

## SOLUTIONS

## Rethinking Rebalancing

**FOLLOWING SEVERE EQUITY MARKET DECLINES** from May 2008 through February 2009, many institutional portfolios are significantly underweight equities and other risk assets relative to long-term policy targets. Given the uncertainties fostered by high levels of volatility and the speed of broad-based economic deterioration, investors are questioning whether long-standing rebalancing methodologies continue to be appropriate. This paper provides a framework for determining whether traditional rebalancing or fundamental restructuring is more suitable for a portfolio, and considers the benefits of increased allocations to fixed income spread sectors and absolute return strategies. In addition, this paper presents targeted contribution-to-risk (CTR) strategies as a tool for assisting with the rebalancing decision.

### Not Rebalancing Is an Active Decision

In the wake of the sharp, coordinated declines in risk assets, coupled with a greater level of illiquidity, many funds have either been unable to rebalance their portfolios or have frozen rebalancing decisions. Retrospectively, a portfolio that was not rebalanced over the last 11 months would likely have outperformed most passive rebalancing strategies.

Given the significant decline in the value of fund assets, however, this is likely of little consolation. As a result of not rebalancing, many funds' exposure to equities is significantly below long-term policy targets (**Figure 1**). In an extreme example where a portfolio was not rebalanced since the end of May 2008, the size of this underweight could be in excess of 10% at the end of April 2009 (after peaking at over 15% in February).

Rebalancing strategies provide a systematic way to keep asset-class weights near long-term strategic targets. Failure to rebalance results in higher allocations to recent outperformers.



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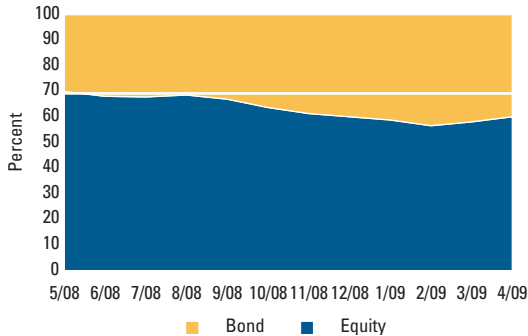
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### KEY POINTS

- ▶ We expect rangebound volatility in equity markets for the next three to five years
- ▶ Select fixed income sectors and absolute return strategies currently offer attractive risk-adjusted return potential
- ▶ A targeted contribution-to-risk (CTR) approach to rebalancing may provide a compelling alternative to static rebalancing formulae

Figure 1

### Change in Allocation of a 70% Equity/ 30% Bond Portfolio



Sources: S&P 500 Index, Barclays Capital US Aggregate Index

While small deviations from strategic targets typically have little consequence, the deviations can grow significantly over long periods of sustained strong relative performance by one or more asset classes, typically resulting in a portfolio with higher risk and less diversification. What is interesting about the latest downturn, similar to the bear market of 2000 – 2003, is that institutional portfolios are likely more diversified than they were heading into the downturn, due to lower equity weights, but may not be structured to generate returns consistent with longer-term objectives. Of course, funds that have not rebalanced have not participated fully in the rally in global equities from mid-March to early May (up approximately 40% from trough to peak) and may also incur significant opportunity costs if equities continue to rally.

Rebalancing after large market declines typically involves buying back into risk assets. This, coupled with the potential significant underweights relative to targets, makes the decision about whether to rebalance and when to rebalance very important. It is crucial that this decision is made in the context of a fund's structural, long-term view of asset classes, and this view should dictate the mechanism and timing of any rebalancing. In addition, careful consideration should be given to other factors, such as whether the risk tolerance, time horizon, or risk-evaluating

metrics of a fund have changed or should change. For example, given the sharp decline in the value of its assets, an endowment may conclude that it can no longer withstand the downside risk associated with 70%+ exposure to risk assets (e.g., equities and equity-oriented alternatives). Or a pension plan might elect to shift to a more bond-oriented structure in order to better match assets with liabilities.

While not rebalancing may have been a relatively successful strategy in the second half of 2008 and first quarter of 2009, continuing to override strategic asset allocations by not rebalancing and maintaining these (potentially very large) deviations from policy weights should be considered an active bet, and a significant one at that. Or, alternatively, a fund should view this as a change in strategic policy. Importantly, a decision to rebalance or not to rebalance may in fact be a decision to restructure a portfolio. The severity of the equity market declines, uncertainty regarding the economic outlook and policy response, and many other complicating considerations call the basic premises of rebalancing into question. Depending on the impact these factors have on a fund's perspective, an asset allocation policy may continue to be appropriate or have lost relevancy altogether.

We would suggest that funds that answer "yes" to any of the following questions likely need to contemplate a conscious restructuring rather than traditional rebalancing for their portfolios.

- Have your medium- to longer-term return expectations and/or views on risk, correlations, or distributions for the major asset classes changed?
- Have your views of future "normal" investment or macro cycles changed?
- Have your investment objectives changed?
- Has your volatility or downside tolerance changed?
- Are you subject to new constraints and considerations (e.g., illiquid holdings)?

These questions are critical in helping determine the most appropriate portfolio positioning going forward, and can help institutions understand the magnitude of their rebalancing/restructuring issues. In what follows, we offer a framework for addressing and rethinking the rebalancing decision.

## A Framework for Rebalancing/Restructuring

In addition to the answers to the questions just posed, the decision to rebalance or restructure should ultimately be driven by a structural view of equities – particularly, one’s outlook for equities over the next three to five years. Accordingly, investors need to determine which of three broad categories their equity outlook falls into – whether equities in a three- to five-year timeframe represent opportunity, excessive risk, or rangebound volatility. Various options for funds are available in each case, and may range from traditional rebalancing to restructuring decisions:

### Equities = Opportunity

If fund decision-makers believe that the recent sharp market declines present an attractive buying opportunity and hold a constructively positive view on equities, the options are to:

- Rebalance to target equity exposure now
- Define the time horizon over which the fund will be rebalanced, and systematically average into equity markets
- Determine specified levels at which a fund’s equity exposure will increase and add to equities on further weakness

### Equities = Excessive Risk

If one has a negative view on equities over the next three to five years, then rebalancing is essentially off the table, while restructuring options are to:

- Do nothing, thereby defining a lower strategic normal allocation to equities
- Diversify now into other risk asset classes
- Average into other risk asset classes over time

### Equities = Rangebound Volatility

If one has neither a structurally positive nor negative view on equity markets going forward, but instead expects rangebound markets, then rebalancing and restructuring tend to be equally viable options and suggest the following actions:

- Diversify now into other risk assets where the structural outlook is more positive, and into absolute return strategies
- Employ a dynamic price approach – buying on weakness and selling on strength
- Employ a targeted CTR approach, as discussed later in this paper

## Our Base Case

We believe a reasonable argument can be made for any of the scenarios just described. In our view, however, stocks could continue to rally a bit in the near term – perhaps even sharply – but are likely to be rangebound for the next three to five years. As this represents our base case scenario, in portfolios where we have broad asset allocation discretion, we have been shifting to structures that exhibit a better balance of market and active risk and increased beta diversification, while allowing for more asset allocation flexibility. We have enacted this strategy by keeping equity weights at market-induced lower levels and reducing further on strength, putting the proceeds into fixed income spreads for beta diversification and absolute return strategies for better alpha/beta balance.

In our view, the fixed income area offers more compelling opportunities than it has in some time and, relative to equities, offers comparable to better risk-adjusted return potential. Spread sectors are at or near historic wides (**Figure 2**), despite recent tightening. Mortgage-backed securities (MBS), particularly non-agency MBS, commercial mortgage-backed securities (CMBS), credit (both investment grade and high yield), and bank loans are the areas we find most attractive.

**Figure 2**

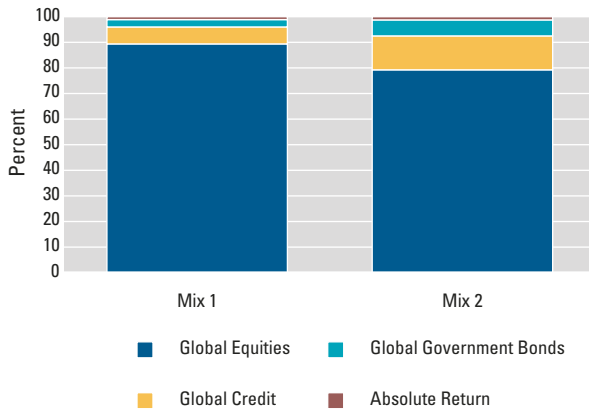
### Spreads at or Near Historic Wides

	4/30/09 (bps)	Percentile
Bank Loans	1,061	97%
Corporates	439	97
CMBS	865	96
ABS	548	97
High Yield	1,219	97
MBS	67	53
Emerging Markets	529	38

Sources: Barclays Capital, Credit Suisse, JPMorgan. Start dates used: Jan 1992 (bank loans); Jan 1990 (corporates, MBS); July 1999 (CMBS); Dec 1991 (ABS); Jan 1994 (high yield); Dec 1990 (emerging markets).

Figure 3

## Contribution to Risk



Source: Wellington Management  
 Mix 1: 60% global equities; 10% absolute return; 30% global bonds. Mix 2: 45% global equities; 10% absolute return; 45% global bonds.

In addition, despite lower equity exposures due to market declines, equities are still the dominant risk exposure in most institutional portfolios. For example, **Figure 3** compares the contribution to risk from two portfolios: the first with 60% global equities, 10% absolute return, and 30% global bonds; and the second with 45% global equities, 10% absolute return, and 45% global bonds.

Despite the sharp reduction in exposure to equities, at a projected 79.2% of the risk, equities still dominate from a contribution-to-risk (CTR) perspective, dwarfing the CTR of credit (13.2%) and nominal interest rate (6.3%) exposure. Adding to select fixed income spread positions will further diversify beta exposure in the portfolio at what we believe is a lower opportunity cost for being out of equities.

One risk in adding to fixed income areas is the increased nominal interest rate exposure. Rising rates in response to improved economic conditions, as well as escalating inflation potential arising from the massive policy stimulus, are a concern, but elevated spread levels mitigate these issues to a great extent. Our analysis suggests that spreads greater than 500 basis points translate into very low interest rate sensitivity. In addition, if this risk is considered material, one could elect to hedge out the nominal interest rate exposure.

In addition to fixed income spread areas, we believe that absolute return strategies merit consideration in lieu of increased equity exposure. There are two primary sources of portfolio returns: those associated with taking market risk (beta) and those associated with taking active risk (alpha). Absolute return strategies, by their nature, rely on a significant degree of active risk. With market risk, return comes from putting capital at risk in the market and receiving a return that, over the long term, is commensurate with the level of risk taken. The natural return for bonds is measured by yield, and the natural return for equities is measured by the sum of dividend yield and earnings growth. Taking on market risk only pays off with high probability over longer time periods, as the difference between the natural return of these two asset classes ultimately dominates short-term volatility.

The attraction of market risk is that there is a natural return associated with it. Capturing this return requires patience (staying the course with the investment through periods of negative returns), rather than an ability to outwit the market. The present challenge, of course, is that in this economic environment, it may require a longer time horizon than typical for the payoff to be realized. And, of course, the future return is always dependent on the entry price and future growth rates. Whether stocks are currently cheap, fairly priced, or expensive depends greatly on the valuation regime one assumes. This question is a source of much hand-wringing among investors, as is the question regarding future growth rates. In addition, as noted, many institutions currently have a greatly reduced ability to withstand the downside risk inherent in market risk.

Active risk, on the other hand, is dependent on the skill of the investment manager and is relatively independent of market returns. The key distinction of active risk, as opposed to market risk, is that there is no natural return associated with taking active risk. Benefiting from active risk requires skilled manager selection. Active risk has two advantages over market risk. First, there is a higher potential reward/risk tradeoff achievable through active risk-taking. Second, the potential payoff from taking active risk can generally be achieved over a shorter horizon than with market risk.

A key feature of an asset allocation structure is its balance between market risk and active risk. In our view, given the present uncertainty of the capital market environment, an increased emphasis on active risk is warranted. We also believe that this type of structure will be more palatable to

investors now than it was when we were in the midst of a prolonged low-volatility regime. In addition, our analysis shows that active management tends to perform best during periods of high cross-sectional volatility and following periods of extreme risk aversion, both of which characterize the current environment.

***“While not rebalancing may have been a relatively successful strategy in the second half of 2008 and first quarter of 2009, continuing to override strategic asset allocations by not rebalancing... should be considered an active bet...”***

As Evan Grace recently described in his *Asset Allocation Outlook* for the second quarter of 2009, true absolute return strategies are increasingly attractive in the current environment. As discussed in the *Outlook*, trying to identify a bottom below which asset prices are not likely to go and continuing to increase exposures such that maximum weights are reached when the minimum expected price is attained (“averaging down”) can be difficult for institutions to implement. Similarly, tactical trading – also called a “dynamic price approach” – for rebalancing purposes poses structural obstacles to institutions. An absolute return strategy allows an institution to achieve similar results as the above strategies, but in a framework that functions better within their institutional structure. By their nature, absolute return strategies are often more tactically oriented than relative return strategies. The targeting of consistent positive total returns in a variety of economic and market environments often incorporates rapid harvesting of gains, among other strategies, to mitigate portfolio drawdowns.

The risk of this strategy – maintaining or reducing current equity exposure and diversifying into fixed income spreads and absolute return strategies – can be summed up as follows: if equities rebound significantly, institutions will feel they made a mistake by not simply moving back into equity beta. If absolute return does what it “should” – and there is always a risk that it will not – total returns should be fine, but will

come with an opportunity cost. In thinking through scenarios, we can certainly see the “equities work” risk case. In such a case, stock prices would rise, say, 30% cumulatively over the next few years, with the trend price-to-earnings (P/E) ratio on the S&P 500 increasing from the current level of 11x to 13x, and dividends and earnings-per-share (EPS) growth providing the remainder of the gain. In this scenario, fixed income spread beta probably does well from a total return standpoint, although it likely would return less than the 30% cumulative equity return. In such a case, it would not be unreasonable to expect total cumulative fixed income beta returns to be in the neighborhood of 20%. Of course, the return would ultimately depend on the specific fixed income exposure, performance by spread sector, and how much interest rate risk one bears, as nominal yields would probably rise.

The flip side of this scenario is the “equities don’t work” risk case. In this situation, stock prices fall 25% over the next few years, with trend P/E on the S&P 500 declining from 11x to 8x, and many companies cutting dividends and realizing low EPS growth. In such a case, we believe that total returns to fixed income spread beta are likely to be at least flat to slightly positive. The credit markets remain at valuations that already reflect a bad recession, though they have had a decent run so far this year and could well be poised for a pullback in the short term. High yield, for example, is at a spread of about 1,200 basis points over Treasuries, which is wider than the widens of each of the last two cycles. So, while equity trend P/Es move from 11x to 8x in this scenario, it can be argued that spread markets already reflect such an environment. In addition, total fixed income beta returns would be boosted by a likely fall in nominal yields, though it is possible that they will not, given concerns about over-supply. One risk, of course, is that the default cycle is extended in a scenario of weak earnings and a declining stock market, but a few years should be long enough to get to the other side of peak defaults, when surviving companies’ spreads will tighten.

Note that while we have outlined our base case and what we believe to be reasonably likely alternative scenarios, there could also be much more extreme outcomes. Such is the nature of the current environment. In fact, the actions we have taken to reposition structures where we have significant asset allocation flexibility are in large part based on our desire to reduce the probability of experiencing a negative tail event.

## Asset Allocation Policy Development

As described above, we have been repositioning portfolios to achieve a better balance of active risk and market risk, as well as more diversified market risk (beta) exposures. We believe the following steps can be helpful in achieving these goals, and are useful in the asset allocation development process. First, assess the exposures currently in the fund. What is the proportion of active risk versus market risk? Within the market risk, how much risk is coming from each asset class? Once the assessment is complete, identify potential shifts in risk allocations. To better understand the levers a fund can use to adjust risk exposures, one should contemplate alpha and beta allocations separately. To do this, one must project the beta return and risk as well as the active return and risk of each allocation, and project the beta and alpha correlations. We suggest analyzing historical correlations as a guide to determining projected correlations.

In addition to analyzing the correlations over the full period available and over rolling periods, thinking about how asset classes and alphas interact in different market environments makes for a more robust understanding of a portfolio's exposures. For example, one may find it helpful to examine the correlations between stocks and bonds in various inflation environments (e.g., rising, falling, and stable inflation) or examine the alpha correlations among managers in different market environments (e.g., when equities are rising/falling, when small cap is outperforming/underperforming large cap, or when value is outperforming/underperforming growth).

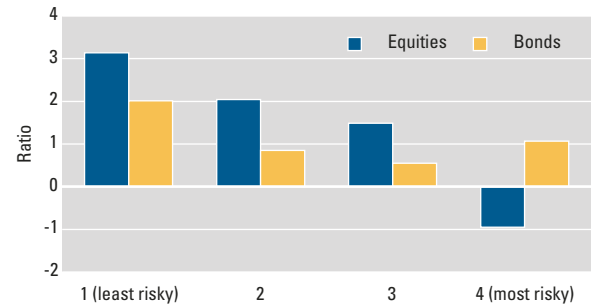
Next, it is important to balance risk across various dimensions, including:

- Market and active risk at the fund level
- Beta risk of asset class by market environment
- Active risk of allocations
- Tail risk at the fund level

In terms of the "tail risk" of each investment, one must ask: What is the worst-case downside risk? Analyzing the skew and kurtosis of each asset-class strategy can be beneficial in this regard. By better understanding the market and active risk of each component within each portfolio, a fund can determine how shifts will impact its overall portfolio balance across the dimensions listed above. Alpha and beta can be separated where possible to make for a more efficient structure.

**Figure 4**

### Average Return per Unit of Risk Across Different Risk Quartiles



Sources: S&P 500 Index, 10-year US Treasury bond total return (Datastream), Chicago Board Options Exchange Volatility Index (VIX), Wellington Management; data is for the period 12/31/79 – 4/30/09. For VIX quartiles, quartile 1: <15.3%; quartile 2: 15.3 – 18.9%; quartile 3: 18.9 – 23.4%; quartile 4: >23.4%.

## Targeting Constant Contribution to Risk

As we have noted, flexibility in today's markets is likely to be a more successful strategy than rigid, static structures that are set up to take a bullish or bearish stance. As such, funds may want to consider utilizing a dynamic volatility approach as a complement to their fund structure.

Persistent high levels of economic uncertainty may well feed through to significant volatility in risk premia – long enough to invalidate mean-reversion assumptions that are central to many rebalancing techniques. In such an environment, one might consider disciplined portfolio construction techniques that dynamically increase and decrease risk in portfolios by using quantitative approaches to help define the risk environment and objectively determine appropriate entry and exit points.

For illustrative purpose, consider a 70%/30% equity/bond portfolio. Historically, this has tended to result in a risk weighting of 97%/3%, given that stocks are typically more than four times as volatile as bonds. During periods of high volatility, as in our current environment, this risk bias toward equities can be at even higher extremes, totally dominating the overall portfolio's risk profile. In addition, in such volatile environments, stocks are typically much less efficient, generating lower returns while exhibiting much higher

Figure 5

### A CTR Approach Can Help Control Risk in Different Environments

	Return	Risk	Return	Risk	Return	Risk
	1930s		1997 – 2002		Jan 2008 – April 2009	
Constant Contribution to Risk	7.9%	15.3%	7.0%	10.6%	-15.8%	17.5%
3% Threshold Rebalance to 70:30	2.6%	26.1%	5.1%	12.9%	-20.7%	18.0%
Monthly Rebalance to 70:30	2.4%	26.1%	5.1%	12.8%	-21.0%	18.3%

Based on a 70:30 mix of S&P 500:Barclays Capital US Aggregate (76 – 08 Barclays Capital US Aggregate; 73 – 75 Barclays Capital G/C; 26 – 72 Ibbotson Intermediate Govt)

levels of risk. **Figure 4** indicates how equity return/risk ratios decline as volatility increases, as measured by the Chicago Board Options Exchange Volatility Index (VIX). Meanwhile, although bond volatilities have tended to increase during these periods, returns have typically improved.

In this framework, rebalancing a portfolio by buying back into poor-performing equities and selling bonds is counterintuitive and, worse, often nets suboptimal results. These issues are compounded by the “stickiness” of volatility, as volatility – when elevated – tends to remain that way for some time. As a result, relying on a swift, strong rebound in equity performance following a period of poor performance may be misguided in terms of its assumptions about risk.

A typical strategic mix is often based around fixed assumptions of risk, return, and correlations. However, as discussed above, this can result in disappointing outcomes, particularly when these variables change significantly. By considering the contribution to risk (CTR) of each asset class on an ongoing basis, it is possible to incorporate these changes within the strategic mix.

Instead of using fixed equity/bond weights, constructing a strategic mix that is based on a constant CTR analysis could be more effective. Such an approach looks to balance the risks from each asset class, adjusting the asset mix as the market evolves.

During historical periods where equities have struggled and volatility has been high, a CTR approach has favored selling down volatile asset classes and increasing allocations to lower-risk investments. This approach serves to allocate more toward risk assets in those environments where they perform strongest.

Consider three historical periods of high, persistent volatility – the 1930s, 1997 through 2002, and January 2008 through April 2009. This analysis details the simple example of a portfolio of stocks and bonds, but is equally applicable across a mix that contains a wider range of asset classes. **Figure 5** shows how this approach would have fared, relative to both a mean-reversion rebalancing approach (rebalancing when the deviation from the target weight is greater than 3%) and an approach that rebalances monthly. These two periods demonstrate how a constant CTR approach would have helped control portfolio risk, while also helping to boost returns, by reducing the weighting in equities in favor of bonds.

This volatility and CTR analysis can be utilized both to dictate rebalancing decisions and as a tool to inform active decisions on asset class exposures. Following a period of extreme volatility, the risk of employing such a strategy is that one may end up “fighting the last battle;” but one benefit of such a strategy is that it helps to enforce better diversification by focusing on the CTR from asset classes and active strategies.

## Conclusion

As noted, continuing to override strategic asset class target allocations by not rebalancing should be considered an active bet. We believe that the recent financial market turmoil and economic uncertainty should compel funds to review their overall portfolio structure and determine the appropriate positioning going forward. The decision to rebalance to existing long-term policy allocations or restructure a portfolio should be informed by each fund's perspective on whether return objectives and risk tolerance have changed, and by a view of asset class return and risk characteristics going forward. Our base case is that equity markets will be volatile but rangebound for the next three to five years. Accordingly, in portfolios where we have broad asset allocation discretion, we have been shifting to structures that exhibit a better balance of market and active risk and increased beta diversification, while also allowing for more asset allocation flexibility.

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