Get invested, stay invested:
Preparing for market volatility

In brief

- Though it is impossible to predict the future, expecting volatility in the coming years is a safe bet. Market volatility is normal.
- It is especially important to be mindful about how to dampen portfolio volatility in the later stages of the business cycle.
- Investing with a long time horizon and through a diversified portfolio are the best ways to batten down the hatches against volatility and avoid emotional investing errors like selling the market at the bottom.

“A smooth sea never made a skilled sailor”

A market without volatility would be unnatural, like an ocean without waves. The free market, like the open ocean, is constantly churning. For some investors, market-moving waves can be exciting, providing a buying opportunity for mispriced securities. For other investors, the waves might feel violent; but truthfully, for long-term investors, market volatility should be irrelevant.

The degree of market volatility varies from small ripples, to rolling waves, to a financial crisis-sized tsunami. While all volatility feels uncomfortable in the near term, the important question for long-term investors is how to respond to it. In this bulletin we outline four principles that will help investors navigate a choppy market.
Expect bigger waves

We are entering the later stages of a long economic expansion. While we expect a healthy, growing economy in the coming year, it is important to acknowledge that volatility tends to be elevated in the second half of the business cycle. To expand upon our nautical metaphor, we liken the cyclical nature of volatility to the ocean tide. Volatility ebbs with the positive and steadfast economic news that characterizes the beginning of the business cycle, and it flows when the market is mired by slowing economic momentum and fears of recession. Exhibit 1 illustrates this concept over the previous three business cycles.

Skittish investors who are skeptical of the prospects of future economic growth are the main cause of the bigger waves at the end of the cycle. When there are fears of a recession, investors’ “edge of seat” mentality causes quick and sometimes irrational decision making, and the subsequent herd behavior can amplify the market drawdown and ultimately cause tsunami-magnitude volatility.

Volatility tends to be higher in the later stages of the business cycle

EXHIBIT 1: BUSINESS CYCLE TRough-TO-TRough ANALYSIS
30-DAY REALIZED S&P 500 VOLATILITY

<table>
<thead>
<tr>
<th>Business cycle</th>
<th>Trough-to-Trough</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980-1982</td>
<td>14%</td>
</tr>
<tr>
<td>1982-1991</td>
<td>12%</td>
</tr>
<tr>
<td>1991-2001</td>
<td>10%</td>
</tr>
<tr>
<td>2001-2009</td>
<td>16%</td>
</tr>
<tr>
<td>1980-1982</td>
<td>16%</td>
</tr>
<tr>
<td>1982-1991</td>
<td>17%</td>
</tr>
<tr>
<td>1991-2001</td>
<td>18%</td>
</tr>
<tr>
<td>2001-2009</td>
<td>18%</td>
</tr>
</tbody>
</table>

Source: Standard & Poor’s, J.P. Morgan Asset Management; data are as of December 31, 2016. For illustrative purposes only.

Grab an oar! Here is what you will need to do...

Actually, as a long-term investor you’ll need to do less than you think. Your diversified portfolio was built to feel steady in rough seas.

1. Remember that volatility is normal.

Volatility in the market is normal, and feeling uneasy about a lower portfolio value is normal too. Illustrating how often investors experience moderate pullbacks is simple enough. Exhibit 2 depicts the number of 5% pullbacks experienced each year. The chart reminds us that even in years with outstanding equity returns, there are rolling waves of volatility in the market. What we cannot show in a chart is the seasickness an investor feels while riding these waves to a lower portfolio value.

Historical analysis shows that pullbacks of 5% have occurred about once a quarter, and pullbacks of 10% are likely to occur once per year. Large pullbacks greater than 20% tend to occur just once per market cycle. A savvy investor will recognize the high frequency of equity market volatility, and will determine the source of the volatility before reacting to it.
Moderate pullbacks happen frequently, even in normal times

EXHIBIT 2: NUMBER OF 5% PULLBACKS EXPERIENCED IN THE S&P 500, PER YEAR

2. Do not jump ship at the bottom: Markets tend to rebound after bouts of volatility.

Focusing on the long-term trends of the market rather than the short-term gyrations should give investors the confidence to ride the waves of volatility. When examining historic equity market data, we see a trend of rebounds following equity market pullbacks. That means that investors who jump ship after a big wave may have broken the cardinal rule of investing by “selling low.”

Exhibit 3 shows the largest intra-year decline and the calendar year return every year since 1980. Despite an average intra-year drop of 14.2%, the market ended the year higher than it began it 76% of the time. That is why it is important for investors to ride the wave of volatility through its full cycle.

Despite average intra-year drops of 14.2%, annual returns are positive in 28 of 37 years

EXHIBIT 3: S&P 500 INTRA-YEAR DECLINES AND CALENDAR YEAR RETURNS

Source: FactSet, Standard & Poor’s, J.P. Morgan Asset Management. Returns are based on price index only and do not include dividends. Intra-year drops 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 2016. Data are as of December 31, 2016.
We recognize some of the deep market pullbacks in Exhibit 3. The pullback of nearly 50% in 2008, for example, occurred in the wake of the global financial crisis. And the three consecutive years of negative returns in the early 2000s were the devastation left after the tech bubble burst. These tsunamis of volatility occurred because of massive market dislocations, a fundamental swing and the end of a business cycle. However, for many of the smaller pullbacks over the past 40 years, there is no coincident fundamental trend. Much of the volatility in the market represents noise that is irrelevant to the economic bedrock and fundamental landscape for equities.

An extreme example of equity market noise occurred in 1987 on Black Monday, when the stock market experienced its worst day to date, losing over 20% of its value. Black Monday occurred as a result of numerous interconnected causes that led to an intense global sell-off. Remarkably, the market finished the year up 2% because, despite the volatility, economic growth continued and equity market fundamentals remained intact. Investors with the fortitude to stay invested through Black Monday would have experienced a positive return in 1987.

Frequent pullbacks in the market can be unsettling, and can encourage market timing, but investors should not jump ship. Being fully invested is particularly important when there is market volatility, because the best and the worst days in the market tend to be clustered together. If you were lucky enough to miss the worst days, you also were likely to have missed the best days.

Examining your quarterly statement, it is difficult to synthesize the portfolio impact of missing the best days in the market. However, Exhibit 4 shows that missing these days has a real impact on investment performance. A fully invested portfolio would have returned nearly double one that missed the 10 best days in the market. Additionally, as the majority of the best days occur within two weeks of the 10 worst days in the market, it is likely that investors who sold equity because of seasickness after a bad day often also missed a big rebound.

Six of the 10 best days occurred within two weeks of the 10 worst days

**EXHIBIT 4: RETURNS OF S&P 500**

**PERFORMANCE OF A $10,000 INVESTMENT BETWEEN JANUARY 1, 1997 AND DECEMBER 30, 2016**

<table>
<thead>
<tr>
<th>Fully Invested</th>
<th>Missed 10 best days</th>
<th>Missed 20 best days</th>
<th>Missed 30 best days</th>
<th>Missed 40 best days</th>
<th>Missed 50 best days</th>
<th>Missed 60 best days</th>
</tr>
</thead>
<tbody>
<tr>
<td>$43,933</td>
<td>$21,925</td>
<td>$13,662</td>
<td>$9,025</td>
<td>$6,132</td>
<td>$4,275</td>
<td>$3,050</td>
</tr>
</tbody>
</table>

This chart is for illustrative purposes only and does not represent the performance of any investment or group of investments. Source: J.P. Morgan Asset Management analysis using data from Bloomberg. Returns are based on the S&P 500 Total Return Index, an unmanaged, capitalization-weighted index that measures the performance of 500 large capitalization domestic stocks representing all major industries. Past performance is not indicative of future returns. An individual cannot invest directly in an index. Data as of December 31, 2016.
3. Focus on the destination: Investors with a long time horizon experience less volatile returns.

While volatility can cause major deviations in the near term for equity markets, investors should focus on their destination. Examining rolling returns for equities in Exhibit 5 shows that, while historic annual returns have varied from -38% to +47% in a single year, rolling annualized returns, over a 20-year period, have been positive for the past 60 years.

Unfortunately, short-term investors are much more likely to realize the waves of volatility that occur over the one-year investment horizon. Investors with long-term goals, who are able to shift their focus to the long-term return potential of equity investments, have the luxury of realizing infrequent negative equity market returns.

The range of annualized returns becomes less volatile with an extended investment horizon

EXHIBIT 5: ANNUAL TOTAL RETURNS, 1956-2016

<table>
<thead>
<tr>
<th></th>
<th>1-yr.</th>
<th>5-yr. rolling</th>
<th>10-yr. rolling</th>
<th>20-yr. rolling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stocks</td>
<td>-39%</td>
<td>43%</td>
<td>23%</td>
<td>18%</td>
</tr>
<tr>
<td>Bonds</td>
<td>-8%</td>
<td>-2%</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>50/50</td>
<td>15%</td>
<td>21%</td>
<td>19%</td>
<td>17%</td>
</tr>
<tr>
<td>Portfolio</td>
<td>47%</td>
<td>28%</td>
<td>19%</td>
<td>17%</td>
</tr>
</tbody>
</table>


4. Batten down the hatches with diversification.

We live in a headline-driven world, where media often impacts equity prices in the near term. But your portfolio should not be a dinghy tossed and turned by market churn; it is possible to gain portfolio stability through diversification. While equities tend to perform better with economic growth and moderate levels of inflation, rate-sensitive fixed income is important to portfolios when economic growth falters. Although we have a positive outlook on U.S. equities in the coming year, other developed market equities can give your portfolio both exposure to risk factors outside the U.S. economy and to faster-growing emerging market economies that may help boost portfolio returns. Small cap stocks provide a pro-cyclical tilt to a portfolio compared to large cap stocks, though they can also be more sensitive to growth scares.

While a combination of various asset classes should improve portfolio returns, diversification is most valuable for keeping a portfolio on an even keel. Exhibit 6 illustrates how diversification has improved the risk/return profile of an asset allocation portfolio relative to equities over the past 20 years. This means investors in a diversified asset allocation portfolio cruised past market volatility feeling the fewest waves possible. A key to achieving more portfolio stability is to batten down the hatches with diversification before a storm hits.
Diversification gives your portfolio stability, enhancing the risk/return trade-off

**EXHIBIT 6: ANNUALIZED RETURNS, VOLATILITY AND SHARPE RATIO FROM 12/31/1996 – 12/31/2016**

Navigating volatility

Though it is impossible to predict the future, expecting market volatility in the coming years is a safe bet. Just as the last 20 years have favored the diversified investor, we expect the next 20 years to do the same. Investors need risk assets in their portfolios to reach long-term investment goals, and staying invested throughout that time horizon can be investors’ biggest challenge. History shows that diversification and rebalancing are the best tools for reducing portfolio volatility and providing a gentler ride through sometimes difficult seas.

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Source: Barclays, Bloomberg, FactSet, MSCI, NAREIT, Russell, Standard & Poor’s, J.P. Morgan Asset Management. Large cap: S&P 500, Small cap: Russell 2000, EM Equity: MSCI EME, DM Equity: MSCI EAFE, 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 Aggregate, 5% in the Barclays Global High Yield Index, 5% in the Bloomberg Commodity Index and 5% in the NAREIT Equity REIT Index. Balanced portfolio assumes annual rebalancing. Annualized (Ann.) return and volatility (Vol.) represents period of 12/31/96 - 12/31/16. All data represent total return for stated period. Excess return is calculated using the Barclays 1-3m Treasury as a proxy for the risk-free rate. Data are as of December 31, 2016.
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