



Staying on your investment path through rebalancing

Insights

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Using market volatility to your advantage

- Rebalancing strategies help keep your investment portfolio aligned with your long-term investment plan.
- Annual rebalancing among major asset classes with significant differences in return and risk likely provides the largest impact to enhancing returns and managing risk.
- For very similar asset classes, regular rebalancing may be less impactful. Investors may consider other strategies, such as tactical asset allocation, to make trading decisions.

The path toward achieving your long-term financial goals first requires determining an overall investment strategy. An investment strategy consists of two principal components. The first involves setting an investment objective, which balances how much return you desire with how much risk you are willing to tolerate to achieve that return (often represented by the variability or volatility of your investment portfolio's value through time). The second component involves identifying the appropriate asset allocation or mix of different investment categories such as stocks, bonds and real estate that best reflects your return objective and risk tolerance relative to a forward-looking capital market view

Asset prices don't always move in lockstep; the relative weighting of stocks, bonds and real estate in a diversified portfolio varies through time as investment prices zig and zag at different times and at varying speeds. A key determinant in achieving your long-

term financial goals is how to manage your portfolio as the proportion of asset classes deviates from your optimal target allocation. Remaining on track with your investment goal requires a discipline called rebalancing – the act of keeping your portfolio investment mix consistent with your original investment plan. Rebalancing involves selling assets that have appreciated beyond your long-term target weighting and purchasing assets that have fallen below your target levels. We can combine this strategy with other techniques, such as tactical asset allocation adjustments and enhancing our investment manager selections, in an attempt to add value to portfolios through time to better achieve long-term investment goals.

To quantify the value from rebalancing, we start with a simple portfolio consisting of two asset classes, stocks and bonds, represented by the S&P 500 Index and the Bloomberg Aggregate Bond Index, respectively. We set our base strategy as the classic balanced portfolio of 60% stocks and 40% bonds. While investors cannot directly invest in an index, we used these well-known indices in our analysis due to their long performance histories and readily available monthly data from January 1986 through May 2022. To further simplify the analysis, we set aside transaction costs and taxes. Exhibit A describes the average annual return and standard deviation¹, a measure of risk for the asset classes we assessed.

Our analysis contemplates two broad strategies investors could use for rebalancing and compared the results to a buy-and-hold

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EXHIBIT A: KEY ASSET CLASS CHARACTERISTICS

	Average annual return	Standard deviation
S&P 500 Index	11.61%	15.16%
MSCI EAFE Index	8.72%	17.16%
Russell MidCap Growth	12.34%	20.03%
Russell MidCap Value	12.38%	16.17%
Bloomberg U.S. Aggregate Bond	5.77%	3.95%

Source: Factset; January 1986-May 2022

portfolio that did no rebalancing: Periodic time-based rebalancing, such as regular annual or quarterly rebalancing irrespective of asset price movements, and threshold or price-based, which involves setting a limit to how far the portfolio could deviate from the 60/40 target mix. When rebalancing we always traded portfolios back to our original 'strategic' allocation of 60% stocks and 40% bonds.

Strong stock market performance during our analysis time horizon (1986-2022) contributed to a buy-and-hold approach, meaning no rebalancing, generating the best long-term return (10.5% average annual return). However, this strategy also provided the highest variability in annual outcomes, measured by an annualized standard deviation of monthly returns of 11.46%, and the largest drop in portfolio value (known as drawdown), with the portfolio falling 38.8% during the global financial crisis of 2008-2009. Strong

equity returns relative to bonds resulted in the portfolio concluding the analysis period with a 90% allocation to stocks with just 10% in bonds, a significant deviation from the 60/40 portfolio that aligned with our hypothetical investor's initial risk tolerance.

Alternatively, both time-based and threshold-based rebalancing strategies reduced the risk investors experienced in both annual return variability as well as the magnitude in declines in the value of their portfolio. Assessing the two rebalancing outcomes, threshold-based provided investors with slightly better returns than time period-based rebalancing, while regularly scheduled rebalancing performed slightly better in managing risk for investors. Both rebalancing strategies kept the portfolio closer to the original target mix through time; in contrast, the buy-and-hold strategy resulting in the portfolio holding on average an extra 15 percentage points in stocks since 1986.

In table 2, we extend our analysis to include international equity diversification over the same time horizon (1986-2022). Here, we consider an all-equity portfolio consisting of 60% U.S. stocks, represented by the S&P 500 and 40% foreign stocks, represented by the MSCI Europe, Australasia and Far East (EAFE) Index. Over the last 36 years, the S&P 500 outperformed the MSCI EAFE Index by an average 2.3% per year. In this instance, the evidence indicates sporadic benefits from regular rebalancing. The best rewards accrued from the largest threshold rebalancing

TABLE 1: REBALANCING STOCKS AND BONDS

	Buy and hold		Quarterly rebalancing		Annual rebalancing		5% threshold		10% threshold		15% threshold	
Average yearly return	10.470%		9.732%		9.739%		9.789%		10.027%		9.767%	
Number of rebalances	0		145		36		21		8		2	
Standard deviation	11.460%		9.389%		9.439%		9.497%		9.720%		9.785%	
Drawdown	38.78%		32.02%		30.84%		32.21%		31.51%		33.06%	
Assets	S&P 500	US Agg Bond	S&P 500	US Agg Bond	S&P 500	US Agg Bond	S&P 500	US Agg Bond	S&P 500	US Agg Bond	S&P 500	US Agg Bond
Ending weight	89%	11%	59%	41%	60%	40%	62%	38%	59%	41%	67%	33%
Median weight	75%	25%	60%	40%	61%	39%	61%	39%	64%	36%	65%	35%
Average weight	74%	26%	60%	40%	61%	39%	61%	39%	64%	36%	64%	36%
Max. weight	90%	40%	64%	49%	66%	53%	66%	47%	71%	53%	75%	54%
Min. weight	60%	10%	51%	36%	47%	34%	53%	34%	47%	29%	46%	25%

Source: Morningstar Direct, U.S. Bank Wealth Management; monthly data from January 1986-May 2022

TABLE 2: REBALANCING DOMESTIC AND FOREIGN STOCKS

	Buy and hold		Quarterly rebalancing		Annual rebalancing		5% threshold		10% threshold		15% threshold	
Average yearly return	11.210%		10.940%		10.999%		11.011%		11.109%		11.286%	
Number of rebalances	0		145		36		14		4		3	
Standard deviation	14.882%		14.822%		14.800%		14.829%		14.856%		14.750%	
Drawdown	52.88%		53.09%		53.19%		53.16%		53.16%		53.44%	
Asset classes	S&P 500	MSCI EAFE	S&P 500	MSCI EAFE	S&P 500	MSCI EAFE	S&P 500	MSCI EAFE	S&P 500	MSCI EAFE	S&P 500	MSCI EAFE
Ending weight	83%	17%	59%	41%	60%	40%	61%	39%	66%	34%	68%	32%
Median weight	69%	31%	60%	40%	60%	40%	61%	39%	62%	38%	66%	34%
Average weight	67%	33%	60%	40%	60%	40%	61%	39%	62%	38%	65%	35%
Max. weight	83%	56%	64%	45%	66%	49%	66%	47%	70%	52%	75%	55%
Min. weight	44%	17%	55%	36%	51%	34%	53%	34%	48%	30%	45%	25%

Source: Morningstar Direct, U.S. Bank Wealth Management; monthly data from January 1986-May 2022

strategy, benefiting from the very limited number of trades in the last 36 years (just three), and the timing of these trades, which occurred during major reversals of longer-term trends. In the case of equity diversification, utilizing a tactical asset allocation strategy, which entails assessing current capital markets conditions relative to a forward six-to-12-month outlook may prove more successful over time.

Why has rebalancing a global stock portfolio proven less important than rebalancing a stock/bond allocation over the period we analyzed? First, domestic and international stocks have similar return variability, as measured by standard deviation of returns and drawdowns, which provide fewer large return differences to exploit through time. Second, global equity indices are not rebalanced over time, meaning they do not ‘reset’ country allocations to a static value. Rather, an index such as the MSCI World² adds up the value of all stocks and sets country weights based on the total market value of the stocks in each country. Thus, better performing countries get relatively larger weights the following year while countries with lagging performance receive relatively smaller weights. Finally, currency values tend to move in long duration trends, which means the value of the U.S. dollar drives earnings and prices of foreign stocks. A stronger U.S. dollar lowers prices and earnings of foreign stocks for a U.S. investor, while a weaker U.S. dollar lifts them.

In table 3 we further extend our rebalancing analysis within a stock portfolio to growth and value splits, using the

FTSE Russell Midcap Index. Index providers rank stocks in the index on their value and growth characteristics. Value stocks emphasize a high book value relative to the companies’ prices. Growth stocks have high forecasted two-year earnings growth and five-year historical sales per share growth. The rankings help divide and weight stocks into each growth and value categories. In this instance we assume an equal split between the growth and value indexes as our target allocation, as FTSE does in its annual index rebalancing. Over the past 36 years a buy and hold strategy for these growth and value indexes has on average favored the value component slightly, holding a 53% weight in value relative to a 47% weight in growth at the end of the analysis period. Unlike international diversification, rebalancing between growth and value has, on average, added to the return potential of this mix while reducing overall portfolio volatility in the period we evaluated. All rebalancing strategies, aside from daily rebalancing, had higher average annual returns with lower variability in returns as measured by standard deviation. Additionally, the way providers construct growth and value indexes, with annual updates to index weights, constituents and characteristics, reinforces the benefits we found in periodic rebalancing.

We have excluded transaction costs and potential taxes from this analysis, though we can proxy this through the number of rebalancing activities over our 36-year evaluation period. When concerns about costs are highest, investors appear best served to limit the number of transactions so

3 See important disclosures on page 5.

TABLE 3: REBALANCING GROWTH AND VALUE STYLES

	Buy and hold		Quarterly rebalancing		Annual rebalancing		5% threshold		10% threshold		15% threshold	
Average yearly return	12.938%		13.1312%		13.1306%		13.161%		13.209%		13.316%	
Number of rebalances	0		145		36		12		4		2	
Standard deviation	17.370%		17.194%		17.162%		17.206%		17.185%		17.164%	
Drawdown	55.10%		54.37%		54.52%		54.61%		54.54%		55.14%	
Asset classes	Russell MCG	Russell MCV	Russell MCG	Russell MCV	Russell MCG	Russell MCV	Russell MCG	Russell MCV	Russell MCG	Russell MCV	Russell MCG	Russell MCV
Ending weight	43%	57%	47%	53%	47%	53%	47%	53%	42%	58%	43%	57%
Median weight	47%	53%	50%	50%	50%	50%	50%	50%	51%	49%	45%	55%
Average weight	47%	53%	50%	50%	50%	50%	50%	50%	50%	50%	46%	54%
Max. weight	68%	61%	57%	59%	60%	61%	57%	42%	61%	61%	68%	67%
Min. weight	39%	32%	41%	43%	39%	40%	42%	43%	39%	39%	33%	32%

Source: Morningstar Direct, U.S. Bank Wealth Management; monthly data from January 1986-May 2022

long as the risk, as measured by portfolio return variability and drawdowns, remains acceptable. In balancing costs, risks and rewards, it appears a regular review of portfolio weights (such as annually), complimented by a defined higher threshold for rebalancing, provides the optimal outcome in this simple portfolio example.

Summary conclusions

Rebalancing is a key investment tool when managing a portfolio through market volatility toward a long-term goal, all while staying true to an investor’s risk tolerance. In our analysis, we compared both simple calendar- and threshold-based rebalancing strategies to a buy and hold strategy. While buy-and-hold generated the highest returns from 1986-2022, it also magnifies the drawdowns investors may encounter in their attempt to maintain their portfolio holdings over time to meet their financial goals. Differences in returns and risk drive the value of rebalancing amongst a variety of asset classes. Our analysis suggests that asset classes with larger differences in returns and return variability, such as stocks and bonds, are often the best to consider for regular rebalancing strategies. In other cases, such as mid-cap³ growth and value strategies, the nature of the asset class construction increases the benefits of regular rebalancing. In the case of very similar asset classes, such U.S. and foreign stocks, other strategies, such as tactical asset allocation, may provide better signals for resetting the relative asset class weights.

In reviewing the data for stocks and bonds, the improvement in risk, whether through lower return variability or reduced drawdowns, leads us to recommend a regular rebalancing schedule, which we would set as at least once a year. Additionally, larger intra-year variability could provide opportunities for threshold rebalancing should asset class weights move too far from target allocations. The other advantage of both these strategies is the lower frequency of required trades, which limits transaction costs and could limit the tax impact of the trades.

Extending the analysis to different blends of stocks (e.g., growth and value, international versus domestic) provides a mixed view of rebalancing benefits. For U.S. and foreign stock blends, regular rebalancing does not provide meaningfully different returns and risks from buy and hold. The lack of rebalancing benefit likely reflects the global equity index construction and the long duration of currency and relative economic growth trends. In this case, relative value or other tactical asset allocation strategies may provide better signals for improving portfolio outcomes.

In the example of a domestic mid cap growth and value mix, the index construction methodology supports the benefits of regular rebalancing. At least annual rebalancing provides incremental returns and mirrors the annual update in most index construction. More aggressive investors could consider threshold rebalancing strategies with similar though slightly higher variability in returns than annual rebalancing.

4 See important disclosures on page 5.



Most investment portfolios are more complex than the simple two asset class portfolios described here. However, the concepts presented within this analysis extend well beyond a two-asset mix as investors contemplate whether or how often to adjust their portfolios toward achieving their long-term goals. Our analysis suggests focusing periodic rebalancing on asset classes with the largest differences in long term returns and risk, such as stocks and bonds. When asset classes have very similar returns and

risk profiles the value from rebalancing is less consistent, and investors may benefit from adding other concepts such as tactical asset allocation. Additionally, when costs such as taxes and trading, are an important consideration, we would look toward strategies which have less frequent transactions such as annual rebalancing. As always, your wealth professional may be instructive in tailoring this guidance to your specific investment objectives and financial goals.

¹ Standard deviation of asset classes measures the dispersion of returns around the average annual return. Larger numbers indicate a greater dispersion of returns around the average level. For example, an asset classes with a mean return of 4 percent and a standard deviation of 10 percent indicates 65 percent of historical annual returns are between, -6 percent and +14 percent with an average (mean) return of +4 percent.

² The MSCI World Index captures large and mid-cap representation across 23 Developed Markets countries, such as the United States, Germany and Japan. More information can be found at <https://www.msci.com/our-solutions/indexes/developed-markets>

³ Mid-cap refers to companies with a market capitalization or market value from \$2 billion to \$10 billion.

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Indexes shown are unmanaged and are not available for direct investment. The **S&P 500 Index** consists of 500 widely traded stocks that are considered to represent the performance of the U.S. stock market. The **MSCI EAFE Index** includes approximately 1,000 companies representing the stock markets of 21 countries in Europe, Australasia and the Far East. The **Russell Midcap Growth Index** measures companies in the Russell Midcap Index having higher price-to-book ratios and higher forecasted growth values. The **Russell Midcap Value Index** measures companies in the Russell Midcap Index having lower price-to-book ratios and lower forecasted growth values. The **Bloomberg U.S. Aggregate Bond Index** measures the investment grade, U.S. dollar-denominated, fixed-rate taxable bond market, including Treasuries, government-related and corporate securities, mortgage-backed securities, asset-backed securities and commercial mortgage-backed securities.



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