

Investing with composure in volatile markets

By James C. Liu, CFA



“The key to successful investing is not predicting the future, but looking at the present with clarity.”

DR. DAVID KELLY, CFA
Chief Global Strategist, J.P. Morgan Funds

With an ever-increasing amount of investment information available, it is not unusual to feel inundated and even overwhelmed by all the data.

J.P. Morgan Asset Management’s Market Insights program is designed to provide financial professionals and their clients with the tools and knowledge they need to make informed investment decisions more confidently.

OVERVIEW

- Market volatility has begun to increase after several years of calm. Investors should stay focused on long-term market fundamentals instead of short-term news.
- The volatile and asymmetric returns that are experienced on a daily basis are smoothed over during monthly and annual periods. Expanding the investment holding period over years and decades has historically improved the risk/return profile of an investor's portfolio.
- Diversified, regularly rebalanced portfolios have typically resulted in higher Sharpe ratios than other equity asset classes over 10-, 15- and 20-year horizons.

Stock market volatility has begun to increase after several years of calm. Geopolitical conflicts, the ongoing Euro area crisis, central bank policies and the age of this business cycle are but a few reasons investors are nervous today. Overreacting to short-term news and normal market movements often leads investors to inappropriately alter their asset allocations, potentially harming their ability to achieve long-term investment goals.

Rather than fear volatile markets, investors should maintain their composure by staying focused on long-term economic and market expectations.

In this paper¹, we discuss three simple principles that can help investors maintain this balance: keeping market volatility in perspective, focusing on longer investment time horizons and maintaining portfolio discipline. While the past is clearly no guarantee of the future, we believe that investors who can see beyond short-term volatility will make better investment decisions.

¹ This paper is an updated version of a paper with the same title, originally released in May 2014.

Putting volatility in perspective

On October 19, 1987, later referred to as Black Monday, the S&P 500 experienced a fall of 20.5%. This is still the worst day for the stock market on record. While days like Black Monday have occurred throughout history, they are rare and unpredictable. In fact, because Black Monday was a result of trading behavior and not market or economic fundamentals, the S&P 500 still finished the year with a slight gain.

Volatility is unavoidable in investing. There are many measures of market volatility, including the standard deviation of returns, the VIX index, implied options volatility and dozens more. For long-term investors, the most meaningful measure may be the largest intra-year decline (or maximum drawdown) since it represents the largest loss an investor experiences during a given year. Exhibit 1, a chart from the *Guide to the Markets*, shows this measure relative to each year's annual return.

These drawdowns can occur over days, weeks or months. Having the fortitude to stay invested during these periods requires discipline that has often been rewarded. For example, the maximum drawdown of 5.8% in 2013 occurred when the Federal Reserve began hinting at reduced asset purchases. 2014 saw a similar market pullback, when the market fell 7.4% during October over a variety of global concerns. Despite the negative

market reactions and subsequent volatility, neither episode was in reaction to underlying economic growth trends.

Consequently, those who stayed invested during each period benefited from subsequent market rebounds. Not only did the market recover in each case, but the intra-year pullbacks also rank as two of the shallowest on record in the past 87 years. Exhibit 2 summarizes the best and worst intra-year drawdowns since 1928.

Drawdowns can range from mild to severe

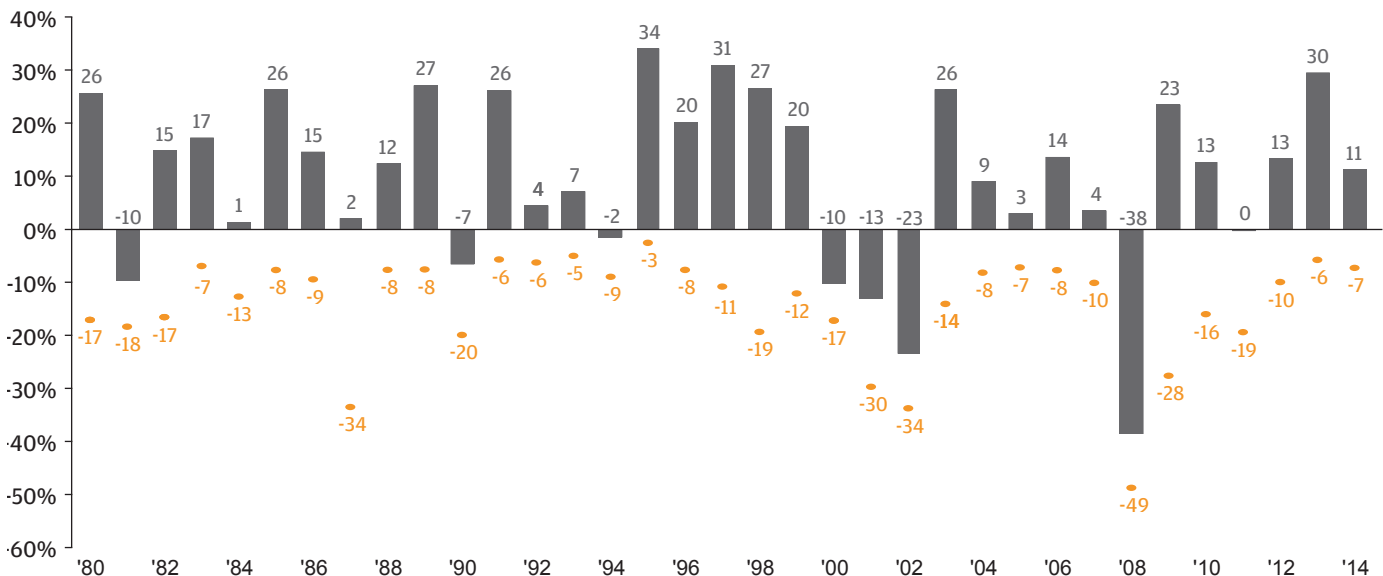
EXHIBIT 2: S&P 500 INTRA-YEAR DRAWDOWNS VS. CALENDAR YEAR RETURNS - 1928 TO 2014*

WORST			BEST		
	Intra-Year Drawdown	Year-End Return		Intra-Year Drawdown	Year-End Return
1931	-58%	-47%	1992	-6%	4%
1932	-51%	-15%	2013	-6%	30%
2008	-49%	-38%	1991	-6%	26%
1937	-46%	-39%	1972	-5%	16%
1929	-45%	-12%	1993	-5%	7%
1930	-44%	-28%	1961	-4%	23%
1974	-38%	-30%	1954	-4%	45%
2002	-34%	-23%	1958	-4%	38%
1987	-34%	2%	1964	-4%	13%
2001	-30%	-13%	1995	-3%	34%

Source: Standard & Poor's, FactSet, J.P. Morgan Asset Management. Returns are based on price index only and do not include dividends. Intra-year drawdowns refers to the largest market drops from a peak to a trough during the year. For illustrative purposes only. *Returns shown are calendar year returns from 1928 to 2014. Data are as of 1/31/15.

Despite average intra-year declines of 14.2%, annual returns were positive 27 of 35 years*

EXHIBIT 1: S&P 500 INTRA-YEAR DECLINES VS. CALENDAR YEAR RETURNS



Source: Standard & Poor's, FactSet, J.P. Morgan Asset Management. Returns are based on price index only and do not include dividends. Intra-year declines refers to the largest market drops from a peak to a trough during the year. For illustrative purposes only. *Returns shown are calendar year returns from 1980 to 2014. Data as of 1/31/15.

Investors should continue to expect stock market volatility as valuation levels rise and the Federal Reserve becomes increasingly likely to raise rates. In this type of environment, it is even more important to distinguish between volatility that results from short-term news rather than long-term fundamentals, and to stay focused on the latter. Exhibit 3 summarizes the frequency of drawdowns of various sizes that investors have experienced over the course of the average year.

Small stock market pullbacks are normal

EXHIBIT 3: FREQUENCY BY SIZE OF DRAWDOWN, THRESHOLDS ANALYZED INDEPENDENTLY*

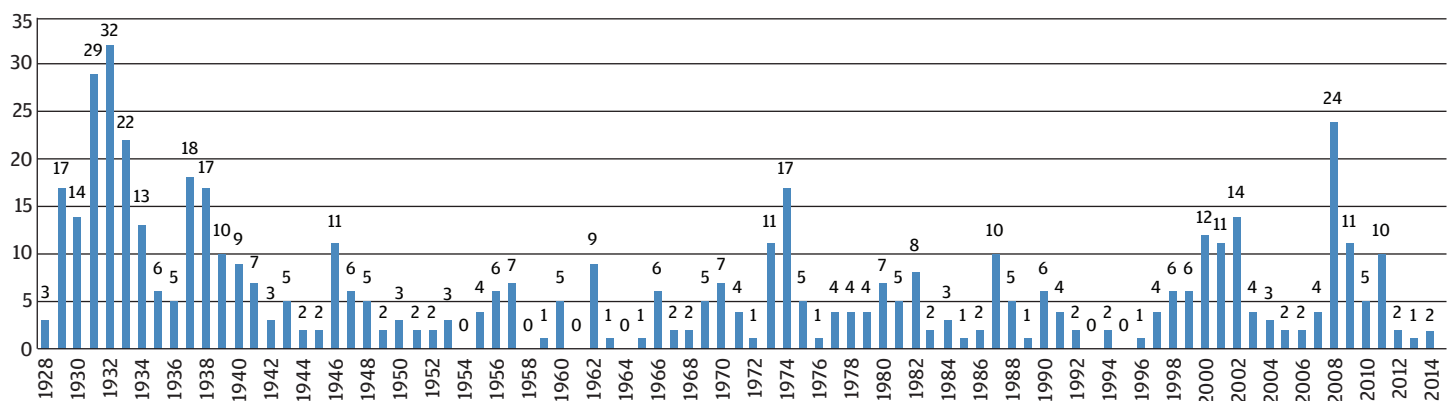
Drawdown Threshold	Historical Frequency	Typical # per Year	Typical Recovery Time
20%	Once per Market Cycle	0	20 Months
10%	Once per Year	1	8 Months
5%	Once per Quarter	4	2 to 3 Months
3%	Once per Month	11	2 to 6 Weeks
2%	Often	18	1 to 4 Weeks

Source: Standard & Poor's, FactSet, J.P. Morgan Asset Management. Returns are based on price index only and do not include dividends. For illustrative purposes only. *Analysis based on each type (size) of drawdown being independent. For example, the market does not typically see four 5% drawdowns and one 10% drawdown in the same year, but rather those 5% drawdowns may compound into a single 10% drawdown for the year. Data are as of 1/31/15.

Market corrections of 20% or more have historically occurred at the end of market cycles. But how volatile can markets be in the short run? Historically, the market has pulled back 5% an average of four times a year, or about once a quarter. In fact, as shown in Exhibit 4, every year since 1995² has seen at least one 5% pullback, with periods of elevated uncertainty, such as the euro area crisis in 2011, experiencing several. Despite this, the market has tended to fully recover within three months.

Moderate pullbacks happen frequently even in normal times

EXHIBIT 4: NUMBER OF 5% DRAWDOWNS EXPERIENCED PER YEAR



Source: Standard & Poor's, FactSet, J.P. Morgan Asset Management. For illustrative purposes only. Returns are based on price index only and do not include dividends. Data are as of 1/31/15.

² Similar to 2013, 1995 was an exceptional year for the U.S. stock market, which gained 34% with a maximum drawdown of only 2.5%.

Drawdowns between 2% and 3% occur far more often, at least monthly on average, and have historically fully recovered within weeks. Thus, short-term pullbacks occur frequently and should not in and of themselves be reasons for panic. In addition, while Exhibit 3 shows roughly how often pullbacks occur, the frequency can vary significantly depending on market conditions. Consequently, these statistics are not a reason to “wait for a pullback,” since markets can do very well in the interim. Instead, investors should focus on underlying market fundamentals and the economic outlook when deciding whether to adjust their long-term portfolio allocations.

Keep an eye on the long-term horizon

Although volatility is unavoidable, it is a reason for investors to maintain a long-term perspective rather than a reason for pessimism. After all, an investor’s sensitivity to market volatility is largely determined by his or her investment time horizon, and U.S. equity markets have rewarded those who have stayed invested over longer periods of time.

Broad market returns behave differently over daily, monthly and annual periods. This is summarized in Exhibit 5. For S&P 500 daily returns, the median historical return is -52 basis points (bps) on down days and +51 bps on up days. In other words, daily market returns and volatility are asymmetric; negative days are worse than positive days are good. This makes intuitive sense; although it takes a long time for the market to climb higher, it can fall quickly.

Markets tend to settle up, frustrating market timers

EXHIBIT 5: S&P 500 RETURN STATISTICS SINCE 1928

	% Up	Median Return	Median Up Return	Median Down Return
Daily	53%	0.05%	0.51%	-0.52%
Monthly	59%	0.9%	3.1%	-2.7%
Annual	67%	10.8%	16.8%	-11.9%

Source: Standard & Poor's, FactSet, J.P. Morgan Asset Management. For illustrative purposes only. Returns are based on price index only and do not include dividends. Data are as of 1/31/15.

However, the fact that 53% of days are positive offsets this imbalance. This is precisely why market timing is alluring to investors who are attempting to avoid losses, but also why doing so ultimately fails since gains occur more often.

The volatile and asymmetric returns experienced over days and weeks are smoothed over during the course of months and years. Thus, overreacting to short-term volatility is likely to backfire. Monthly returns improve upon daily returns with 59% of months experiencing gains. Annual returns are better still. Since 1928, 67% of years have seen positive returns, with average gains far outpacing losses.

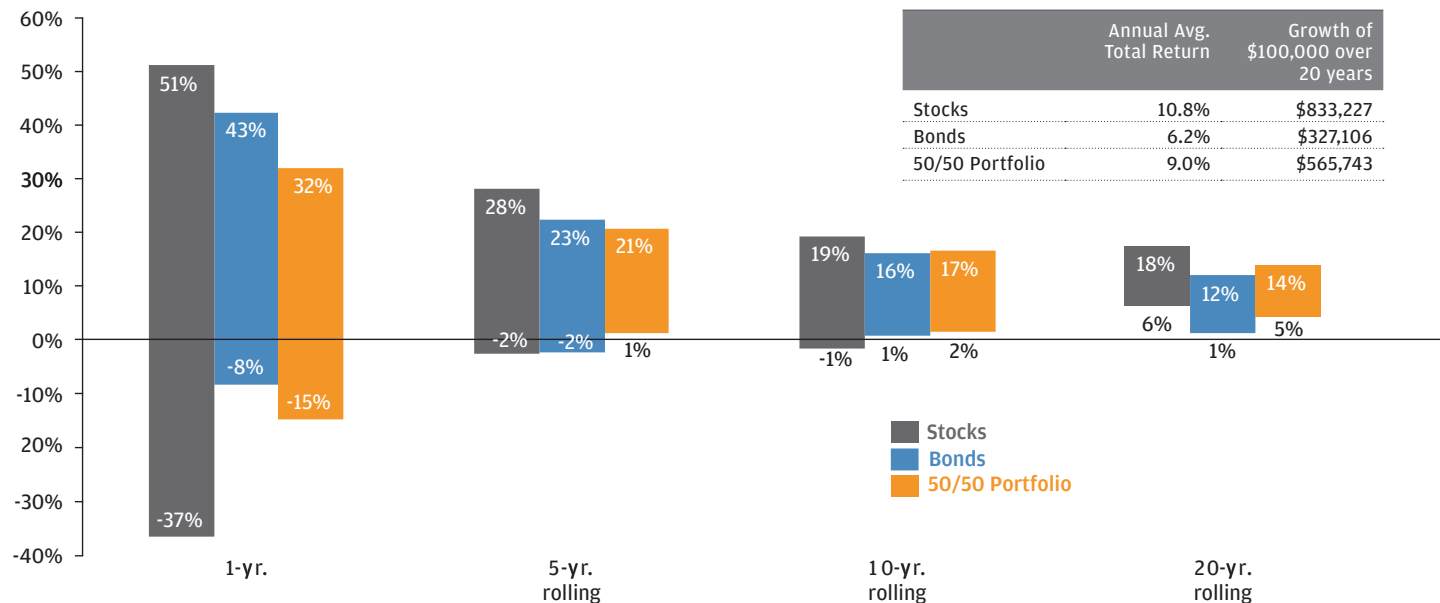
In addition to focusing on months and years rather than days, investors should also consider longer investment horizons. Exhibit 6 from the *Guide to the Markets* demonstrates that expanding the investment holding period over years and decades has historically improved the risk/return profile of an investor's portfolio. Over any one-year period, the S&P 500 has experienced gains as high as 51% (in 1954) and losses as low as -37% (in 2008). Clearly, an undiversified equity portfolio is inappropriate for short-term goals.

Simply expanding to a five-year holding period improves the risk/return profile of stocks dramatically, with the worst five-year period since 1950 experiencing only a 2% decline. Most important, there has never been a 20-year period in the post-war era that has experienced losses. While this is no guarantee of future returns, it demonstrates the importance of specifying the right time horizon to minimize portfolio risk.

Exhibit 7 shows in greater detail the historical effect of investing in a stock portfolio with different holding periods. For example, the bars on the one-year chart show the values of successive \$100 investments that were made one year earlier. The periods highlighted in gray represent periods when a loss would have

The investment time horizon is a powerful tool for managing volatility

EXHIBIT 6: RANGE OF ANNUAL TOTAL RETURNS, 1950 - 2014

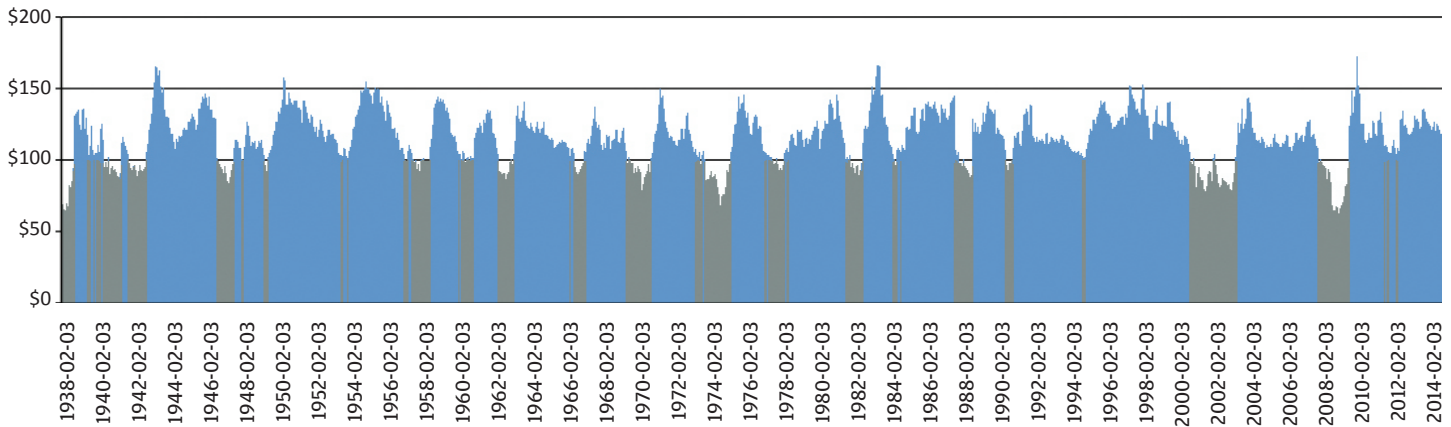


Sources: Barclays Capital, FactSet, Robert Shiller, Strategas/Ibbotson, Federal Reserve, J.P. Morgan Asset Management. Returns shown are based on calendar year returns from 1950 to 2014. For illustrative purposes only. Growth of \$100,000 is based on annual average total returns from 1950 to 2014. *Guide to the Markets* - U.S. Data are as of 1/31/15.

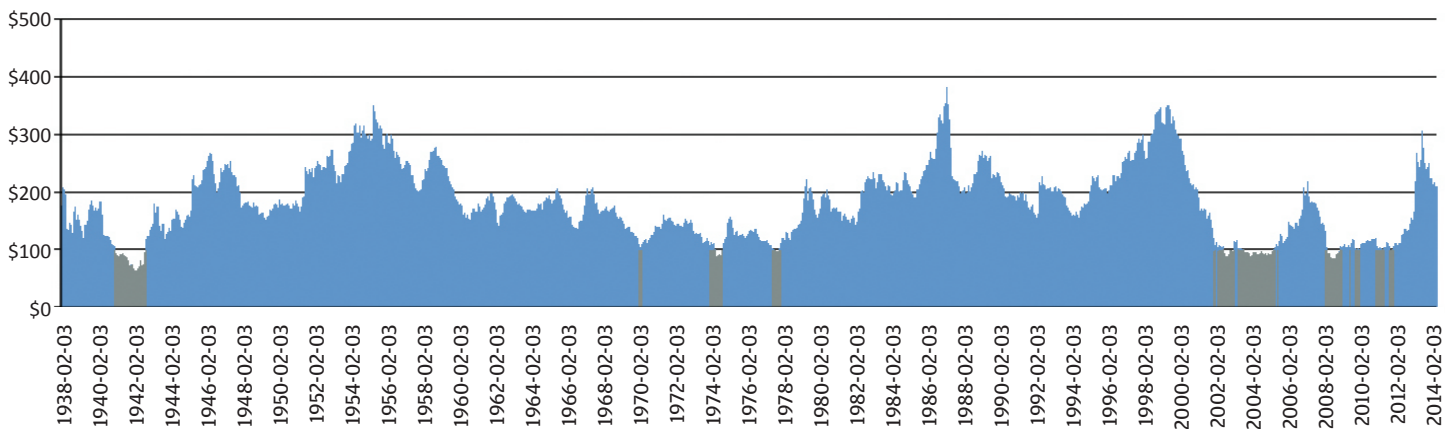
Longer time horizons can allow markets to work for investors

EXHIBIT 7: FREQUENCY OF AN EQUITY INVESTMENT BEING UNDERWATER BASED ON INVESTMENT HORIZON

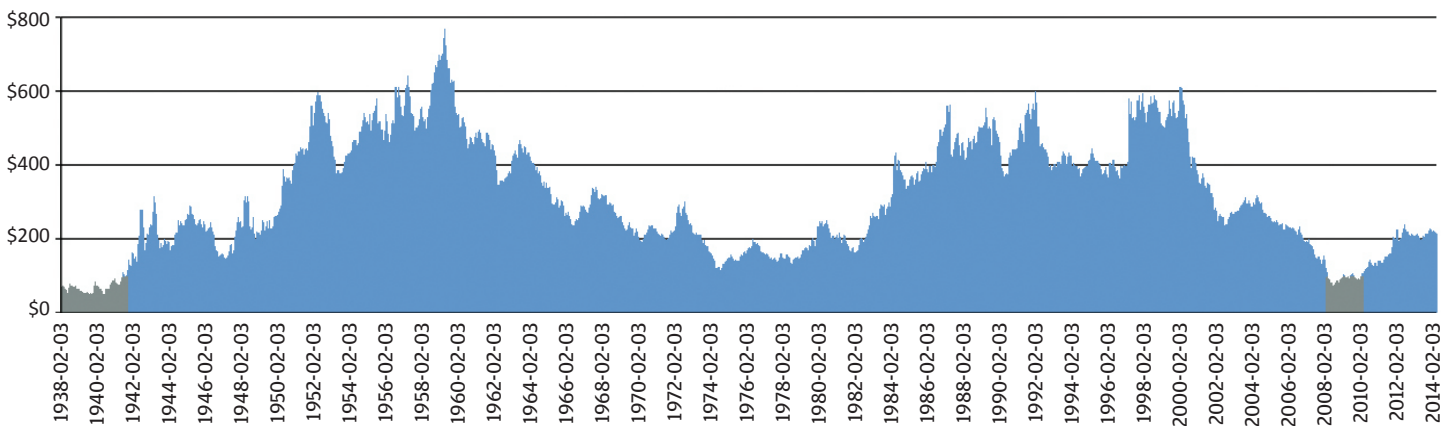
1-Year Horizon



5-Year Horizon



10-Year Horizon



— Negative return, based on an initial investment of \$100, over the time period.
 — Positive return, based on an initial investment of \$100, over the time period.

Source: Standard & Poor's, FactSet, J.P. Morgan Asset Management. For illustrative purposes only. Returns are S&P 500 total returns including reinvested dividends. Data are as of 1/31/15.

been experienced at the end of each investment horizon. For a one-year horizon, these periods occur quite often, resulting in risk regardless of the market cycle. The initial \$100 investment would have lost close to \$50 in 2008 from the year prior, while investing near the bottom in 2009 would have resulted in a gain of more than \$50 a year later.

By contrast, there are fewer periods when a five-year portfolio is underwater, and the periods that do occur are related to broad

market cycles. In other words, these periods are less idiosyncratic, with stretches of positive performance lasting decades or longer. For example, successive five-year holding periods beginning in 1937 through 1965, a 28-year span, resulted in positive returns. Also, gains overshadow losses compared with the one-year holding period portfolios. This is why strategies that invest over a market cycle, such as dollar-cost averaging and dividend reinvestment, are powerful.

Portfolio diversification and rebalancing can provide greater stability in volatile markets

EXHIBIT 8: ASSET CLASS RETURNS - 2005 TO 2014

2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	YTD	10-yrs. '05-'14 Cum.	10-yrs. '05-'14 Ann.
MSCI EME 34.5%	REITs 35.1%	MSCI EME 39.8%	Barclays Agg 5.2%	MSCI EME 79.0%	REITs 27.9%	REITs 8.3%	REITs 19.7%	Russell 2000 38.8%	REITs 28.0%	REITs 6.2%	MSCI EME 132.0%	MSCI EME 8.8%
Bberg Cmdty 21.4%	MSCI EME 32.6%	Bberg Cmdty 16.2%	Cash 1.8%	MSCI EAFE 32.5%	Russell 2000 26.9%	Barclays Agg 7.8%	MSCI EME 18.6%	S&P 500 32.4%	S&P 500 13.7%	Barclays Agg 2.1%	REITs 122.3%	REITs 8.3%
MSCI EAFE 14.0%	MSCI EAFE 26.9%	MSCI EAFE 11.6%	Market Neutral 1.1%	REITs 28.0%	MSCI EME 19.2%	Market Neutral 4.5%	MSCI EAFE 17.9%	MSCI EAFE 23.3%	Barclays Agg 6.0%	MSCI EME 0.6%	Russell 2000 111.3%	Russell 2000 7.8%
REITs 12.2%	Russell 2000 18.4%	Market Neutral 9.3%	Asset Alloc. -24.0%	Russell 2000 27.2%	DJ UBS Cmdty 16.8%	S&P 500 2.1%	Russell 2000 16.3%	Asset Alloc. 15.0%	Asset Alloc. 5.2%	MSCI EAFE 0.5%	S&P 500 109.5%	S&P 500 7.7%
Asset Alloc. 8.3%	S&P 500 15.8%	Asset Alloc. 7.4%	Russell 2000 -33.8%	S&P 500 26.5%	S&P 500 15.1%	Cash 0.1%	S&P 500 16.0%	Market Neutral 9.3%	Russell 2000 4.9%	Cash 0.0%	Asset Alloc. 87.2%	Asset Alloc. 6.5%
Market Neutral 6.1%	Asset Alloc. 15.2%	Barclays Agg 7.0%	Bberg Cmdty -35.6%	Asset Alloc. 22.2%	Asset Alloc. 12.5%	Asset Alloc. -0.6%	Asset Alloc. 11.3%	REITs 2.9%	Cash 0.0%	Asset Alloc. -0.3%	MSCI EAFE 61.5%	MSCI EAFE 4.9%
S&P 500 4.9%	Market Neutral 11.2%	S&P 500 5.5%	S&P 500 -37.0%	Bberg Cmdty 18.9%	MSCI EAFE 8.2%	Russell 2000 -4.2%	Barclays Agg 4.2%	Cash 0.0%	Market Neutral -0.5%	Market Neutral -0.7%	Barclays Agg 58.4%	Barclays Agg 4.7%
Russell 2000 4.6%	Cash 4.8%	Cash 4.8%	REITs -37.7%	Barclays Agg 5.9%	Barclays Agg 6.5%	MSCI EAFE -11.7%	Market Neutral 0.9%	Barclays Agg -2.0%	MSCI EME -1.8%	S&P 500 -3.0%	Market Neutral 54.0%	Market Neutral 4.4%
Cash 3.0%	Barclays Agg 4.3%	Russell 2000 -1.6%	MSCI EAFE -43.1%	Market Neutral 4.1%	Cash 0.1%	Bberg Cmdty -13.3%	Cash 0.1%	MSCI EME -2.3%	MSCI EAFE -4.5%	Russell 2000 -3.2%	Cash 15.7%	Cash 1.5%
Barclays Agg 2.4%	Bberg Cmdty 2.1%	REITs -15.7%	MSCI EME -53.2%	Cash 0.1%	Market Neutral -0.8%	MSCI EME -18.2%	Bberg Cmdty -1.1%	Bberg Cmdty -9.5%	Bberg Cmdty -17.0%	Bberg Cmdty -3.3%	Bberg Cmdty -17.1%	Bberg Cmdty -1.9%

Source: Russell, MSCI, Bloomberg, Standard & Poor's, Credit Suisse, Barclays Capital, NAREIT, FactSet, J.P. Morgan Asset Management.

The "Asset Allocation" portfolio assumes the following weights: 25% in the S&P 500, 10% in the Russell 2000, 15% in the MSCI EAFE, 5% in the MSCI EME, 25% in the Barclays Capital Aggregate, 5% in the Barclays 1-3m Treasury, 5% in the CS/Tremont Equity Market Neutral Index, 5% in the Bloomberg Commodity Index and 5% in the NAREIT Equity REIT Index. Balanced portfolio assumes annual rebalancing. All data represents total return for stated period. Past performance is not indicative of future returns. Data are as of 1/31/15, except for the CS/Tremont Equity Market Neutral Index, which reflects data through 12/31/14. "10-yrs" returns represent period of 12/31/04 - 12/31/14 showing both cumulative (Cum.) and annualized (Ann.) over the period. Market Neutral returns include estimates found in disclosures. *Guide to the Markets* - U.S. Data are as of 1/31/15.

Diversification does not guarantee investment returns and does not eliminate the risk of loss.

A 10-year window only performed poorly during the Great Depression and the Great Recession. Stock returns over 10-year holding periods beginning in 1936 to 2003, a 67-year stretch, were positive. In addition, the returns generated are far larger over the longer horizon due to compounding. Clearly, investors who can see beyond short-term market volatility by expanding their time horizons can benefit from broad market and economic cycles.

Portfolio stability in an unstable world

Stock market volatility can be managed in a portfolio by following a disciplined diversification and rebalancing investment approach. Exhibit 8, also from the *Guide to the Markets*, illustrates the performance of a diversified portfolio relative to the performance of the underlying asset classes. Over the prior 10 years, the asset allocation portfolio has generated annualized returns of 6.5%, comparing quite nicely to other major asset classes.

More important, by diversifying and rebalancing properly, an asset allocation portfolio achieved these returns with lower volatility than other equity asset classes. Over this 10-year period, the asset allocation portfolio's volatility was two-thirds

that of the overall stock market and almost one-third that of emerging market equities. By construction, this portfolio has provided more stability than any individual asset class.

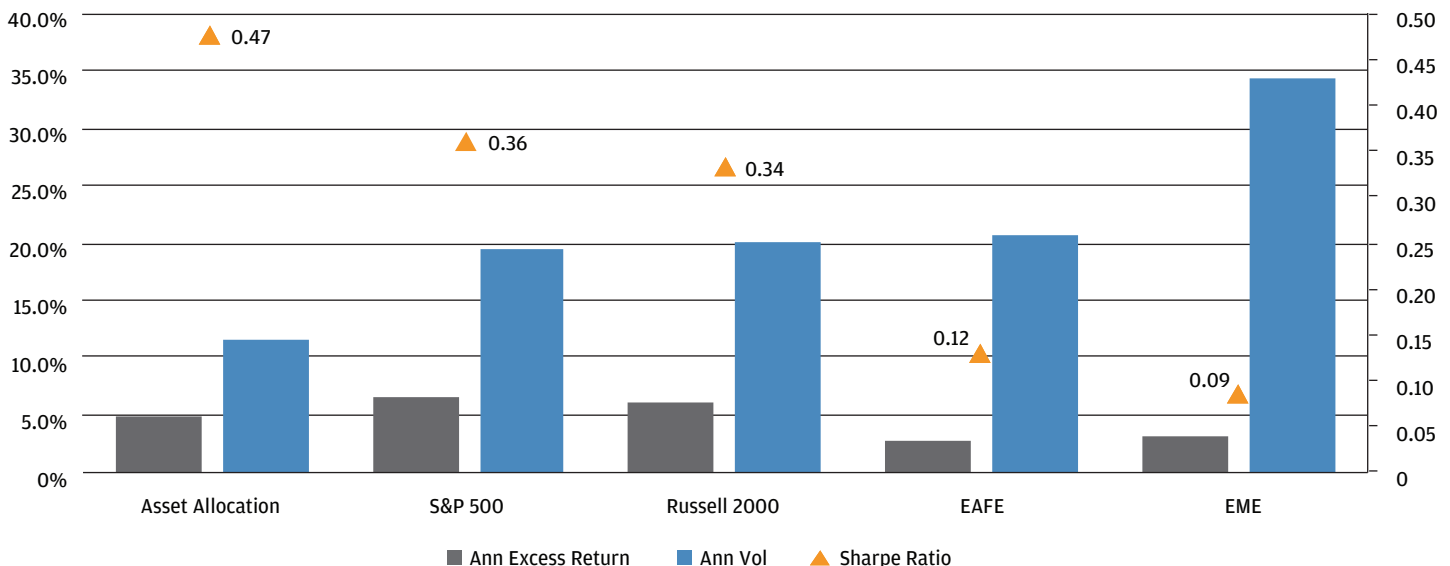
Solid returns and lower volatility for the asset allocation portfolio result in a superior risk/return profile. Exhibit 9 shows that the realized Sharpe Ratio, which measures the trade-off between returns and volatility, is higher for the asset allocation portfolio than any other equity asset classes. This holds true over 10-, 15- and 20-year horizons. The historical record shows that diversification and rebalancing are powerful tools for combating market volatility.

NOTHING TO FEAR BUT FEAR ITSELF

The prior five years of relative market stability has given way to higher levels of volatility as markets continue to reach new peaks and monetary policy normalizes. Investors should keep market volatility in perspective, invest over longer time horizons and maintain portfolio discipline. Those who can see beyond short-term volatility by focusing on these three simple principles will likely be rewarded for their patience and discipline.

The last 20 years have favored the diversified investor by controlling risk

EXHIBIT 9: RETURNS, VOLATILITY AND SHARPE RATIOS FOR SELECT BENCHMARKS - 1994 TO 2014



Source: Russell, MSCI, Dow Jones, Standard & Poor's, Credit Suisse, Barclays Capital, NAREIT, FactSet, J.P. Morgan Asset Management. The "Asset Allocation" portfolio assumes the following weights: 25% in the S&P 500, 10% in the Russell 2000, 15% in the MSCI EAFE, 5% in the MSCI EME, 25% in the Barclays Capital Aggregate, 5% in the Barclays 1-3m Treasury, 5% in the CS/Tremont Equity Market Neutral Index, 5% in the DJ UBS Commodity Index and 5% in the NAREIT Equity REIT Index and assumes annual rebalancing. For illustrative purposes only. Past performance is not indicative of future returns. Market Neutral returns include estimates found in disclosures. *Guide to the Markets* - U.S. Data as of 1/31/15.

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James C. Liu, CFA
Global Market Strategist
J.P. Morgan Funds

James C. Liu, Executive Director, is a Global Market Strategist on the J.P. Morgan Funds Global Market Insights Strategy Team. In this role, James develops and communicates timely market and economic insights to financial advisors across the country.

Prior to joining J.P. Morgan, James was a Partner at Copia Capital, a hedge fund in Chicago. In leading the firm's economic and quantitative research, he successfully developed unique market perspectives and investment ideas for institutional long/short and market neutral funds. Previously, he held roles at HSBC and Wellington Management.

James is a CFA charterholder. He earned an MBA with honors from the University of Chicago Booth School of Business with concentrations in analytic finance, economics, econometrics and statistics. He also holds a BA from the University of California, Berkeley.

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Market Neutral returns for November 2008 are estimates by J.P. Morgan Funds Market Strategy, and are based on a December 8, 2008 published estimate for November returns by CS/Tremont in which the Market Neutral returns were estimated to be +0.85% (with 69% of all CS/Tremont constituents having reported return data). Presumed to be excluded from the November return are three funds, which were later marked to \$0 by CS/Tremont in connection with the Bernard Madoff scandal. J.P. Morgan Funds believes this distortion is not an accurate representation of returns in the category. CS/Tremont later published a finalized November return of -40.56% for the month, reflecting this mark-down. CS/Tremont assumes no responsibility for these estimates.

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J.P. MORGAN ASSET MANAGEMENT
270 Park Avenue | New York, NY 10017

MI-WP-InvestComp