

# Mythbusting: Frequent Rebalancing improves portfolio returns

You might have heard this one before: frequent rebalancing to simultaneously lock in profits and dollar cost average into lower priced assets will provide better returns. We examined the myth and here's what we found.

Investors may be familiar with the concept of rebalancing, which is the action of adjusting the proportion of various investment instruments back in line with a certain target allocation. The basis of rebalancing is that no single market or asset class will remain a winner forever, but the performance of individual asset classes or instruments fluctuate over time. Rebalancing is also particularly useful for risk management in a portfolio.

Let us use a dummy portfolio containing 50% equity funds and 50% bond funds as an example. After one year, assume that the equity funds have reaped a gain of 50% while the bond funds remain unchanged. The resulting portfolio resulting allocation after a year would be as follows: 60% equity, 40% bonds. The investor now has a 60% exposure to riskier assets (equity funds) and a smaller allocation (40%) to the safer bond funds, deviating from the target allocation (50% bonds, 50% equity). This means that the level of risk taken on by the portfolio has increased from a year ago. To reduce the level of portfolio risk, rebalancing could be employed. The investor would sell a portion of the equity funds to reduce the proportion to the original target allocation (50%). The proceeds would then be invested into bond funds to bring up the proportion of bonds in the portfolio to 50%.

Investment experts like Yale University's David Swensen have lauded the use of rebalancing in helping to manage portfolio risk. However, our myth-busting exercise here is not to extol the benefits of rebalancing, but rather, to determine whether more frequent rebalancing will help to improve one's portfolio returns. To test this out, we decided to construct a sample portfolio and use various rebalancing >>

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**TABLE 1: EFFECT OF VARYING REBALANCING PERIODS**

| EQUITY | BONDS | REBALANCING PERIOD | 20-YEAR TOTAL RETURN | RANK |
|--------|-------|--------------------|----------------------|------|
| 80%    | 20%   | Annual             | 146.3%               | 1    |
| 80%    | 20%   | Semi-Annual        | 138.2%               | 2    |
| 80%    | 20%   | Quarterly          | 137.8%               | 4    |
| 80%    | 20%   | Monthly            | 132.7%               | 5    |
| 80%    | 20%   | Weekly             | 137.9%               | 3    |
| 70%    | 30%   | Annual             | 175.5%               | 1    |
| 70%    | 30%   | Semi-Annual        | 164.3%               | 2    |
| 70%    | 30%   | Quarterly          | 164.1%               | 3    |
| 70%    | 30%   | Monthly            | 156.9%               | 5    |
| 70%    | 30%   | Weekly             | 161.8%               | 4    |
| 60%    | 40%   | Annual             | 204.1%               | 1    |
| 60%    | 40%   | Semi-Annual        | 190.6%               | 3    |
| 60%    | 40%   | Quarterly          | 190.7%               | 2    |
| 60%    | 40%   | Monthly            | 181.9%               | 5    |
| 60%    | 40%   | Weekly             | 186.3%               | 4    |
| 50%    | 50%   | Annual             | 231.6%               | 1    |
| 50%    | 50%   | Semi-Annual        | 217.1%               | 3    |
| 50%    | 50%   | Quarterly          | 217.5%               | 2    |
| 50%    | 50%   | Monthly            | 207.7%               | 5    |
| 50%    | 50%   | Weekly             | 211.4%               | 4    |
| 40%    | 60%   | Annual             | 257.7%               | 1    |
| 40%    | 60%   | Semi-Annual        | 243.2%               | 3    |
| 40%    | 60%   | Quarterly          | 244.1%               | 2    |
| 40%    | 60%   | Monthly            | 234.1%               | 5    |
| 40%    | 60%   | Weekly             | 236.6%               | 4    |
| 20%    | 80%   | Annual             | 304.0%               | 1    |
| 20%    | 80%   | Semi-Annual        | 293.8%               | 3    |
| 20%    | 80%   | Quarterly          | 294.8%               | 2    |
| 20%    | 80%   | Monthly            | 287.4%               | 4    |
| 20%    | 80%   | Weekly             | 286.8%               | 5    |

Source: Bloomberg, IFAST compilations, returns are in USD terms from end-1988 to end-2008. Rebalancing is done on the end of each period, eg. End December for annual rebalancing, and on Fridays for weekly rebalancing.

>> periods to have an idea of the impact on returns. Studies based on back-tested portfolios are extremely subjective, given the many differing views on target portfolio allocations. Not wanting to deviate from our subject matter of rebalancing, we have opted for a simplified portfolio to test out rebalancing periods – on a portfolio containing only two asset classes: bonds and equity.

### Testing different rebalancing periods

The methodology used in our test is extremely simple:

Only two classes of assets will be placed in the portfolio: bonds and equity. A widely-used all-country global equity index weighted by market capitalisation will be used to represent the equity portion of the portfolio, in an attempt to eliminate any subjectivity with regards to regional or sector allocation. The weighting of various bond markets is also subjective so we have selected a US total return bond index based on active US Treasuries of various maturities to represent the bonds in the portfolio, given the higher quality of historical data available for the US Treasury market.

We selected a twenty-year period between end-1988 to end-2008 to test out the portfolio. Six different portfolios were constructed based on varying proportions of bonds-equity, and for each, a rebalancing exercise was performed on an annual, semi-annual, quarterly, monthly and weekly basis to analyse the impact of more-frequent rebalancing. Our results are summarised in Table 1.

### Annual rebalancing tops

From our results, several observations were made. The different rebalancing periods did result in varying total returns, but the difference in returns was not very significant. The average difference between the highest and lowest return for each of the six different portfolio allocations was only 19.8% over the twenty-year period which translates to a 0.9% annualised difference, and suggests that using a different rebalancing period did not cause significantly different performance.

TABLE 2

| REBALANCING PERIOD | AVERAGE RANK |
|--------------------|--------------|
| Annual             | 1.0          |
| Semi-Annual        | 2.7          |
| Quarterly          | 2.5          |
| Monthly            | 4.8          |
| Weekly             | 4.0          |

Source: IFAST compilations

A comparison of individual rebalancing-period strategies threw up a more interesting observation. In every one of the six different bonds-equity proportions, portfolios which were rebalanced on an annual basis outperformed portfolios which were rebalanced on a more frequent basis. Also, monthly rebalancing gave the worst performance, ranking fifth in all but one of the six sample portfolios. Table 2 shows the compiled average rank of performance for each of the rebalancing period methods. The data indicates that portfolio performance actually declined as rebalancing was done more frequently.

### Myth Busted...

While rebalancing is important, our test using historical data shows that rebalancing too often does not lead to superior returns. In fact, frequent rebalancing gave poorer returns as compared to an annually-rebalanced portfolio in our example. While the reasons for the slight outperformance of the annual rebalancing process are not very clear, it may have to do with the length of the equity or bond market boom-bust cycle. Weekly rebalancing means profit is taken on winning positions every week, if the asset class rises for a period longer than the rebalancing period. Also, more of a losing position is accumulated if that particular asset class continues to decline for a substantially long period. That being said, the deviation of performance between the varying rebalancing periods in our study is not terribly significant, and investors should be looking to rebalance on an annual basis, purely on the basis of convenience.

Moreover, frequent rebalancing the portfolio may lead to higher transactional costs, as the investor may incur switching fees (for unit trusts) or commission and brokerage fees (for stocks). Our study did not assume any transactional costs associated with the rebalancing process; otherwise the returns on the more-frequently rebalanced portfolios would have suffered purely on the basis of higher incurred transactional costs.

### Other factors investors should note

Our study used a global equity index and a US Treasury total return index to model returns of the sample portfolio. In reality, investors are likely to invest in a wide range of different asset classes and instruments, so factors like the length of asset-specific boom-bust cycles as well as the volatility of the asset class may deviate significantly from those used in our study. Running a similar test based on a different model portfolio could thus yield a different conclusion as to the optimal rebalancing period.

Brokerage fees have often been cited as one of the key reasons why investors who trade often obtain poorer returns as compared to investors who invest more passively. Investors should thus keep transactional costs in mind and in check, by minimising changes in their portfolios, and by executing portfolio rebalancing on a less frequent basis.

The frequent monitoring and rebalancing of one's investment portfolio can be a tiring process, and could detract from life's other aspects (there is more to life than monitoring one's investment portfolio). We would thus advise investors to first determine their targeted asset allocation by examining their risk profile, investment objective as well as investment horizon, then rebalance the portfolio back to its targeted allocation on an annual or even semi-annual basis.

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