Comparing Portfolio Rebalancing Strategies

Which is optimal for advisors and their clients?

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What Is The Optimal Rebalancing Strategy?

Portfolio rebalancing is the practice of periodically realigning a portfolio's actual allocations with the allocation percentages that were originally intended by the advisor and their client. By either reducing positions that have become an outsized percentage of the portfolio (due to relative outperformance), or increasing positions that make up a lesser-than-ideal percentage of total holdings (due to relative underperformance), investment managers ensure the composition of a portfolio matches the client's risk tolerances. The problem: rebalancing can negatively impact performance, and it's unclear what the optimal rebalancing frequency is.

Financial advisors and planners may use any number of rebalancing strategies. The two most commonly employed tactics are based on frequency, such as quarterly or annual rebalancing, and portfolio drift, rebalancing only when allocations move beyond a certain threshold relative to target levels. Advisors must also weigh their motives for limiting rebalancing frequencies, namely the time commitment, transaction costs, and taxes that buying or selling holdings can incur.

So which strategy is best for managing risk and maximizing performance? Can you save time, money, and effort without sacrificing either?

To help advisors and planners rebalance portfolios in a way that is beneficial to both clients and their practice, this experiment seeks to answer these questions. A representative portfolio, 60% equity and 40% fixed income, was created in five variations with different rebalancing strategies based on frequency or drift, along with a sixth "never rebalancing" version. Their performance, risk, and rebalancing frequencies were studied over 25 years of history, including four bull markets and three bear markets. The findings show the pros and cons of different rebalancing schemes and may inform your own best practices for portfolio management.

Key Findings

- On a cumulative basis, rebalancing strategies that rely on the triggering of drift thresholds and portfolios that never rebalance outperform those with rebalancing strategies based on calendar frequencies.
- While more frequent rebalancing keeps actual portfolio allocations more in-line with target allocations, the risk-management benefits diminish when a portfolio is rebalanced too frequently.
- The optimal rebalancing strategy fluctuates based on bullish and bearish market conditions, with considerable consequences.
- Advisors must factor in the hard costs of rebalancing, such as time and labor, when deciding on the best strategy for them and their clients.

How Rebalance Frequency Affects Performance

The six rebalancing strategies in this study include Monthly, Quarterly, and Annual Rebalancing, 5% Drift and 10% Drift Triggered Rebalancing, and a Never Rebalanced portfolio. Each portfolio holds the same five Vanguard mutual funds and, at their varying frequencies, are rebalanced to identical allocations:

- 35% — Vanguard Total Stock Market Index (VTSMX)
- 30% — Vanguard Total Bond Market Index (VBMFX)
- 20% — Vanguard Total International Stock Index (VGTSX)
- 10% — Vanguard Short-Term Bond Index (VBISX)
- 5% — Vanguard Emerging Markets Stock Index (VEIEX)

Shown in the chart, portfolio drift for each of the six strategies generally increases over time, then reverts to 0% at each instance of rebalancing. As the frequency and count of rebalancing increases, the 25-year average drift for a portfolio decreases, evidenced by the 10.07% average drift for the Never Rebalanced portfolio and 0.75% average drift for the Monthly Rebalanced portfolio. Portfolio drift is calculated by combining the absolute values of differences between each actual allocation and its target allocation.

While more frequent rebalancing keeps a portfolio more closely aligned with its allocation targets, the potential downside is that premature selling of winning positions to buy laggards can hinder performance more than less frequent rebalancing would.

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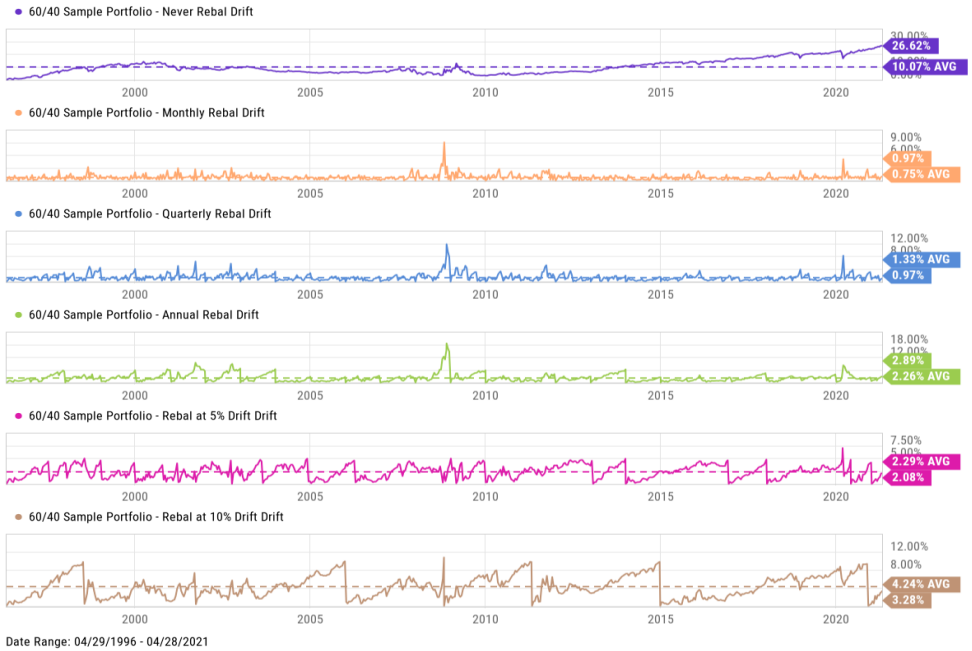
Historical Drift by Rebalancing Strategy



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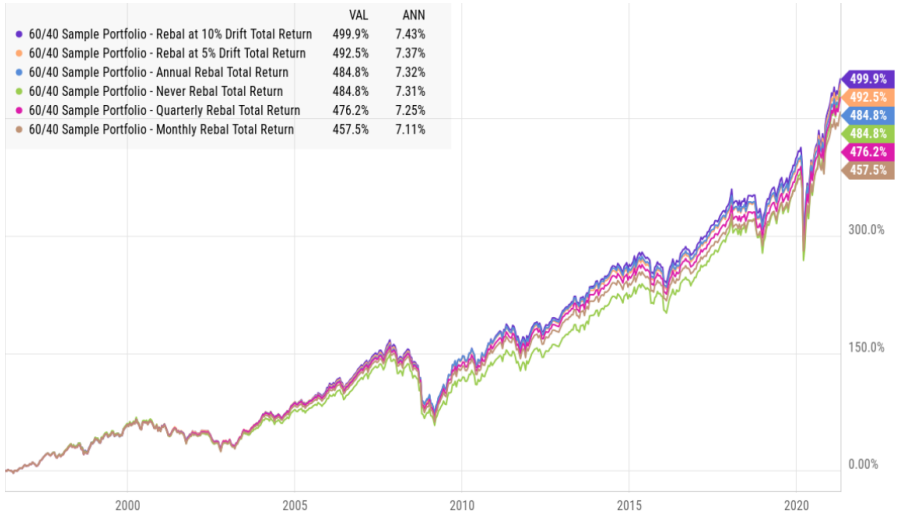
Cumulative performance over 25 years differed only somewhat across the six strategies. The 10% Drift Triggered Rebalance portfolio outperformed all others by anywhere from 7.4 to 42.4 percentage points, followed by the 5% Drift Triggered Rebalance. Interestingly, the Never Rebalanced portfolio split the pack, trailing the Drift Triggered portfolios but beating all three frequency-based rebalancing strategies over the 25 year period.

Cumulative Performance by Portfolio Rebalancing Strategy



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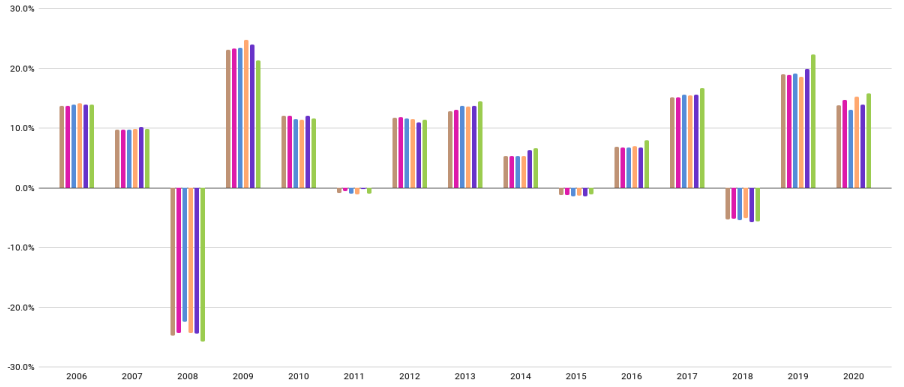
On an annual basis, the performance characteristics of the six rebalancing strategies appear even more alike. The six portfolios uniformly produced either positive or negative returns in each of the 25 years—rebalancing neither caused nor prevented a significant performance difference in a given calendar year. The latest ten years of performance history are shown to the right.

Annual Performance Comparison - Different Rebalance Frequencies



Rebalancing Strategy	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006
Monthly Rebalance	13.8%	19.0%	-5.2%	15.1%	6.9%	-1.2%	5.3%	12.9%	11.8%	-0.9%	12.0%	23.1%	-24.7%	9.8%	13.7%
Quarterly Rebalance	14.7%	18.9%	-5.2%	15.2%	6.8%	-1.2%	5.3%	13.0%	11.8%	-0.5%	12.1%	23.3%	-24.3%	9.7%	13.8%
Annual Rebalance	13.0%	19.1%	-5.4%	15.6%	6.8%	-1.4%	5.4%	13.7%	11.7%	-1.0%	11.5%	23.4%	-22.4%	9.8%	13.9%
5% Drift Rebalance	15.2%	18.5%	-5.0%	15.5%	7.0%	-1.3%	5.4%	13.6%	11.5%	-1.1%	11.4%	24.8%	-24.2%	9.9%	14.2%
10% Drift Rebalance	13.9%	19.9%	-5.7%	15.6%	6.7%	-1.4%	6.3%	13.8%	11.0%	-0.2%	12.1%	24.0%	-24.4%	10.2%	13.9%
Never Rebalance	15.8%	23.3%	-5.6%	16.7%	8.0%	-1.1%	6.6%	14.5%	11.4%	-1.0%	11.6%	21.3%	-25.4%	9.9%	14.0%
Performance Gap: Max-Min	2.7%	3.8%	0.7%	1.6%	1.3%	0.3%	1.3%	1.6%	0.8%	0.9%	0.6%	3.5%	3.4%	0.5%	0.4%

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The largest annual performance gap, given by the highest annual return less the lowest annual return in each period, occurred in 2019 when the Never Rebalance portfolio outperformed the 5% Drift Triggered Rebalance portfolio by 3.8 percentage points. The average performance gap among the six strategies over 25 years was 1.6 percentage points, and the Monthly Rebalance portfolio was the only strategy to never lead the group in a single period. Since 2013, the Never Rebalanced portfolio has outperformed the other five strategies in all but one period—the reason why is examined later in this report.

How Rebalance Frequency Affects Risk Management

As previously noted, more frequent rebalancing succeeds in limiting average drift over time, and inherently keeps a portfolio's actual allocations in line with its targets. But does less drift equal better risk management? Can rebalancing limit drawdowns, or optimize the portfolio's risk-reward relationship?

Different rebalancing strategies appear to have only a marginal effect on portfolio risk, even less than rebalancing's effect on performance. Portfolio beta, using the S&P 500 Total Return as a benchmark, was greater for both of the Drift Triggered Rebalance portfolios than the frequency-based rebalance strategies. As for drawdowns, the Annual Rebalance portfolio preserved capital the best—it's lifetime max drawdown was 1.9 percentage points lesser than that of the Monthly Rebalance portfolio, the worst of the group.

Upside/Downside capture ratio measures how much a portfolio rises and falls in tandem with its benchmark. Portfolios that appreciate more than the benchmark does when it is climbing, and/or depreciate less than their benchmark does when it is falling, will have a greater upside/downside capture ratio. The Annual Rebalance portfolio stands out from the rest on this metric, but not by much.

Rebalancing Strategy	Beta (All Time)	Daily Value at Risk (VaR) 5% (All Time)	Historical Sharpe Ratio (All Time)	Max Drawdown (All Time)	Upside/Downside Ratio (20Y Lookback)
Never Rebalance	0.631	0.010	0.715	37.9%	1.118
Monthly Rebalance	0.599	0.010	0.723	38.1%	1.129
Quarterly Rebalance	0.595	0.010	0.742	37.4%	1.145
Annual Rebalance	0.584	0.010	0.761	36.0%	1.158
5% Drift Rebalance	0.600	0.010	0.742	37.6%	1.146
10% Drift Rebalance	0.607	0.010	0.741	38.0%	1.143

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Taken together, all the data in the table above indicates that very frequent rebalancing (e.g. monthly rebalancing) does not lead to a better risk-reward balance, nor does it limit drawdowns. Rebalancing too frequently appears to actually expose a portfolio to greater drawdowns when the market has lasting, downward momentum. This occurs as a given asset class continues to depreciate, and the portfolio continues buying into that asset class to achieve its target allocation.

Should You Rebalance Differently During Bull and Bear Markets?

While the answer to, "Which rebalancing strategy is best?" would ideally be more definitive, the better question to ask is actually, "Which rebalancing strategy is best, when?" Why shouldn't rebalancing schemes evolve based on market conditions, just like investment strategies and portfolio allocations often do?

When US equities bottomed-out on March 23rd, 2020—due to the COVID-19 pandemic—the Never Rebalance portfolio drew down 25.9% from its previous high. In the same period, the Quarterly Rebalance portfolio fell only 20.8% from its latest high. But because the Never Rebalance portfolio had outperformed the Quarterly Rebalance portfolio by 1.1 percentage points at the end of 2020, one is led to believe that the optimal rebalancing strategy for maximizing performance does in fact differ over time.

Rebalancing Strategies' Total Return "Percent Off High" in 2020

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The four bull market periods and three bear market periods that comprise this 25 year experiment were determined by period highs and lows of the S&P 500 index. (The start and end dates of each period can be seen in the table on page 7.)

In general, less frequent rebalancing leads to better performance in bull markets, but also results in worse performance during bear markets. While our study examined only a 60% stock, 40% bond portfolio allocation, perhaps this trend would reverse if the portfolio in question had a bond allocation greater than 50% and stock allocation below 50%.

The Never Rebalanced portfolio led the group in three out of four bull markets observed. The only exception to the outperformance of Never Rebalancing was the bull market from late 2002 to late 2007. During this period, international and emerging market stocks outperformed US stocks by 2x and 4x, respectively. Prior to this run by ex-US equities, the Never Rebalance portfolio had never added to its international or emerging markets positions and each depreciated for some time.

Thus, the Never Rebalance portfolio had a relatively lower allocation to these asset classes than did the five portfolios with rebalancing of any kind, and subsequently missed out on the rally in international markets—a potentially glaring concern for such a strategy.

During each of the three bear markets, the Annual Rebalance and Quarterly Rebalance strategies protected portfolio value better than the alternative strategies. Additionally, the Never Rebalance scheme fell to last position in two of these bear markets, failing to preserve capital relative to portfolios with rebalancing.

Annualized Performance of Rebalancing Strategies During Bull & Bear Markets

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Bull Market Apr 28, 1996 - Mar 26, 2000	Bear Market Mar 27, 2000 - Oct 6, 2002	Bull Market Oct 7, 2002 - Oct 28, 2007	Bear Market Oct 29, 2007 - Mar 9, 2009	Bull Market Mar 10, 2009 - Feb 19, 2020	Bear Market Feb 20, 2020 - Mar 23, 2020	Bull Market Mar 24, 2020 - Apr 28, 2021
Never 14.6%	Annually -9.5%	10% Drift 15.5%	Annually -27.8%	Never 10.7%	Quarterly -92.8%	Never 48.6%
10% Drift 14.3%	Quarterly -9.8%	5% Drift 15.2%	Quarterly -29.0%	10% Drift 10.5%	Annually -92.8%	10% Drift 40.3%
5% Drift 14.1%	5% Drift -9.8%	Quarterly 14.9%	5% Drift -29.1%	5% Drift 10.3%	Monthly -93.5%	5% Drift 39.4%
Quarterly 14.0%	10% Drift -10.0%	Annually 14.9%	Never -29.3%	Quarterly 10.3%	5% Drift -93.5%	Quarterly 38.4%
Annually 14.0%	Monthly -10.1%	Monthly 14.9%	10% Drift -29.4%	Monthly 10.3%	10% Drift -94.8%	Monthly 38.2%
Monthly 13.9%	Never -10.8%	Never 14.1%	Monthly -29.5%	Annually 10.3%	Never -96.6%	Annually 36.7%

Costs of Rebalancing: Transactions, Time, and Taxes

Moving beyond the theory of optimal rebalancing strategies, the actual practice of rebalancing a portfolio requires the advisor's time, incurs transaction costs, and may also trigger capital gains (i.e. taxes) or losses.

Rebalancing Strategy	Total Rebalances (25 Years)	Rebalances per Year (25 Years)
Monthly Rebalance	300	12
Quarterly Rebalance	100	4
Annual Rebalance	25	1
5% Drift Rebalance	25	1
10% Drift Rebalance	7	0.16
Never Rebalance	0	0

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The table gives the total number of instances, and instances per year, that each portfolio was rebalanced in the experiment. Advisors must weigh the hard costs of rebalancing with the risk management benefits it provides, then right-size their frequency accordingly.

Modern portfolio rebalancing softwares have made the exercise much less painful than it once was, but the opportunity cost of time and labor spent on rebalancing is not negligible.

When making the trades to rebalance a portfolio, the transaction costs for mutual funds come in the form of purchase or redemption fees, while stocks and ETFs include brokerage commissions and bid-ask spreads. Transaction costs are incurred by the advisor but are likely passed on to the client in the form of management or service fees. Finally, capital gains taxes are realized whenever a security is sold for a profit, a likely occurrence when trimming a position that has grown within your portfolio. That said, rebalancing may also create opportunities to offset those gains with capital losses.

Advisors may trigger one or multiple of these costs each time they rebalance a portfolio. It might be tempting to say, then, that less frequent rebalancing is better, but the truth is that the costs of rebalancing are worth it… up to a certain point.

Conclusion

The optimal rebalancing strategy for managing risk, maximizing performance, and minimizing costs incurred by advisors will change over time, based in part on market conditions. However, more important than any of these factors is the client's comfort level with the chosen rebalancing strategy. As is often said, peace of mind can be priceless.

On a cumulative basis, rebalancing strategies that rely on the triggering of drift thresholds outperform those with rebalancing strategies based on calendar frequencies. And while portfolios that never rebalance do perform relatively well over time, such a strategy can miss out on secular growth if only a small percentage is allocated to asset classes that eventually become market leaders, even if only temporarily. While more frequent rebalancing keeps actual portfolio allocations more in-line with target allocations, the risk-management benefits diminish when a portfolio is rebalanced too frequently.

Before altering or implementing your rebalancing strategy, a few caveats from this experiment should be considered. Notably, timeframe bias likely exists and the date of inception could materially affect the performance of a never-rebalance strategy, and portfolios holding actively managed funds might better account for the ebbs and flows of different asset classes. Additionally, this study considered portfolio-level drift only, but more advanced, and potentially time-consuming, strategies may rebalance when specific allocations breach a drift trigger.

Risk management and performance can be more or less important from client to client. Similarly, the costs or difficulty of rebalancing differs from advisor to advisor. Ultimately, advisors should choose a rebalancing strategy that best serves their client's needs without putting undue strain on their own operations. Like peace of mind, a healthy advisor-client relationship can be priceless, too.

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