The value of risk-based rebalancing

This technique helps mitigate losses by changing portfolio allocations in response to a sustained increase in market risk. **By Richard Yeh**

THE stock market changes quickly. No investor wants to experience losses in a market correction or be left out when the market is up – which is why rebalancing your portfolio is so important.

Rebalancing is a crucial component of any successful investment strategy. It entails periodically buying or selling assets in a portfolio to maintain a desired asset allocation and portfolio risk level.

As markets move, shifts in portfolio asset allocation are to be expected. An investor may have decided that a portfolio of 60 per cent equities and 40 per cent fixed income fits his risk tolerance. But, after months of market exuberance, the portfolio could have shifted to a 70 per cent equities and 30 per cent fixed income allocation as equities grew more in value compared to fixed income. This change exposes the portfolio to risk and return levels that do not match the investor's risk tolerance. To prevent this, conventional wisdom dictates that the portfolio should be rebalanced back to its original 60 per cent equities and 40 per cent fixed income allocation.

Choosing a rebalancing strategy

Some investors pick a specific date each year to rebalance their portfolios while others do it when their assets differ from their target position by a certain percentage.

Both methods share one key disadvantage. They may have returned the portfolio to its target asset allocation, but the portfolio's actual risk can still be higher or lower than the investor's risk tolerance.

Risk-based rebalancing aims to sidestep this issue. In risk-based rebalancing, a rebalancing is triggered when the risk within a portfolio either exceeds or falls below an investor's desired risk level.

All investments come with a certain amount of risk, and investors should weigh the potential return against the risk of that particular investment. Not all investments in higher-risk assets will generate higher returns. On the flip side, investments that carry much lower risk may not adequately keep pace with inflation. Deciding on the appropriate asset allocation boils down to investors' risk tolerance and their desired return.

For instance, when portfolio risk increases beyond an investor's risk threshold – and the portfolio is not rebalanced back to its intended risk-return profile – the investor is taking on more risk than what they are comfortable with. They may not be ready to stomach the higher possibility of losing some or all of their investment, especially if life-stage milestones like retirement are coming up.

How it works

At its core, risk-based rebalancing requires the level of risk within a portfolio to be continuously monitored. But this process only works if market risk and by extension, portfolio risk, can be appropriately forecasted. At Syfe, we use a proprietary Automated Risk-managed Investments (ARI) methodology to do so. Investors take a risk assessment and are assigned a Downside Risk category (from 5 to 25 per cent)
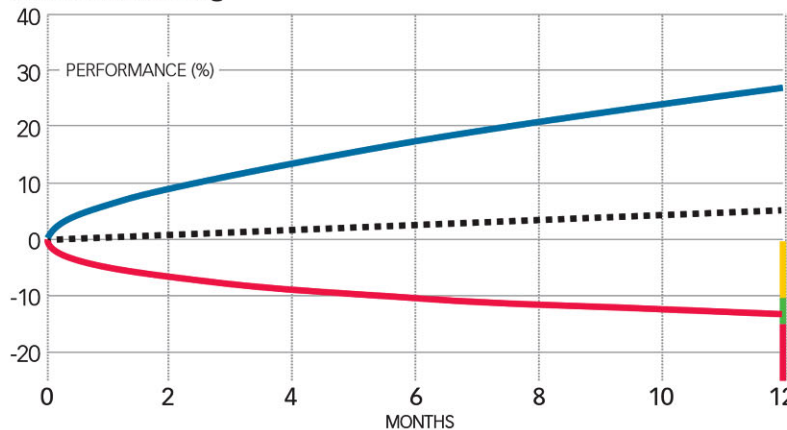
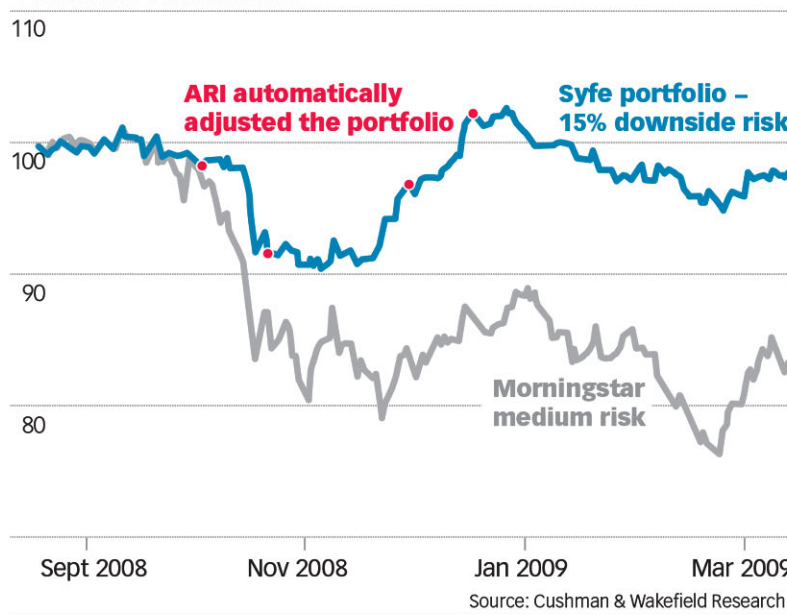## Rebalancing insights

Portfolio risk projection

Risk threshold breach
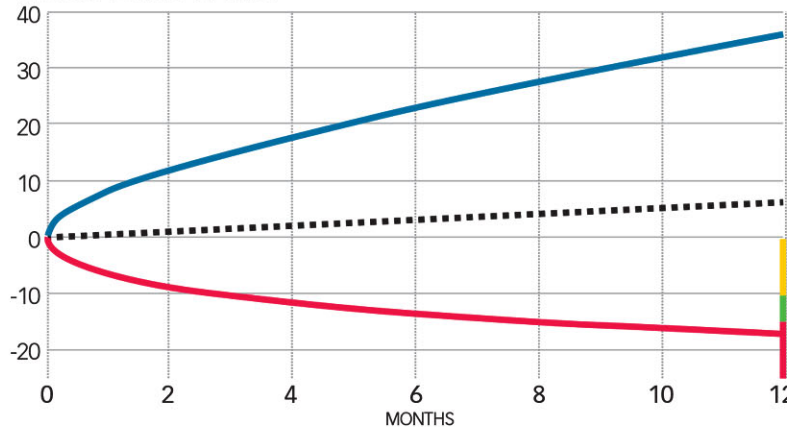
After rebalancing

Portfolio simulation

Source: Cushman & Wakefield Research

aligned with their risk profile. This Downside Risk category represents the investor's risk threshold. For a hypothetical investor with a portfolio in a 15 per cent Downside Risk category, it means that they are comfortable with a 97.5 per cent chance that their portfolio will not lose more than 15 per cent in a given year.

Investors are typically loss averse, and the use of a Downside Risk metric puts the investor at ease by quantifying how much a loss on investment could be with a given level of confidence over a fixed period of time.

For instance, this is how a hypothetical investor with a 15 per cent Downside Risk portfolio would have fared during the 2008 global financial crisis. Weeks before the economic crisis began in earnest, their portfolio had an asset allocation of 39 per cent equities, 50 per cent fixed income and 11 per cent commodities. But by late September 2008, the ARI algorithm had detected increased tremors of market volatility and forecasted even higher volatility ahead.

On Sept 23, 2008, the risk projection of the 15 per cent Downside Risk portfolio had exceeded the portfolio's downside risk target (indicated by the green zone in the charts below). To return the projected loss potential to within the portfolio's risk target, the ARI algorithm adjusted the portfolio weights to a less risky allocation: 30 per cent equities, 59 per cent fixed income and 11 per cent commodities.

Syfe conducts risk projections like this every day using Monte Carlo simulations to predict thousands of possible future market scenarios and calculate the probability of each one happening. The upper bound of the curve corresponds to the best-case scenario generated while the lower bound of the curve corresponds to the worst-case scenario generated. Going back to our hypothetical investor, the ARI algorithm found that in 2.5 per cent of all forecasted scenarios, their portfolio could lose more than 15 per cent of its value that year. As such, Syfe adjusted the portfolio weights to a less risky allocation.

Accordingly, the risk projection after rebalancing showed a more narrow U-shaped curve, reflecting how the risk-based rebalancing has reduced the likelihood of a scenario where the portfolio loses more than its downside risk limit to the very minimum.

How risk-based rebalancing compares

By switching into lower-risk assets, the ARI algorithm helped investors dodge a large part of the worsening downturn. Comparing the Syfe portfolio with a benchmark Morningstar Moderate Index (which corresponds to a 60 per cent equities and 40 per cent fixed income medium risk portfolio), we see how risk-based rebalancing partially insulated the portfolio from the market crash.

While market turbulence impacted the Syfe portfolio as well, the loss was within what the investor was prepared to bear because portfolio risk was kept within the Downside Risk limit.

The benchmark portfolio (which follows a calendar rebalancing every quarter) was however exposed to the full brunt of the financial crisis. Comparing the two rebalancing methods, risk-based rebalancing yields better risk-adjusted returns – even during a market downturn.

Long-term investment success

By keeping portfolio risk from increasing beyond its target level, risk-based rebalancing delivers better risk-adjusted returns over the long term and ensures portfolios are more stable during market downturns. In essence, risk-based rebalancing supports investors, especially in times of market volatility.

By changing portfolio allocations in response to a sustained increase in market risk, this technique helps mitigate losses. Instead of panic selling during a downturn, investors are more likely to stay invested for the long-term, knowing that their portfolio risk is always kept in line with their risk profile.

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