



THE PARADOX OF LOW-RISK STOCKS

GAINING MORE BY LOSING LESS

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Portfolio Manager—Strategic Core Equities

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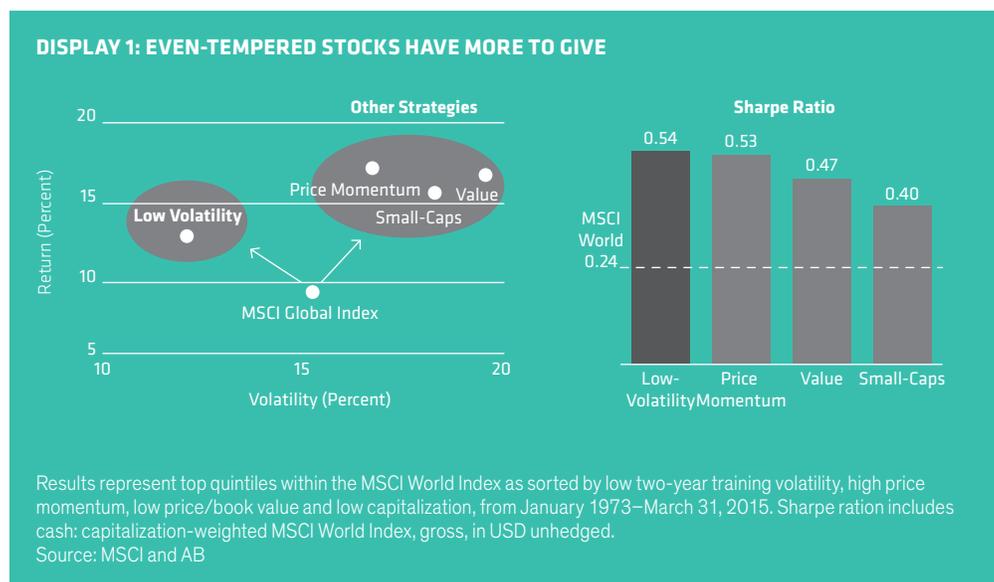
Portfolio Manager—Equities

IN THIS PAPER: Contrary to conventional wisdom, research shows that less volatile stocks tend to beat the market over the long term, in part by losing less in downturns. Our own research found that an active approach that combines low volatility and high fundamental quality produced even stronger performance. Because of its countercyclical behavior in market slumps, this strategy can be used as a source of uncorrelated alpha or as part of a plan's overall risk management.

WANTED: A BETTER SHOCK-RESISTANT EQUITY STRATEGY

After the serial market jolts of the past decade, investors prize stability as never before. The pressure on plans to reduce funding volatility has only intensified with the passage of new pension-accounting and insurance-solvency regulations. For many investors, this poses a dilemma: they want (and need) equity-like returns, but not the performance swings and downside risk that come with equities. The search for a better shock-resistant equity strategy has sparked interest in a powerful yet long-unappreciated market anomaly—that less volatile stocks tend to outperform market indices over the long term.

Less volatile stocks are inherently less exposed to market booms and busts. They won't soar as high in bull markets, but they generally won't fall as much in crashes and, thus, have less to make back when the market recovers. As a result, these “Steady Eddies” typically compound more of their gains over a full market cycle.



Like the physician, less volatile stock portfolios aim to “first, do no harm.”

The historical outperformance of low-risk stocks defies a central tenet of finance theory, which states that risk and return go hand in hand: accept more volatility and you'll be paid with higher rewards over time. Yet, academic research confirms that the low-volatility anomaly has been observable for much of the past century. It also spans asset classes and geographies. (For more details, see the sidebar, “The Low-Volatility Anomaly: Tortoise Beats Hare” on page 4.)

We did our own research into this anomaly's investment potential and found that explicitly targeting both low Volatility and measures of fundamental stability, and vetting for nearterm downside risks, produced even stronger results than passive low-volatility approaches. (We discuss these findings in the sidebar “Active Approach Produced Stronger Results” on page 8.)

A ROBUST BUT DIFFERENT KIND OF ANOMALY

The low-volatility effect is as robust as more prominent anomalies found in low-valuation, small-capitalization and high price momentum stocks. Since 1973, the least volatile quintile of global stocks delivered returns that were one-third higher than the market, with

20% less volatility. This performance generated a more than 50% higher Sharpe ratio—or absolute return relative to risk.

But the low-volatility anomaly works very differently from its better-known counterparts. That's because it's a “risk” anomaly, rather than a “return” anomaly. As such, it commands a distinct position on the efficient frontier, as illustrated in *Display 1, previous page*, which shows the intersection of long-term average returns and volatility for hypothetical low-volatility, value, small-cap and high price momentum portfolios.

A long-only value, small-cap or price-momentum strategy seeks to deliver above-market returns at similar or incrementally higher levels of risk. In contrast, a low-volatility portfolio, like the physician vowing to “first, do no harm,” aims to deliver market-like or better returns at below-market risk. Its strong suit is its protective behavior in crisis markets (*Display 2*). The least volatile quintile of global stocks fared better than the market in seven of the past eight major downturns, including during the recent European debt crisis, when it outperformed the market by 15%.

DISPLAY 2: LESS VOLATILE STOCKS PROVIDE A CUSHION IN CRISES

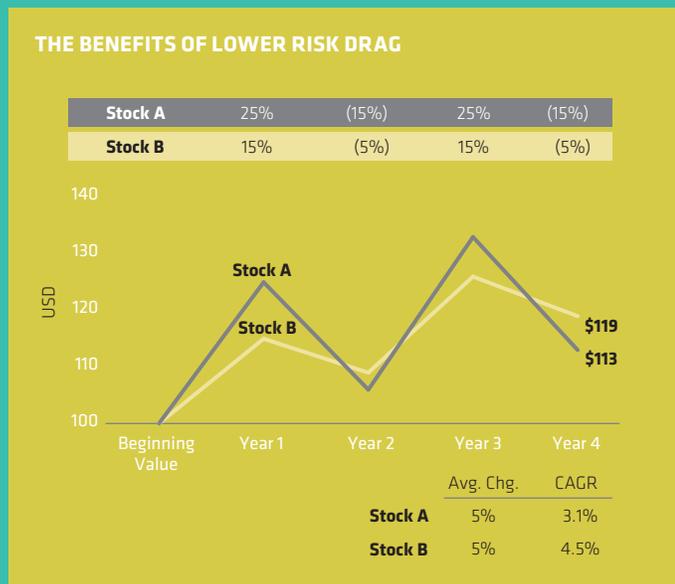
Relative Returns of the Least Volatile Quintile of Global Stocks



Returns for capitalization-weighted MSCI World Index, in USD unhedged, and for lowest quintile based on two-year trailing volatility; numbers may not sum due to rounding. Crisis markets are March 1973–September 1974; April 1981–July 1982; September 1987–November 1987; January 1990–September 1990; July 1998–September 1998; April 2000–September 2002; July 2008–February 2009; and May 2010–September 2011. Not intended to portray the results of any AB product. Source: MSCI and AB

THE LOW-VOLATILITY ANOMALY

TORTOISE BEATS HARE



Most of us know the classic tale about the race between the tortoise and the hare. Through overconfidence and overindulgence, the speedy hare loses to the slow-but-steady tortoise. A similar story can be told about investments. By avoiding the biases of overconfidence and overindulgence in hot stocks, a portfolio of less volatile stocks can beat the market over the long run.

The low-volatility anomaly is not a new discovery. Though evidence of its existence dates back to the 1920s, it was first identified in academic research in the early 1970s by financial-theory legends Fischer Black and Myron Scholes, and reaffirmed by Eugene Fama and Kenneth French in 1993. Research by Andrea Frazzini and Lasse Pedersen (2010) shows that this anomaly also works across asset classes and spans almost every major market, including the US, the UK, Japan, Australia, Germany and Canada.

The low-volatility effect benefits from lower risk drag, or the depressing influence of too much volatility on long-term performance. As shown in the *Display* above, a \$100 investment

in Stock B ends up ahead of a \$100 investment in Stock A—even though they both average 5% annual gains over the four-year period. That’s because of the compounding effect of the ups and downs on actual investment earnings. More volatile stocks have to work much harder than less erratic stocks to first restore the value lost during periods of declines and then to grow principal.

WHY IT WILL PERSIST

We are often asked: If the low-volatility effect has been known for so long, why hasn’t it been arbitrated away? The answer lies in the deeply ingrained behavioral biases and agency issues that cause investors to consistently overvalue highly volatile stocks and to overlook their stodgier counterparts. The penchant for buying high limits future upside and increases the chances for bigger losses when sentiment turns.

- + **Behavioral Biases.** A lottery mentality drives many investors to overpay for the small chance of winning big in riskier stocks. Overconfidence and a tendency to chase performance often lead investors to pile into hot stocks at precisely the wrong time.
- + **Agency Issues.** There is a natural inclination to avoid low-beta stocks in active management. To make it into an active portfolio, less volatile stocks have to offer much more outperformance potential than riskier stocks to compensate for getting less assistance from the market as a whole, which managers generally assume will rise over time. Since their success is measured versus a benchmark, managers also have a strong incentive to cling too closely to the benchmark—which itself may be embodying excessive enthusiasm for popular stocks.

Now that the anomaly is getting so much attention, will it disappear? We doubt it. Given the continued widespread use of cap-weighted benchmarks (exacerbated by the popularity of index-tracking strategies) and the typical constraints against the use of leverage in most plan guidelines, we expect the anomaly to persist—and to continue creating significant opportunities for long-term oriented investors to exploit.

Stocks in a low-volatility portfolio will typically look nothing like those in a typical value or growth portfolio. We found minimal overlap among hypothetical global low-volatility, value and growth stock portfolios (*Display 3*). Versus a cap-weighted index, a low-volatility portfolio will typically be overweight sectors such as utilities and consumer staples and underweight more economically or interest-rate-sensitive sectors such as technology and financials.

Because it's so different, a low-volatility strategy is an ideal complement to other active investing styles. Correlations of relative returns historically have been low to negative between the least volatile quintile and those of the value, small-cap and price momentum quintiles (*Display 4, top*) and versus those of median value, core and growth managers (*Display 4, bottom*).

HOW TO USE A LOW-VOLATILITY EQUITY STRATEGY

The extreme market volatility and regulatory changes of the past decade have forced many plans to rethink their strategic priorities. Traditional diversification strategies proved less effective than expected in limiting losses during the recent market collapse. New pension-accounting rules that require sponsors to restore funding shortfalls more quickly have heightened the need for better downside risk protection.

For plans seeking ways to better match their assets to their liabilities, funding-status challenges are driving a need for higher-return strategies. But, after recent setbacks, investors are finding the extra risk of equities harder to justify. In this environment, considerations of absolute risk and return have gained prominence, and traditional equity-benchmark-sensitive approaches have come under greater scrutiny.

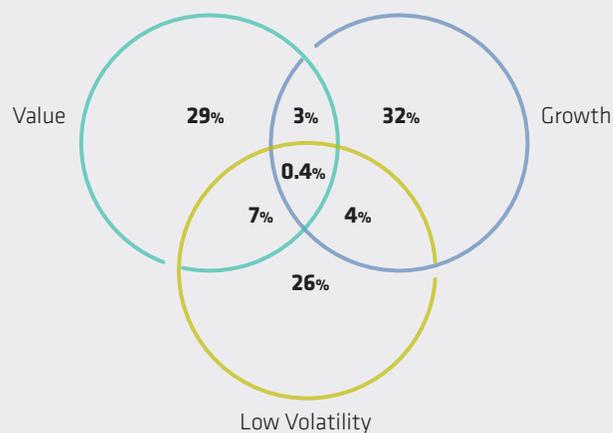
A low-volatility equity strategy may be the answer to what many plans are looking for today: a way to reduce the volatility of their equity exposure without sacrificing return potential or, conversely, a way to seek higher returns without adding risk.

AN UNCORRELATED SOURCE OF EQUITY ALPHA

Because it behaves so differently from other active approaches, a low-volatility portfolio offers strong diversifying benefits that can be used as a source of uncorrelated alpha or for more efficient risk budgeting. It complements other active strategies by filling an important, yet often overlooked, gap in traditional active equity allocations—that is, stability.

DISPLAY 3: LESS VOLATILE STOCKS ARE NEITHER GROWTH NOR VALUE

Average Weight in Hypothetical Global Portfolio 1990–Nov 2011



Value portfolio represented by the cheapest quintile of the Bernstein global large-cap universe based on the Bernstein valuation model; growth portfolio by the highest quintile based on the Bernstein Growth Score; and low-volatility portfolio by the least volatile quintile based on the Bernstein Adaptive Beta model. Source: MSCI, Thomson I/B/E/S and AB

DISPLAY 4: LOW VOLATILITY IS UNCORRELATED WITH OTHER ACTIVE STRATEGIES

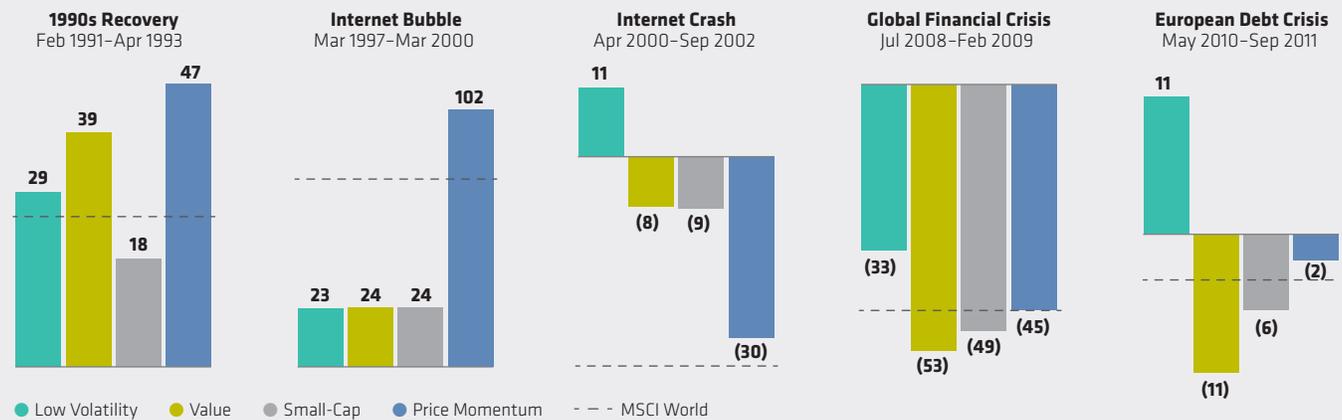
Correlations of Relative Returns vs. Low-Volatility Stocks*			
	Value	Small-Cap	Price Momentum
	(0.28)	(0.20)	0.20
Correlations of Relative Returns vs. Low-Volatility Stocks†			
	Value Managers	Core Managers	Growth Managers
	0.20	0.03	(0.02)

*Correlations of relative returns for the top quintile of global stocks based on low price-to-book, low-market capitalization and high-price momentum versus those of the lowest quintile of two-year trailing volatility, from January 1, 1973, to December 31, 2011.

† Median of the correlation of relative returns using eVestment data, based on 98 global core equity, 43 global growth equity and 66 global value equity managers reporting 10 years of monthly returns ending September 30, 2011. Source: eVestment, MSCI and AB

DISPLAY 5: LOW VOLATILITY MARCHES TO A DIFFERENT DRUMMER

Global Stock Returns (Percent)



Cumulative monthly returns of top quintiles within the MSCI World Index as sorted by two-year trailing volatility, low price to book (value), low capitalization (small-cap) and high price momentum; capitalization-weighted MSCI World Index, gross, in USD unhedged
Source: MSCI and AB

A key distinction between a low-volatility portfolio and other active investing styles is duration, or the time it takes for the underlying assumptions to bear fruit. Mean-reverting value strategies and many growth strategies, for example, are typically long duration, as they essentially work by exploiting misvaluations based on forecasts of future earnings. Value investors are rewarded on evidence of a turnaround, while many growth investors are rewarded when the higher expected growth materializes. Long-duration strategies tend to perform best when investors are confident about the future and are willing to give credit to cash flows that may take longer to develop.

In contrast, a low-volatility strategy is short duration. As such, it will tend to work best when investors are pessimistic about the future. Exposures will typically emphasize companies with traits that offer a perceived near-term payoff, such as healthy and stable current profitability, strong free cash flows, low debt and shareholder-friendly practices, as demonstrated by an above average dividend payout or low net equity issuance.

We see the low-volatility strategy's counterbalancing nature in action in *Display 5*, which compares the performance of hypothetical low-volatility, value, small-cap and high price momentum portfolios during five different market episodes. Notably, a low-volatility portfolio outperformed the other styles in the global financial crisis. It was the only portfolio to rise during the Internet crash and the European sovereign-debt crisis. As expected, it lagged the cap-weighted index and the momentum-based strategy during the Internet bubble. And, though it beat the market in the early-1990s rally, the value and price-momentum styles did better.

IMPROVING TRADITIONAL EQUITY ALLOCATIONS

Adding a low-volatility portfolio can benefit traditional equity allocations in two ways.

REDUCE RISK WITHOUT SACRIFICING RETURN POTENTIAL

In a traditional equity allocation diversified by style, geography and market capitalization, our research indicated that replacing 20% of the equity portfolio with low-volatility stocks generated a higher

Steadier equities can free up the risk budget and can be used in many ways.

Sharpe ratio than the traditional equity allocation (*Display 6, column A*), primarily by reducing absolute risk and beta.

Because this allocation had a beta closer to 1, its tracking error rose. For plans with large existing allocations to higher-alpha/higher-risk investments such as emerging-market or small-cap stocks, adding less volatile stocks may also reduce the total portfolio's tracking error by lowering market beta exposure.

INCREASE RETURN POTENTIAL WITHOUT ADDING RISK

A low-volatility portfolio can also free up the risk budget for more aggressive allocations to higher-alpha/higher-risk investments. In our back-testing, allocating 15% of an equity portfolio to low-volatility stocks and 5% to emerging-market stocks improved return and information ratio, with only a small pickup in tracking error (*Display 6, column B*). Tracking error could be held constant by shifting a portion of the allocation from low volatility and emerging markets into passive equities.

A SMARTER WAY THAN PASSIVE

Plans seeking to reduce overall investment risk have been flocking to low-cost, cap-weighted index-tracking strategies over the past decade. Our analysis showed that a low-volatility strategy is a more efficient way than these passive approaches to hedge against significant market declines while maintaining access to equity returns. Plans can also use this strategy to make their equity risk budget work harder.

REDUCE RISK WITHOUT SACRIFICING RETURN POTENTIAL

While cap-weighted passive strategies can reduce the relative risks associated with active management, they do nothing to curb absolute market (beta) risk. At worst, they can overexpose investors to high-risk stocks during market bubbles. For example, at the height of the Internet boom in the late 1990s, the largest 20 stocks by market cap accounted for more than a third of the S&P 500 Index. Most of these names were hot stocks in technology, media and telecom. Similarly dangerous concentrations surfaced with bank stocks in the years preceding the 2008 global market crash (*Display 7, page 10*) and with Japanese stocks in the MSCI World in the years preceding that market's collapse in 1990.

DISPLAY 6: A MORE EFFICIENT EQUITY ALLOCATION

	Typical Equity Allocation*	Low-Volatility Stock Allocation	
		Reduce Risk [†]	Increase Alpha [‡]
Absolute Perspective			
		A	B
Return	7.1%	8.0%	8.3%
Volatility	17.3%	16.2%	16.7%
Sharpe Ratio	0.3	0.4	0.4
Relative Perspective			
Return vs. MSCI ACWI	2.1%	3.0%	3.4%
Tracking Error	1.8%	2.2%	2.1%
Information Ratio	1.1x	1.4x	1.6x

*Typical allocation: 22.5% US large-cap value, 22.5% US large-cap growth, 2.5% US small-cap value, 2.5% US small-cap growth, 20% international large-cap value, 20% international large-cap growth and 10% emerging market

[†]Replaced 20% of typical allocation to US and MSCI EAFE large-cap, taken equally from each allocation, with the least volatile quintile based on two-year trailing volatility

[‡]Replaced 20% of typical allocation to US and MSCI EAFE large-cap, taken equally from each allocation, with 15% low-volatility stocks and an additional 5% emerging-market stocks

Returns are based on the weighted average return for each asset class, rebalanced monthly, for 10 years ended September 30, 2011. The eVestment manager universes were sorted each year by percentile rank based on price to book for value managers and five-year forward earnings growth for growth managers. The median monthly return was calculated based on the beginning of period valuation percentile rank for each calendar year, using the lower half for P/B and the higher half for earnings growth. For the MSCI EAFE large-cap growth universe from October 1, 2001, to December 31, 2005, few managers reported valuation characteristics, so the universe median shown is the median return for the highest-growth half of the universe beginning in January 2006.

Source: Barclays, Citigroup, eVestment, FactSet, MSCI and AB

Low-volatility stocks will generally be far less concentrated in high-flying stocks as the bubble inflates and, thus, suffer far less pain when the bubble bursts. As we saw earlier, a hypothetical low-volatility portfolio even rose during the Internet crash, largely because it had avoided high-flying technology stocks. No one can say for sure when a market is in bubble territory or when a bubble will pop. But a strategy that methodically avoids high-risk stocks takes some of the guesswork out of the equation.

ACTIVE APPROACH PRODUCED STRONGER RESULTS

A number of strategies have emerged in recent years in response to the growing investor desire to reduce downside portfolio risk. Some focus solely on reducing the symptoms of stock-price volatility, or beta. These include minimum-variance strategies, which use quantitative tools to achieve maximum diversification. Others focus solely on the fundamental causes of return volatility. These strategies specifically target the stocks of high-dividend payers and/or high-quality, stable-growth companies (for example, quality value or growth approaches), which are inherently less volatile.

The exclusive focus on volatility or beta can leave a portfolio vulnerable to risks that quantitative risk models cannot detect. It also tends to overlook important fundamental drivers of return. Emphasizing quality companies accesses the low-volatility anomaly only indirectly, and the success of this strategy relies heavily on the generally strong relationship between fundamental stability and low volatility. But a company's stock-price volatility isn't always apparent from just looking at its underlying fundamentals.

Our research indicates that a holistic approach that actively targets both the symptoms (price volatility) and causes (fundamental quality) of stock-price volatility is much more effective than each of these other strategies alone because it captures the same benefits and more.

THE SYMPTOM: TARGET LOW PRICE VOLATILITY

Stocks that have been less volatile in the past tend to remain less volatile, making it relatively easy to identify candidates for a low-volatility portfolio by simply screening for this metric. Our research revealed that beta was particularly effective, as it captured both a stock's idiosyncratic volatility and its correlation to the market. This work further showed that weighting beta to recent results was an even more reliable predictor of future volatility.

THE CAUSE: TARGET HIGH FUNDAMENTAL QUALITY

When we dug a little deeper, we discovered that focusing on certain quality characteristics within a universe of low-volatility stocks produced even stronger returns than simply screening for low volatility—with similar levels of risk.

We specifically emphasized traits of companies with stable, highly cash-generative businesses, such as high operating cash return on assets and above-average dividend payouts. We also targeted indicators of shareholder-friendly management practices. For example, low balance-sheet accruals suggest that a company is not pursuing growth through acquisitions, which can temporarily derail earnings progress and, more often than not, dilute shareholder value. Similarly, we look for low net-equity issuance, a sign that the

COMBINING LOW-VOLATILITY AND QUALITY-IMPROVED RESULTS

Low Volatility/Quality Portfolio Simulated Annualized Results January 1, 1989–November 30, 2011



These results are based on simulated or hypothetical performance results that have certain inherent limitations. Unlike the results shown in an actual performance record, these results do not represent actual trading. Results include estimates of trading costs and market impact; however, because these trades have not actually been executed, results may have under- or overcompensated for these costs. Simulated or hypothetical trading programs in general are also subject to the fact that they are designed with the benefit of hindsight. No representation is being made that any account will or is likely to achieve returns or a volatility profile similar to those being shown. Returns based on simulations from January 1, 1989, to November 30, 2011, net of transaction costs and management fees. Passive Low Volatility screen based on lowest adaptive beta quintile; Active Quality Signal based on highest AB quality edge quintile; combination portfolio is simulation of a monthly optimization using a low-volatility screen, AB Active Quality Signal and equity risk model; all portfolios are equally weighted and rebalanced monthly.

Source: MSCI and AB

company is repurchasing its own stock rather than issuing new dilutive shares. Our research also showed that focusing on market signals of asymmetrical downside risk, such as options skew and short interest, can also add value.

THE BEST OF BOTH WORLDS

By drawing on quantitative and fundamental research signals of low volatility and quality, we found that we could capture each perspective's predictive strengths while also compensating for their inherent vulnerabilities.

In simulations, a hypothetical active combination portfolio maintained the higher return potential provided by our proprietary quality signals while improving the risk-reduction benefits provided by the passive low-volatility screen (*Display, left*). Since 1975, this combination strategy consistently delivered positive relative returns, especially when adjusted for risk (*Display, right*). It was also better at cushioning losses in downturns than the passive low-volatility screen. For instance, the simulated combination portfolio fell half as much as the market during the global financial crisis, and

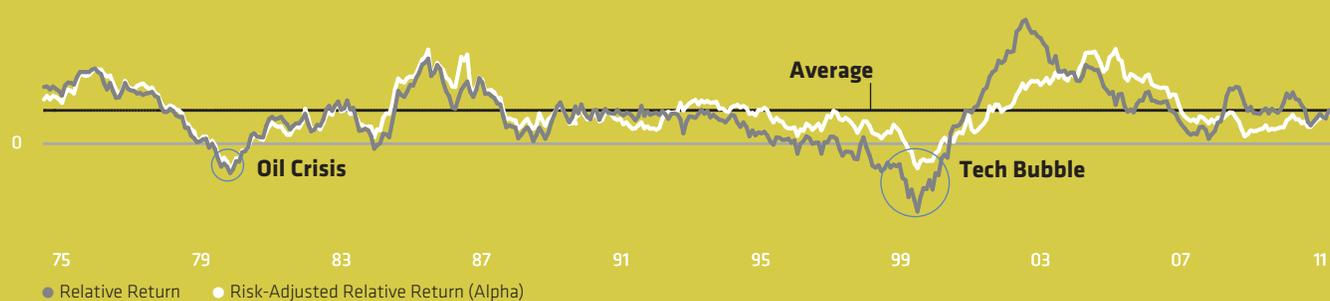
actually rose 14% during the European sovereign-debt crisis that began in May 2010, when global stocks and other active strategies weakened, as shown in Display 5.

ACTIVELY MANAGING PORTFOLIO AND STOCK-SPECIFIC RISK

Quantitative risk tools can be effective in reducing portfolio risk by helping to better manage the interrelationships among stocks in the portfolio. However, they generally rely on the assumption that these historical associations will remain reliable predictors of risk in the future. In our view, minimizing unwanted exposures that are not captured by traditional risk models also requires investment experience and judgment. We found that it was critical to actively monitor companies for potential idiosyncratic risks that might threaten their fundamental stability and/or cause a short-lived increase in stock-price volatility. These would include an unexpected acquisition, a shift in top management, or new regulatory or legal issues. This extra layer of fundamental oversight can help weed out companies that may be headed for uncharacteristic periods of erratic stock performance.

COMBINATION CONSISTENTLY DELIVERED IN SIMULATED TESTS

Low Volatility/Quality Portfolio Simulated Relative Returns vs. MSCI World Index (Percent)

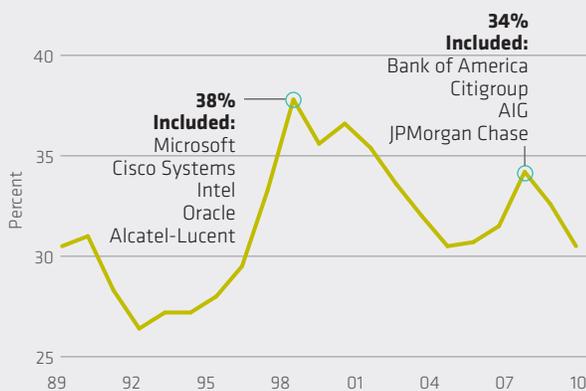


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Source: FactSet, MSCI and AB

DISPLAY 7: AVOIDS DANGEROUS CONCENTRATIONS DURING BUBBLES

Weight of 20 Largest Stocks in S&P 500 Index



Through December 31, 2010
Capitalization-weighted S&P 500
Source: MSCI, S&P and AB

INCREASE RETURN POTENTIAL WITHOUT ADDING RISK

By replacing passive equities with a low-volatility portfolio, a plan can also increase equity exposure without changing its risk profile. In a hypothetical multi-asset allocation, shifting from a 40% bonds/60% passive equity scheme to a 25% bonds/75% low-volatility equity strategy generated significantly higher returns at similar levels of risk (*Display 8*).

A LIQUID, TRANSPARENT ALTERNATIVE TO ALTERNATIVES

Many investors have sought uncorrelated alpha and lower downside risk through alternative strategies, including private equity and hedge funds. These also promise to deliver equity-like returns with much less volatility—and, in some cases, to preserve capital in down

DISPLAY 8: A MORE EFFICIENT MULTI-ASSET ALLOCATION

	Base Case Equity/ Bonds 60%/40%	Replace Passive with Hypothetical Low-Volatility Portfolio	
		Reduce Risk	Improve Return
Passive Equity	60.0%	–	–
Low-Volatility Stocks*	–	60.0%	75.0%
Bonds	40.0%	40.0%	25.0%
Return	8.2%	10.6%	11.2%
Volatility	9.7%	8.0%	9.5%

*Monthly data sorted for the lowest quintile of the MSCI World Index based on two-year trailing volatility from January 1973 to September 30, 2011
Source: Barclays, Citigroup, FactSet, MSCI and AB

DISPLAY 9: A LIQUID, TRANSPARENT ALTERNATIVE TO ALTERNATIVES

	Low-Volatility Stocks*	Hedge Fund Return Index [†]	Equity Hedge Funds
Return	8.5%	5.8%	4.6%
Volatility	12.3%	6.8%	9.2%
Sharpe Ratio	0.5	0.4	0.2
Correlation [‡]	0.85	0.83	0.84
Fees	~50 b.p.	2%/20%	2%/20%

*Monthly data sorted for the lowest quintile of the MSCI World Index based on two-year trailing volatility from January 2000 to September 30, 2011; net of fees
†The HFRI Fund Weighted Composite Index is a global, equal-weighted index of more than 2,000 reporting single-manager funds. Constituent funds report monthly net of all fees performance in USD and have a minimum of \$50 million assets under management or a 12-month track record of active performance. Does not include funds of hedge funds. Managers maintain both long and short positions primarily in equity and equity derivative securities, and strategies use a wide variety of investment processes, can be diversified or focused on specific sectors, and can range in net exposure, leverage, holding period, market capitalizations and valuation characteristics.
‡Correlations of returns versus MSCI World
Source: Hedge Fund Research, MSCI and AB

Capitalizing on these unique powers requires a long-term view.

DISPLAY 10: LOW VOLATILITY'S SUCCESS REQUIRES A LONG-TERM VIEW

Simulated Returns in Periods of Strongest Market Gains: January 1973–November 2011

	MSCI World	Low-Volatility Portfolio	Relative Return
Monthly	5.3%	4.0%	(1.3%)
1-Year Rolling	29.7	30.8	1.1
3-Year Rolling*	22.0	25.5	3.4
5-Year Rolling*	19.9	24.0	4.1

Simulated results in the third of all months with the strongest one-month, trailing 12-month, trailing 36-month and trailing 60-month capitalization-weighted MSCI World Index gains from January 1, 1973 to November 30, 2011, in USD; simulated low-volatility portfolio's returns are net of transaction costs and management fees. These results are based on simulated or hypothetical performance results that have certain inherent limitations. Unlike the results shown in an actual performance record, these results do not represent actual trading. Results include estimates of trading costs and market impact; however, because these trades have not actually been executed, results may have under- or overcompensated for these costs. Simulated or hypothetical trading programs in general are also subject to the fact that they are designed with the benefit of hindsight. No representation is being made that any account will or is likely to achieve returns or a volatility profile similar to those being shown.

*Annualized

Source: MSCI and AB

markets. Our research found that a hypothetical low-volatility equity portfolio can provide many of these same benefits (*Display 9*), but with greater transparency, no leverage and lower fees, which may make it more palatable to some plan sponsors. Since 2000, our back-tests showed that the Sharpe ratio of the low-volatility portfolio and the global hedge fund index were roughly the same. Adding a low-volatility portfolio to an equity or multi-asset allocation also produced similar risk-reduction and return-enhancement benefits to those of a global equity hedge fund universe.

CAVEAT EMPTOR: LONGER-TERM HORIZON REQUIRED

Investors must accept that a low-volatility portfolio will tend to lag when markets are buoyant, sometimes badly and for long stretches. This was the case during the Internet boom and in the late 1970s,

when the least volatile quintile of global stocks was underweight energy stocks that were soaring amid a spike in oil prices. Investors may be less appreciative of this strategy's loss-cushioning attributes when other strategies are delivering much bigger gains. To fully benefit from this "gaining more by losing less" approach, investors must have a long-term investment horizon. This point is clearly demonstrated in *Display 10*, which shows that a hypothetical low-volatility portfolio's relative performance during rolling periods of the strongest market gains steadily improved as the time horizon lengthened. It lagged in short-term rallies, but outperformed in medium- and long-term bull markets.

CONCLUSION

After the turbulent past several years, investors are looking for investments that provide equity-like returns with less volatility. They also want downside protection that works when they need it most. A low-volatility equity strategy seeks to meet these pressing demands. Given the enduring nature of the behavioral biases and agency issues driving the outperformance of less volatile stocks, we expect this anomaly to remain a highly exploitable investment opportunity. Our analysis shows that a low-volatility strategy's risk-taming benefits and countercyclical alpha delivery give it unique powers that can be used either as a source of uncorrelated equity alpha or as part of a plan's overall risk management.

As we delved deeper into this anomaly's potential, our research revealed that combining low volatility and high fundamental quality, and using quantitative risk tools and fundamental research to actively manage portfolio and company-specific risk, can produce better results than passive low-volatility solutions. Still, it won't always be easy to tolerate the tendency of a low-volatility portfolio to fall behind in market rallies, especially when other active strategies are performing better. To capture its full benefits, investors in this strategy must accept its distinct behavior and maintain a longer-term perspective.

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