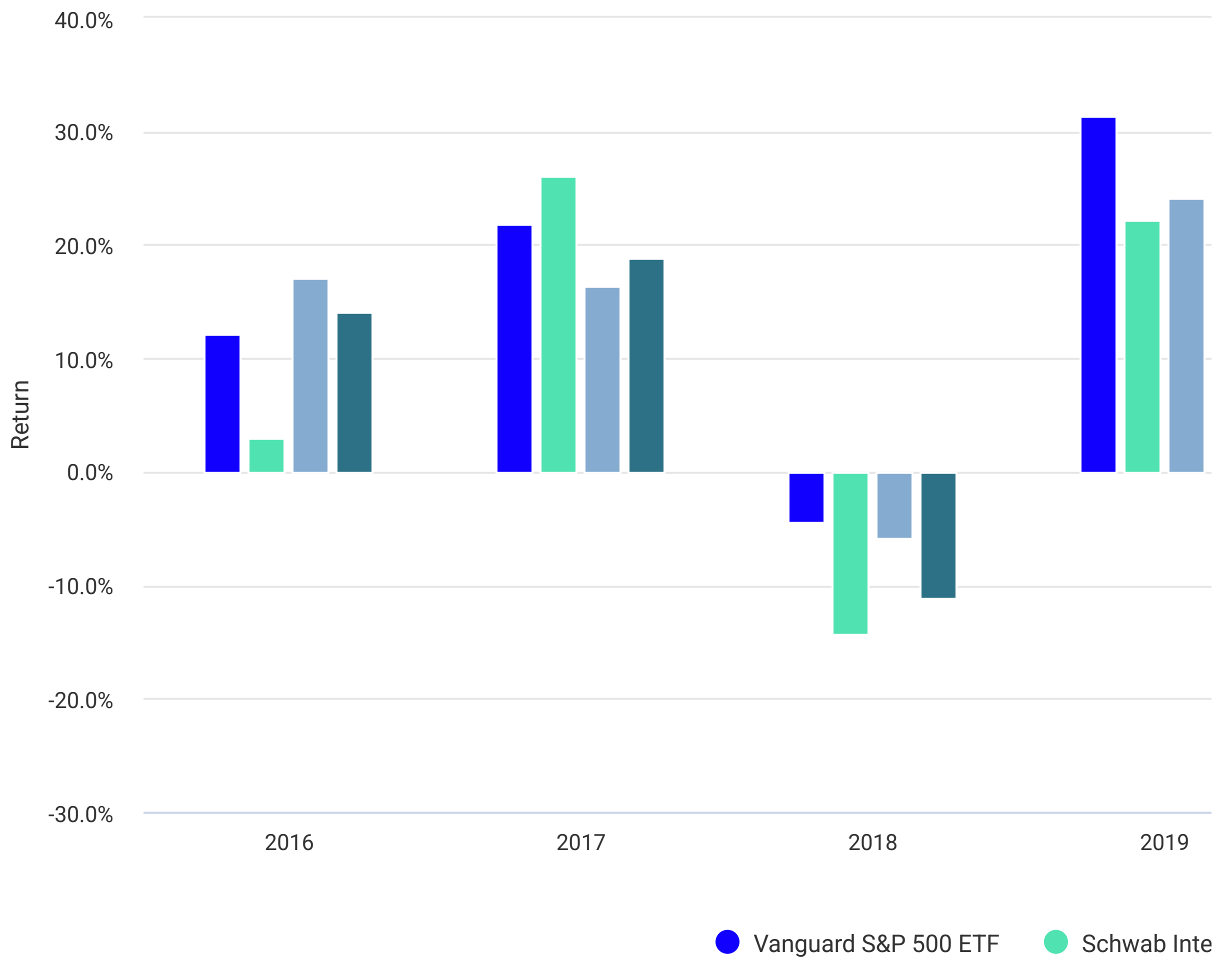
Return attribution decomposes portfolio gains into its constituent parts and identifies the contribution to returns by each of the assets.

Portfolio Risk Decomposition

Ticker	Name	Portfolio 1
VOO	Vanguard S&P 500 ETF	26.15%
SCHF	Schwab International Equity ETF	26.67%
VYM	Vanguard High Dividend Yield ETF	24.55%
DWX	SPDR S&P International Dividend ETF	22.63%

Risk attribution decomposes portfolio risk into its constituent parts and identifies the contribution to overall volatility by each of the assets.

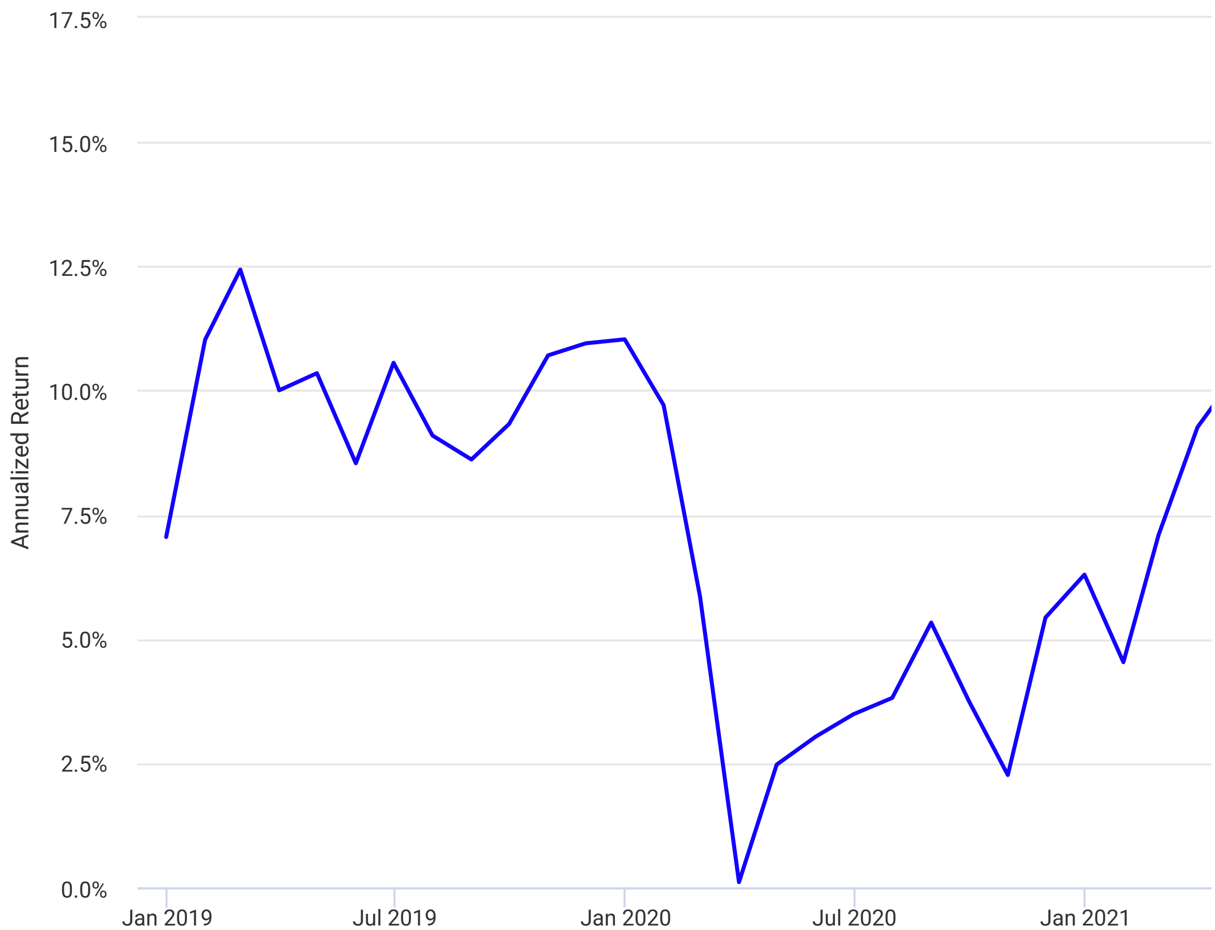
Annual Asset Returns



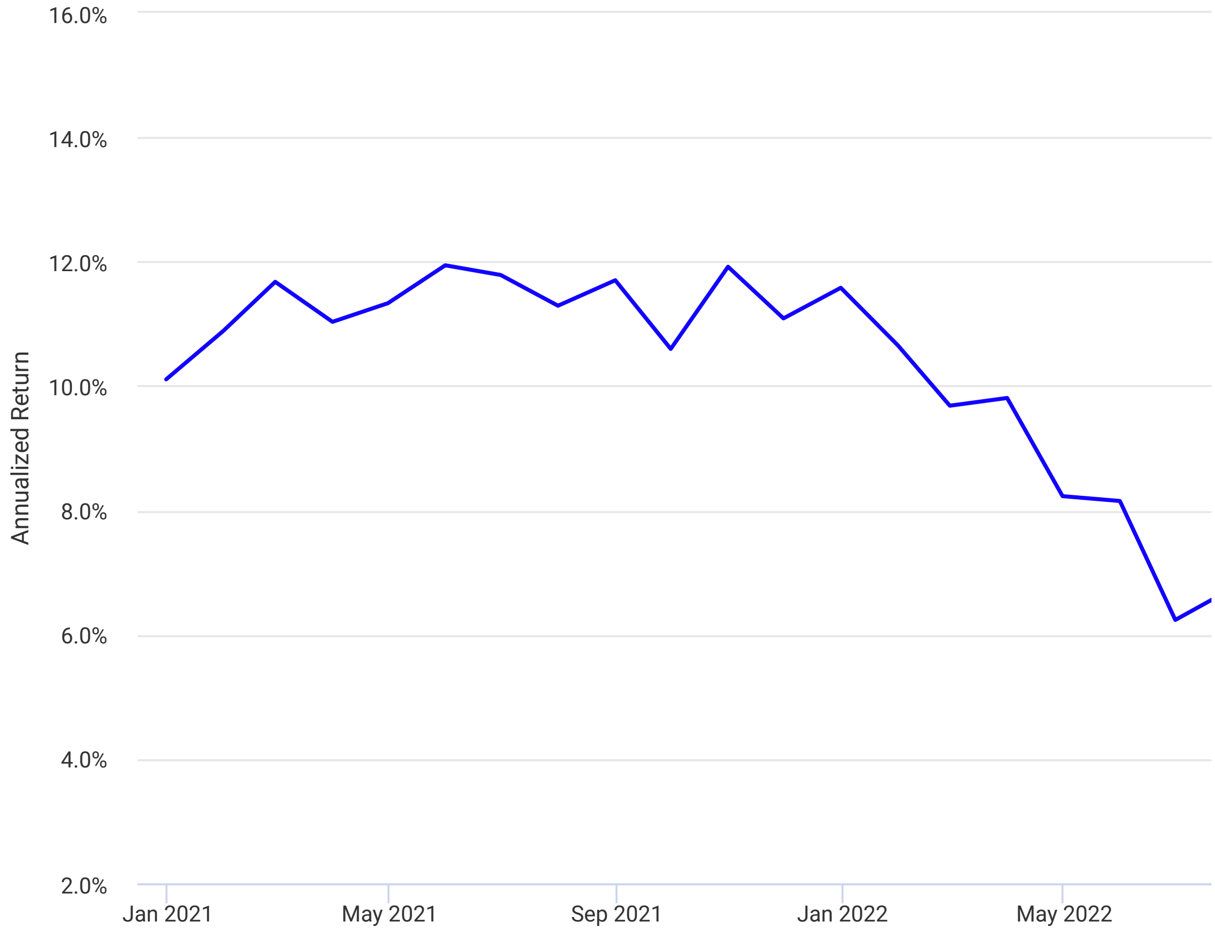
Rolling Returns

Roll Period	Average	High	Low
1 year	10.28%	45.79%	-16.52%
3 years	7.98%	16.29%	0.10%
5 years	8.70%	14.26%	3.29%
7 years	8.25%	9.53%	7.27%

Annualized Rolling Return - 3 Years



Annualized Rolling Return - 5 Years



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