

The Case for Portfolio Rebalancing

Definition and analysis of various methodologies

March 31, 2020



AndCo Consulting | (844) 44-ANDCO | *AndCoConsulting.com*

INTENDED FOR AN INSTITUTIONAL AUDIENCE AND SHOULD NOT BE CONSTRUED AS INVESTMENT ADVICE OR AS A RECOMMENDATION REGARDING ANY COURSE OF ACTION

The Case for Portfolio Rebalancing

- I. Why consider rebalancing a portfolio?**
- II. Defining rebalancing practices within an investment policy**
- III. Pros & cons of various of rebalancing methodologies**
- IV. Analysis of historical rebalancing results under different methodologies**
- V. Conclusions**

The Case for Portfolio Rebalancing: Why Consider Rebalancing?

Rebalancing....

- Establishes a set of rules for how a portfolio's assets will be reallocated to their long-term target allocation.
- Is one of the foundational items for sound portfolio governance and should be clearly defined in the portfolio's investment policy statement.
- Keeps a portfolio's risk/return profile in-line with its strategic asset allocation targets.
- Helps to control over-exposure to outperforming asset classes.
- Helps to control under-exposure to underperforming asset classes.
- Has the potential to create more efficient portfolios (higher risk-adjusted returns).
- Is undertaken in a variety of forms (ad-hoc, period- and range-based).
- Has both explicit and implicit (market-related) costs that cannot be ignored.
- Removes the emotion (fear & greed) out of strategic portfolio decision-making.
- Is an active decision (so is not rebalancing).

The Case for Portfolio Rebalancing: Policy Definition

What constitutes a sensible rebalancing policy? Let's break down the following rebalancing policy sample language into its critical components.

The Plan's staff and consultant will monitor the aggregate asset allocation of the portfolio and the staff will take action to rebalance the portfolio within the stated ranges under certain conditions. If at the end of any calendar quarter, the allocation of an asset class falls outside of its allowable range, barring extenuating circumstances such as pending cash flows or allocation levels viewed as temporary, the portfolio's asset allocation will be rebalanced back into the allowable range. To the extent possible, cash contributions into, and withdrawals from, the portfolio will be executed proportionally based on the most current asset allocation available. The Plan does not intend to exercise short-term changes to the target allocation.

- **Responsibility:** A policy should define who is responsible for executing the portfolio's rebalancing strategy. For example, will it be executed by staff as an administrative function or does it require board approval?
- **Measurement periodicity:** A policy should define the periodicity of rebalancing evaluation. In other words, when will rebalancing occur? Monthly, quarterly or under some other specific set of conditions. Depending on the structure of the portfolio's underlying investments, short-term measurement (more frequently than quarterly) can present a challenge in obtaining current market values for evaluation.
- **Methodology:** A policy should define the portfolio's rebalancing methodology. This sample is based on a range-based methodology and only requires rebalancing back into the allowable range, not necessarily to the target. We'll review various rebalancing methodologies on the next page.
- **Flexibility:** While the establishment of a clear rebalancing policy is critical, since rebalancing has explicit and implicit portfolio costs, the policy should also have flexibility. This sample includes language that can override the quarterly rebalancing evaluation if there are known conditions (e.g., large pending cash flows) that will bring the portfolio back into its allowable ranges without a formal rebalancing. The sample also defines that ongoing cash flows will be used to rebalance the portfolio (deposits into under-weighted assets and withdrawals taken from over-weighted assets). These flexibilities make rebalancing practices part of ongoing portfolio administration. This will serve to lower the number of rebalancing events and control costs.



The Case for Portfolio Rebalancing: Methodology Review

Pros & cons of various methodologies

- **Ad-Hoc:** Defining this as a methodology is a stretch since there is no definition of what circumstances (calendar or range) will trigger a rebalancing event. An ad-hoc rebalancing practice is not advisable for institutional portfolios.
 - **Pros:** Will limit portfolio costs if rebalancing is not done or done infrequently.
 - **Cons:** Lacks necessary portfolio risk control. Allocations may deviate significantly from targets. Makes emotion and market timing regular components of the rebalancing process.

- **Period-based:** This methodology defines rebalancing events will occur at the end of specific calendar period such as monthly, quarterly or annually.
 - **Pros:** Easy to monitor, plan for, and implement. Provides reasonable portfolio risk control. Removes emotion from the rebalancing process.
 - **Cons:** A larger number of rebalancing events will result in increased portfolio costs. Does not consider the relative size of the portfolio's deviations from the policy targets.

- **Range-based:** This methodology defines rebalancing events will occur when an asset class falls outside of its allowable range. These ranges can be asset class specific based on size and/or risk tolerance and may be symmetrical or asymmetrical around targets.
 - **Pros:** Strikes a balance around portfolio risk control and the cost of implementation. Factors the size of an asset class's deviation from its target into the rebalancing strategy. Creates fewer formal rebalancing events. Removes emotion from the rebalancing process.
 - **Cons:** Additional complexity around ongoing monitoring relative to period-based rebalancing.

The Case for Portfolio Rebalancing: Analysis of Historical Results

Hypothetical Portfolio: 60% S&P 500 / 40% Bloomberg Barclays US Aggregate Bond Constructed Using Historical Monthly Data 1/1976 – 3/2020 (44.25 Years)

Beginning Value \$100	Rebalancing Methodology					
	None	Monthly	Quarterly	Annual	Range-Based +/-5%	Range-Based +/-10%
Ending Value	\$7,023.97	\$6,310.13	\$6,461.44	\$6,462.89	\$6,469.02	\$6,659.88
Difference vs. No Rebalancing	N/A	-\$713.84	-\$562.53	-\$561.08	-\$554.95	-\$364.09
Final Equity Exposure	86.93%	56.94%	53.90%	53.90%	54.91%	63.12%
Final Fixed Exposure	13.07%	43.06%	46.10%	46.10%	45.09%	36.88%
Annualized Return	10.09%	9.82%	9.88%	9.88%	9.88%	9.95%
Standard Deviation	11.72%	9.55%	9.71%	9.55%	9.62%	9.73%
Sharpe Ratio	0.4854	0.5682	0.5768	0.5741	0.5702	0.5714
Maximum Drawdown	-41.73%	-32.54%	-32.02%	-30.75%	-32.21%	-31.95%
Number of Rebalancing Events	None	530	176	44	21	7

Hypothetical rebalancing scenarios do not include an estimate of the implicit or explicit costs associated with rebalancing.

Absent of a rebalancing policy, the final equity and bond exposure of the original 60/40 portfolio does not resemble the risk/return profile of a rebalanced 60/40 portfolio. Regardless of rebalancing methodology, the non-rebalanced portfolio has an inferior risk-adjusted return (Sharpe ratio) relative the rebalanced portfolios.



The Case for Portfolio Rebalancing: Conclusions

Potential take-aways based on reviewing 44.25 years of historical data and the application of a variety of rebalancing scenarios

- At the end of the analysis period, the non-rebalanced portfolio resulted in a significant allocation deviation (87/13) relative to the original 60/40 target policy asset allocation.
- As demonstrated by the various portfolio allocations at the end of the analysis period, applying disciplined portfolio rebalancing maintains a similar risk/reward profile relative to the original 60/40 target policy asset allocation.
- Applying disciplined portfolio rebalancing over the analysis period, regardless of the methodology applied, resulted superior risk-adjusted portfolio performance.
- While the historical analysis does not attempt to quantify the impact of rebalancing in terms of transition costs (explicit) and/or the cost accessing market liquidity in times of stress (implicit), these costs are real. In other words, few rebalancing events means lower potential portfolio costs.
- The appropriate rebalancing policy for a portfolio should be based on the portfolio's specific needs and seek to balance the risk of allocation deviation relative to the cost of rebalancing execution.



Important Disclosure Information

This presentation is provided for informational purposes only and should not be regarded as investment advice or as a recommendation regarding any particular course of action as each client's circumstances are unique and should be considered on a case by case basis.

The source of underlying data is AndCo Consulting, using data and information derived from Morningstar (January 1976 Through December 2019). Analysis period based on the inception of the Bloomberg Barclays US Aggregate Bond Index. Information is based on sources and data believed to be reliable, but AndCo cannot guarantee the accuracy, adequacy or completeness of the information. The material provided herein is valid as of the date of distribution and not as of any future date, and will not be updated or otherwise revised to reflect information that subsequently becomes available, or circumstances existing or changes occurring after such date.

This document demonstrates hypothetical scenarios based on past data. It does not represent expected future outcomes and should therefore not be viewed as a guarantee. Actual future results could vary materially from results presented as they are subject to various uncertainties.

Any posting or utilization of this report by any third-party should not be construed as an endorsement of or affiliation with that party. AndCo is an independent entity and has no affiliates.

AndCo Consulting is an investment adviser registered with the U.S. Securities and Exchange Commission ("SEC"). Registration as an investment adviser does not constitute an endorsement of the firm by securities regulators nor does it indicate that the adviser has attained a particular level of skill or ability.

Putting clients first.



CHICAGO | CLEVELAND | DALLAS | DETROIT | ORLANDO | PITTSBURGH | RENO

AndCo Consulting | (844) 44-ANDCO | *AndCoConsulting.com*