AsymMETRIC
Capital Management

The Case for Dynamic Rebalancing

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Executive Summary

A key primary goal for traditional rebalancing strategies is to minimize risk relative to a target allocation, with a desire to maximizing returns. The strategic allocation decision is paramount to investment success. But over time, as different asset classes produce varying risk/return characteristics and drift from their respective target, the portfolio must be rebalanced in order to maintain the optimal balance between risk and return. The need to remain at one's target allocation level creates an important decision point for fund sponsors. How **frequently** should a portfolio be rebalanced to adhere to the target allocation considering the costs associated with rebalancing such as capital gains, transaction costs, and/or the time and resources required? And what are the associated **opportunity costs** with not rebalancing? This paper establishes the case for an alternative method utilizing futures called ***Dynamic Rebalancing***. This rebalancing methodology satisfies two key objectives: 1) maintaining the target allocation at a low cost and with minimal underlying investment disruption, and 2) adding incremental value from being a liquidity provider and harvesting short-term volatility on a frequent basis.

Importance of Strategic Asset Allocation

Pension Fund veteran Dave Van Benschoten joined the pension staff at General Mills (GIS) in 1979. Even back then, managers recognized that asset allocation decisions drive the majority of the value-add for an investment program. Like most pension funds, the investment committee at General Mills spent a lot of time arriving at an optimal strategic asset allocation and then wrestled with the appropriate frequency, timing, and conditions for rebalancing. The overarching goal was keeping the fund's asset allocation in line with target allocations.

The strategic asset allocation decision dictates the target asset allocations, taking into account factors such as risk tolerance, time horizon, and investment objectives. It is an "active" decision made by the fund's managers. But fund assets are subject to "passive" drift or float dictated by market conditions, creating the need for rebalancing back to target allocations.

The rebalancing decision must not only take into account the target allocation, but other mitigating factors such as trading costs, market impact, tax consequences, and the potential disruption of the investment strategy.

Traditionally, pension managers have used methodologies such as setting tolerance bands and/or periodic rebalancing schedules to determine when and how to rebalance back to their target allocations. One tradeoff of traditional rebalancing strategies is that the primary goal is to **minimize risk** relative to a target asset allocation, at the sacrifice of returns. Additionally, these methods result in the market dictating rebalancing, relegating it to a passive as opposed to an active decision, which often undermines the strategic asset allocation.

Seeking to improve the efficiency of their rebalancing process and best implement their strategic asset allocation decision, Dave Van Benschoten and the investment committee at General Mills began to experiment with different methods of rebalancing, ultimately arriving at a methodology called ***Dynamic Rebalancing***.

Use of Stock and Bond Futures

Given that General Mills was a grains company, many members of their investment committee had experience trading commodity futures. When stock and bond futures became available in 1981, the fund began using them to manage their target asset allocations. In the early days, they were able to take advantage of arbitrage opportunities associated with the inefficient pricing of futures at the time. And by using limit orders for their trades, they ended up being liquidity providers, further reducing their transaction costs.

The key advantage of using stock and bond futures to manage the fund's target allocation was 1) lower transaction costs and 2) no disruption of their underlying portfolio investments. As experienced by Van Benschoten in practice, instead of a rebalance costing 1-2% in transaction costs, by using futures the cost was only 0.5 to 1.5 bps. And the core investments in the portfolio were left intact.

The use of futures also facilitated more frequent and precise rebalancing to the target allocation, accommodating tolerance bands as fine as a quarter to a half-a-percent because the cost to trade was so low. By utilizing futures, the underlying portfolio could remain at its strategic target allocation, thus eliminating the problem of passive drift.

From an investment and risk-management perspective, remaining true to one's target asset allocation is an important consideration, especially given the significant time spent considering and formulating it. Given the importance of the asset allocation decision, why deviate from target for a prolonged period? And yet that is a common practice for funds in between rebalances.

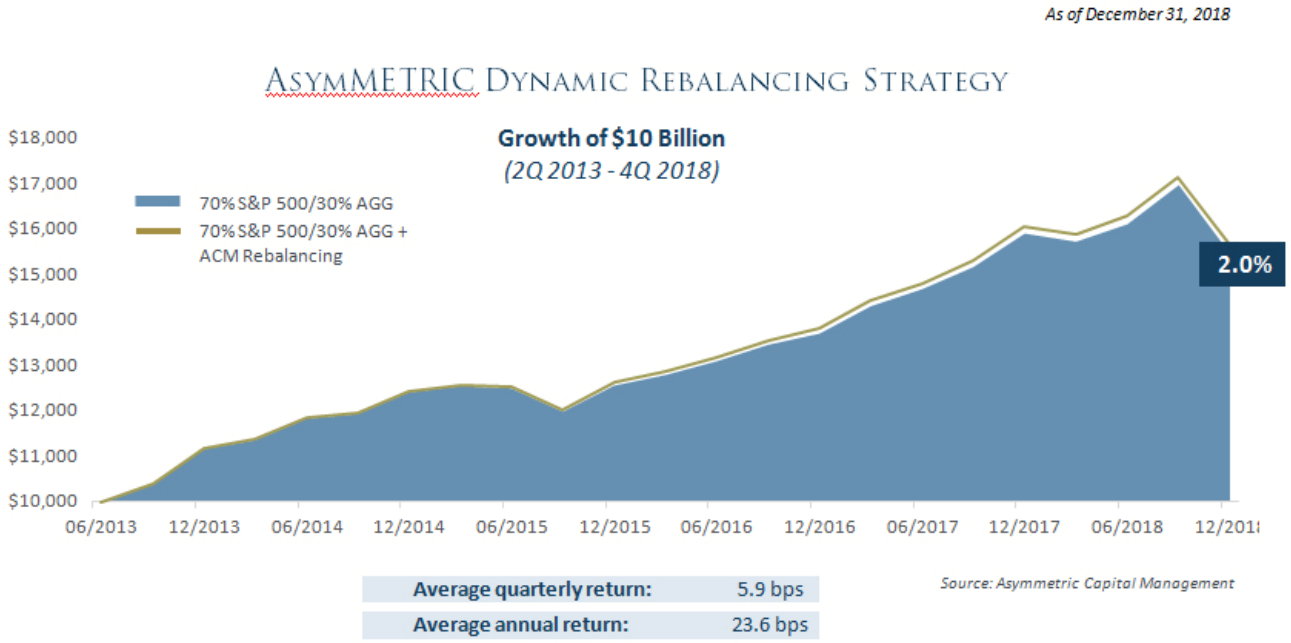
Van Benschoten and team observed there was an opportunity cost associated with allowing their asset allocation targets to drift. In a 60/40 portfolio with 5% bands, if the asset allocation drifted to 64/36 and then went back to 60/40 without violating the 5% band, none of those movements were captured, resulting in a missed opportunity to capitalize on that volatility.

Dynamic Rebalancing Approach

The ***Dynamic Rebalancing*** approach was derived from the observation that incremental value could be achieved by harvesting this short-term volatility noise. By reducing the size of trading bands and rebalancing frequently by using stock and bond futures to stay in balance with asset allocation targets, an average quarterly return of 5.9 bps could be consistently achieved as demonstrated in the chart below.

The transactions cost of a futures contract is minimal. As a result, quarterly transactions costs are less than 1 basis point relative to the asset base, allowing dynamic rebalancing of the fund to generate an average of 23.6 basis points on an annual basis historically over the last 5.5 years.

Dynamic Rebalancing Generates Returns



- **Cumulative realized gains of approximately $130 million on $10 Billion notional with a 70/30 target asset allocation.**
- **Reinvesting gains quarterly would have increased the value of the fund by approximately $201 million or 2%.**
- **This does not include any unrealized positions with the ongoing futures exposure.**

Long-term results for AsymMetric's dynamic rebalancing approach are reduced in a sustained momentum market environment given that there is less volatility to be captured by rebalancing. However, even in a low volatility environment, the underlying investments still benefit from stricter adherence to their target allocation. Better results could be achieved in a high-volatility, anti-momentum environment.

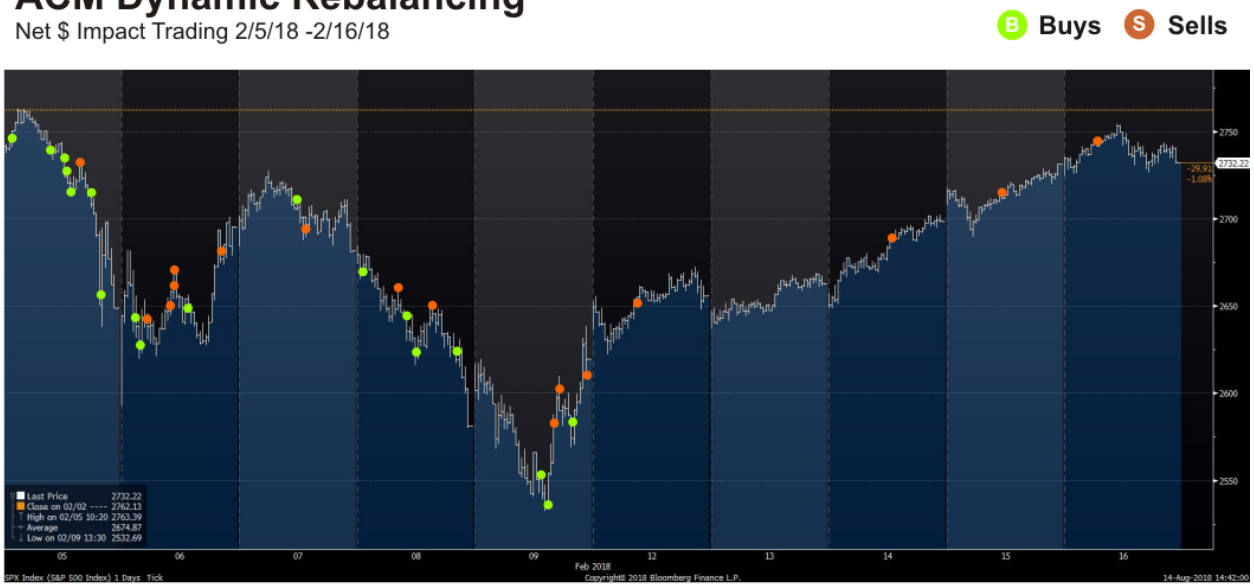
Intraday volatility is a consideration which often gets lost in the translation for rebalancing. As humorously illustrated in the accompanying cartoon, there are many trading days that swing widely intraday, only to end up unchanged by the close.

U.S. investors experienced an historically unprecedented year of market tranquility in 2017. But on February 5th, 2018, that trend reversed with the first real spike in volatility in three years. While this "volatility shock" sent most volatility-linked products into a tailspin, it provides the perfect backdrop to illustrate the benefits of harvesting short-term and intraday volatility. If you went on a two-week off the grid vacation at the beginning of February, you would have returned to observe no change in the market. But that was obviously not the case.

Van Benschoten shared his dynamic rebalancing experience over the 10 trading days between February 5th – 16th. In order to keep the target asset allocation in line, 36 trades were executed (19 buys and 17 sells). This resulted in **realized net gains of 6.2 basis points** with the equity market starting and ending around the same level over this period. Harvesting short-term volatility over the long-term adds incremental value and provides a framework through experience that benefits the overall asset allocation for an investment program.

ACM Dynamic Rebalancing

Net $ Impact Trading 2/5/18 -2/16/18



REALIZED GAINS	$ 129,562.50
UNREALIZED LOSSES	$ (4,375.00)
COMMISSIONS	$ (1,215.00)
NET $	$ 123,972.50
NET % (on $201,364,063 balance as of 1/31/18)	6.2 basis pts

Conclusion

The use of ***Dynamic Rebalancing*** satisfies two key objectives: 1) maintaining the target allocation at a low cost and with minimal investment disruption, and 2) adding incremental value from being a liquidity provider and harvesting short-term volatility noise on a frequent basis.

Asymmetric Capital Management offers ***Dynamic Rebalancing*** on an active overlay basis to fund sponsors in order to facilitate stricter adherence to target allocations while delivering the incremental return associated with harvesting short-term volatility.

About Us

ACM was founded in 2016 to deliver asymmetric risk/returns over the long-term. It deploys a proprietary active systematic rebalancing methodology (ASR) for its target allocations. This investment approach was developed by a team of professionals with extensive experience in active rebalancing and utilizing derivatives for risk management. It is an independent, employee-owned firm with offices in Rancho Santa Fe, CA.

Disclosure

The performance shown is for illustrative, informational purposes only. The charts above represent a strategy actually managed by Dave Van Benschoten. Accounts selected for this strategy presentation include those which were dynamically rebalanced as described above. Only one such account fits those parameters to date and was managed by Van Benschoten both while at General Mills as well as while at ACM. Performance is shown net of fees and expenses. Different characteristics and client-specific mandates could result in materially different performance.

The information is only an indication of the general performance of one type of dynamic rebalancing approach based on a variety of factors. The results presented are intended to be used to help explain possible benefits of the investment strategy and should not be relied upon for predicting future performance. Several processes, assumptions and data sources were used to create this chart. A different methodology may have resulted in a different outcome. Other ACM clients will likely experience different results from the results shown. Client fee schedules will vary as negotiated with each client, so returns will be materially different as a result thereof.

There is no guarantee that this investment strategy will work under all market. No representation is being made that any account, product, or strategy will or is likely to achieve profits, losses, or results similar to those shown.