A Modern Approach to Asset Allocation and Portfolio Construction

Anthony B. Davidow, CIMA®
Vice President, Alternative Beta and Asset Allocation Strategist
Schwab Center for Financial Research

James D. Peterson, PhD
Senior Vice President, Chief Investment Officer
Charles Schwab Investment Advisory, Inc.
Asset allocation—dividing an investment portfolio into different asset classes, such as large-company stocks, small-company stocks, international stocks, bonds, commodities, cash investments, etc.—has been the cornerstone of investment planning for decades. The goal of asset allocation is to reduce risk through diversification by having exposure to a variety of investments that perform differently during various market conditions.

In recent years, though, we’ve seen higher correlations—or more movement in tandem—between asset classes during periods of market stress. Some are questioning the value of asset allocation and the merits of Modern Portfolio Theory (MPT), which states that optimal portfolios can be created by considering the relationship between risk and return.

It is important to understand that asset allocation still helps investor portfolios even during times of market turmoil. In fact, as long as assets aren’t moving in perfect lockstep, the longstanding benefits of diversification still hold true.
However, we believe that investors should consider adapting their asset allocation strategies to account for higher correlations and new investment choices.

The rise of non-traditional asset classes such as commodities, as well as, expanded stock and bond sub-asset classes, has given investors additional diversification options. At the same time, mutual funds and exchange traded funds (ETFs) have given individual investors low-cost vehicles to pursue opportunities once confined to institutional investors.

Charles Schwab & Co, Inc. has evaluated the asset allocation approaches used in the market today. This paper outlines our views about the appropriate asset mix for different types of investors, and explains the process of constructing a diversified portfolio based on those views. It also highlights the benefit of making controlled tactical shifts within each asset class to respond to fluctuating market and macroeconomic conditions.
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I: Traditional asset allocation

Asset allocation forms the basis of Schwab's investment philosophy. By providing a framework for deploying capital over a mix of investments, asset allocation allows investors to diversify their holdings and help mitigate downside risk. This built-in benefit is a well-known feature of asset allocation, and it makes intuitive sense—when one asset class suffers, it pays to not have all your eggs in one basket.

But there's another advantage to asset allocation that is not understood as clearly: the potential to grow wealth. An appropriately allocated portfolio helps smooth out the ups and downs of the market so investors can enjoy the positive compounding of returns over time.

1.) More than the sum of the parts

Consider the following example with two investments:

- $100 invested in U.S. large-company stocks (as represented by the S&P 500® Index) at the beginning of 1970 would have grown to $7,771 by the end of 2013.

- $100 invested in commodity markets (as measured by the S&P GSCI® Index) would have grown to $4,829 over the same time period.

But if that $100 had been invested in a 50-50 split of both investments, the portfolio would have grown to $9,457 over the same span. This return is 20% more than the stock portfolio alone and almost double the return of the commodity portfolio, while demonstrating lower average risk (see Exhibit 1). While stocks and commodities are both deemed relatively risky investments, combining them helps mitigate the risk of the portfolio. This is due to their relatively low correlation to one another.
The difference that a diversified portfolio can deliver over the sum of its parts is what Nobel Prize winning economist Harry Markowitz once called “the only free lunch in finance.” In other words, diversification can deliver benefits over time at no additional cost.

This “free lunch” is made possible by the fact that individual assets typically aren’t perfectly correlated. If asset values do not move in perfect harmony, then a diversified portfolio will have less risk than the weighted average risk of its constituent parts. In fact, a diversified portfolio can often have less risk than its lowest-risk constituent, as it does in the example.

The reason lower portfolio risk can lead to higher wealth in the long run is that a portfolio with lower risk generally does not decline as much in a market downturn, so it can recover more quickly than a riskier portfolio that has declined sharply. For example, a portfolio that falls in value by 25% must grow by 33% to recover from its loss. But a portfolio that declines by 10% only needs to grow by 11% to fully recover.

2.) Ongoing evolution

Markowitz first introduced the concept of diversification in 1952. Markowitz’s work, which served as the foundation for MPT, concluded that an investor could reduce the overall risk of a portfolio by including investments that have low correlations to one another.¹

Since then, others have built upon this core premise.

- In 1964, Bill Sharpe introduced the Capital Asset Pricing Model (CAPM), which described the relationship between risk and expected return, and introduced “beta” as a measure of sensitivity to market risk. Markowitz and Sharpe won the Nobel Prize in Economics in 1990 for their significant contribution to MPT.

- In 1986, Gary Brinson, Randolph Hood and Gilbert Beebower studied the allocations of 91 pension funds and concluded that asset allocation decisions, on average, explained more than 90% of pension fund risk, as measured by the volatility of returns over time.

- In 2000, Roger Ibbotson and Paul Kaplan showed that a large portion of the variation in time-series returns comes from general stock market movements, not the specific asset allocation decision. More importantly, they correctly point out that many investors mistakenly believe that the Brinson, Hood, and Beebower result applies to the return level. They argue that because, on average, investors do not beat the market (the average return of those who do beat the market is offset by the average return of those who don’t), asset allocation policy explains 100% of the typical individual investor’s level of return.

While some challenged these findings over the years, it wasn’t until after the 2008 financial crisis that the merits of MPT were widely questioned. Critics pointed to higher correlations between asset classes during periods of market stress—essentially undermining diversification benefits when investors need them the most.

As we examine the role of asset allocation in investor portfolios today, it’s important to understand that even during periods of market stress, diversification still makes sense as long as assets don’t move in perfect lockstep.

It’s also important to recognize that asset allocation strategies can be dynamic—both in choosing which asset classes to include and in making tactical adjustments to reflect short- or long-term changes in the market or macroeconomic environment.

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II: New market realities

MPT needs to evolve further to reflect new market realities and the ongoing expansion of asset allocation to non-traditional asset and sub-asset classes. Taken together, these realities have significant implications for investors.

1.) Assets are more correlated

The diversification benefits associated with combining assets into a portfolio are driven primarily by how closely the returns on those assets move together, and correlation is a statistical measure of that relationship.

When two assets are perfectly positively correlated, they have a correlation of +1. They move in perfect harmony, so there are no benefits from combining them in a portfolio. When two assets are perfectly negatively correlated, they have a correlation of -1. In this case, combining the two assets into a portfolio can eliminate all risk. A correlation of zero means that the two assets are uncorrelated. In this case, they don’t move together at all and there are substantial benefits to diversification, but risk cannot be completely eliminated.

In reality, no two assets are perfectly correlated—either positively or negatively. In practice, most correlations are positive, and investors should seek investments with lower correlation to one another. Relatively few assets have low or negative correlations with each other.

As noted before, assets have become more highly correlated in recent years. We examined correlations for four equity asset classes over three different time periods (see Exhibit 2). We found that correlations have generally been rising since 1995–2000 (as seen below by the increasing amount of red and orange squares). This means that diversification benefits have been decreasing over time.

Exhibit 2: Equity correlations have been rising

Source: Charles Schwab Investment Advisory, Inc. and Morningstar Direct.
We believe that correlations have been rising due to greater inter-connectivity between global markets. Multinational corporations have proliferated to such an extent that what happens in Europe and Asia impacts the U.S. markets and vice versa. Many Fortune 100 companies in the United States depend on emerging markets for growth; and many overseas corporations depend on demand from American consumers. In addition, access to more information via the Internet is fueling the inter-connectivity.

In 2008, correlations increased due to the global credit crisis. Indeed, if you look at the history of financial markets, you will find that correlations tend to rise in times of crisis.

Even as we put more distance between the 2008 financial crisis and the present, we believe that correlations in equity markets will remain elevated going forward. This does not rob diversification of its merits—it simply means that it will be more nuanced. Instead of looking for uncorrelated investments, we'll focus on slight reductions in correlation. For example, investments with a correlation of 0.5 provide greater diversification benefits than those with a correlation of 0.7, and the diversification benefits increase as the correlations decrease.

2.) Increased external shocks

One major repercussion of global interconnectivity is that markets are hit by more external shocks. Major market-moving shocks have increased in number and intensity in recent years. Events like the European debt crisis, the Japanese tsunami of 2011 and government change in Ukraine have unnerved investors and affected the outlook for companies across the globe. Another factor contributing to this dynamic is how quickly information spreads within and across markets (impacting correlations as well). Individual investors and smaller institutional investors now have access to information once available only to large institutional investors, but they have less time to digest it. Hedge funds and high-frequency traders can respond to news immediately, creating big swings in individual stocks and market segments. This tendency to act quickly on breaking news contributes to market volatility during times of crisis or unease.
3.) **Equity risk dominates traditional asset allocation**

The traditional approach to asset allocation has been to allocate 60% to stocks and 40% to bonds and cash. However, stocks tend to be much riskier than bonds. Equity risk, as represented by the standard deviation of the S&P 500 Index, is much higher than bond risk, as represented by the Barclays Capital U.S. Aggregate Bond Index. Therefore, it’s important to recognize that equity risk dominates the risk of traditional asset allocation. As we will discuss later, modern approaches to asset allocation seek to achieve a better balance of risk-taking and reduce the amount of equity risk in the portfolio.

4.) **Bond yields are low**

Most investors buy bonds for their return of principal, barring default, and for the income they generate. Long-term interest rates, as measured by the yield on the 10-year Treasury bond, have declined dramatically since the mid-1980s (see Exhibit 3).

**Exhibit 3: Bond yields are low**

Source: Charles Schwab Investment Advisory, Inc. and Bloomberg.
With interest income at generational low levels, investors have sought other sources of income. A reality of the current low interest rate environment is that many investors in or near retirement will not be able to generate sufficient interest income from investment-grade bonds alone, further diminishing their appeal.

Most market prognosticators, including us, believe that bond yields are more likely to rise than fall going forward, which means that bond prices are more likely to fall. This is especially true for Treasury and mortgage bonds since the Fed has been purchasing bonds in these sectors to keep long-term rates low. Once this stimulus is removed, it is likely that bond yields will rise.

Therefore, we have evaluated the addition of other fixed income investments to our asset allocation models, including high-yield, international, and emerging-market bonds.

5.) Expected stock returns are lower

A low Treasury yield also generally implies low expected stock returns. This is because the expected return on stocks can be thought of as the expected return on a default risk-free security (like U.S. Treasury bonds) plus an equity risk premium.

Merely extrapolating from stocks and bonds' long-term historical results will not be sufficient for asset allocation models going forward. In sum, it's not just higher correlations that are prompting many to consider their asset allocation strategies going forward. There are plenty of reasons why investors should revisit their allocation models to ensure they are realizing the full potential of diversification.

III: Adapting asset allocation to changing times

In response to these changing economic conditions, asset allocation has evolved a great deal from the typical stocks, bonds and cash blend popular during the 1990s (as shown in Exhibit 4). Modern asset allocation now encompasses non-traditional asset classes, like commodities.

In addition, it is now common to divide stocks and bonds into a variety of sub-asset classes. Stocks can be broken up into large and small, domestic and international, and developed and emerging markets. Bond allocations can include Treasuries, agencies, investment-grade corporate bonds and high-yield bonds.
Exhibit 4: Sample of a modern approach to asset allocation

To meet their long-term needs and objectives, institutional investors have adopted different approaches to incorporating a wider range of asset and sub-asset classes. These include:

- **The Endowment Model**, based on the extraordinary results delivered by endowments managed by Yale University and others in the late 1990s and early 2000s. Yale, Harvard and other large endowments allocated about 70–80% of their portfolios to alternative investments, including private equity, real estate, timber and absolute return strategies.

- **The Liability-Driven Investment (LDI)**, a holistic investment strategy based on cash flows needed to fund an institution's unique future liabilities, which tends to rely on bonds.

- **The Risk Parity approach**, in which each asset class is assigned a weight such that it contributes equally to the overall risk of the portfolio. This approach lends itself to large allocations to fixed income.
While these asset allocation approaches have proven successful for institutions, most individual investors’ time horizons are much shorter. They also lack the dedicated resources and access to many of the investments available to institutions.

1.) A modernized asset allocation model for individual investors

At Charles Schwab, we believe investors deserve the same opportunities as institutions when it comes to tailoring their investments to their individual risk appetites, needs and goals. With the expansion of asset classes and the increased number of ways to gain exposure, it’s important for individual investors to rethink their asset allocation.

After evaluating the asset allocation approaches used in the market today, Schwab has developed its own point of view on asset allocation models. Our perspective embraces aspects of three different asset allocation philosophies:

- **Traditional diversification:** Asset class weights are chosen so as to maximize the expected return for a given level of risk.

- **Risk budgeting:** Weights are assigned to asset classes with the goal of diversifying the sources of risk across multiple asset classes.

- **Goal driven:** Asset allocation is designed to achieve a specific goal, such as absolute return, inflation hedge or income. Success is measured by the achievement of a specific target, such as income.

While our approach relies heavily on MPT, we recognize that investors often feel more strongly about avoiding losses than acquiring gains. As a result, we have incorporated a preference for loss aversion in the portfolio construction process. In addition, we know that many retired investors prefer to live off the income from their portfolio and not dip into the principal. Therefore, we have developed both total return and income models.

2.) Which assets should be included?

The first step in the process is to identify which asset classes to include in the portfolio. At Schwab, we consider three factors:

- Asset classes must be accessible through liquid securities, such as stocks, bonds, mutual funds and ETFs.
• Ideally, asset classes should be minimally correlated to achieve greater diversification benefits, and asset classes that provide unique risk or return characteristics tend to have low correlations.

• In addition, the level of expected income is an important consideration for the income models.

Each of the following asset classes meets one or more of the above criteria:

• **Core equity**: U.S. large-company stocks, U.S. small-company stocks, international developed large-company stocks

• **Equity income**: U.S. large-company stocks (high dividend), international developed large-company stocks (high dividend), master limited partnerships (MLPs)

• **Non-traditional equity**: international developed small-company stocks, international emerging markets stocks, U.S. REITs, international REITs

• **U.S. investment-grade bonds**: Treasury bonds, corporate bonds, agencies, securitized bonds

• **Non-traditional bonds**: Treasury Inflation Protected Securities (TIPS), U.S. corporate high-yield bonds, international developed bonds, international emerging markets bonds, preferred stocks, bank loans and other floating-rate notes

• **Commodities**: gold and other precious metals, energy, metals, agriculture

• **Cash and cash investments**
3.) Where does each asset class fit in the portfolio?

To understand the rationale behind each asset class, it's helpful to group them according to their role in the portfolio (see Exhibit 5).

Exhibit 5: Each asset class has a specific role in the portfolio

<table>
<thead>
<tr>
<th>Growth</th>
<th>U.S. large-company stocks</th>
<th>U.S. small-company stocks</th>
<th>International developed large-company stocks</th>
<th>International developed small-company stocks</th>
<th>International emerging markets stocks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growth and income</td>
<td>U.S. large-company stocks (high dividend)</td>
<td>International developed large-company stocks (high dividend)</td>
<td>Master limited partnerships (MLPs)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income</td>
<td>U.S. investment grade corporate bonds</td>
<td>U.S. corporate high-yield bonds</td>
<td>U.S. securitized bonds</td>
<td>International emerging market bonds</td>
<td>Preferred stocks</td>
</tr>
<tr>
<td>Inflation</td>
<td>U.S. inflation-protected bonds</td>
<td>U.S. REITs</td>
<td>International REITs</td>
<td>Energy</td>
<td>Industrial metals</td>
</tr>
<tr>
<td>Defensive assets</td>
<td>Cash</td>
<td>Treasuries</td>
<td>Gold &amp; other precious metals</td>
<td>International developed bonds</td>
<td>U.S. agencies</td>
</tr>
</tbody>
</table>
a means of protecting against the corrosive impact of inflation. With TIPS, the principal value adjusts upward with inflation. As TIPS have a constant coupon rate, this implies that the coupon, or interest received, grows with inflation.

REITs are considered by many to be an effective hedge against inflation. When looking for inflation protection, it’s beneficial to find an asset that moves with inflation (the higher correlation, the better). Lease rates and real estate prices do not immediately adjust to inflation so the benefits of REITs as an inflation hedge may not be apparent when correlations are calculated over short horizons. In our research, we studied the period from 1972 to 2013 and found that the average five-year correlation was 0.41 (shown in Exhibit 6 below). This suggests that REITs have historically provided some inflation protection at holding periods of at least five years. Clients can invest in REITs by purchasing shares directly on a stock exchange or through professionally managed products.

**Exhibit 6: Correlation of inflation with stocks, REITs and commodities (1972 - 2013)**

![Chart showing correlation of inflation with stocks, REITs, and commodities]

Source: Morningstar Direct. Overlapping five-year return data from January 1, 1972 to December 31, 2013. Stocks are represented by the S&P 500 Index, REITs are represented by the FTSE NAREIT All Equity REIT index, commodities are represented by the S&P GSCI Index and inflation is represented by the Ibbotson Associates SBBI US Inflation.

**Defensive assets** are generally assets that have low or negative correlations with equity securities. These asset classes tend to perform well when there is downward pressure on equities. Examples of defensive assets include Treasury securities, U.S. agencies, gold and other precious metals, international developed bonds, and cash.
The role and usage of commodities

Commodities—physical substances such as food, grains or metals which can be bought or sold, usually through futures contracts—offer the potential for diversification benefits, returns and inflation hedging if held over the long term. However, commodities can also be highly volatile and it’s important to choose the right vehicle for your investment. Let’s take a look at ways to use them in your portfolio.

Commodities tend to perform differently in various market conditions than stocks and bonds—making them desirable from a diversification perspective. Stocks and bonds have historically had low and negative correlations, respectively, with commodities (see Exhibit 7). This means that pairing commodities with stocks and bonds can potentially lower the overall risk of your portfolio for a given level of expected return.

Exhibit 7: Commodities offer diversification opportunities (2002 – 2013)

Source: Morningstar Direct. Matrix depicts correlations of monthly data from January 1, 2002 to December 31, 2013. U.S. large-company stocks are represented by the S&P 500 Index, Treasuries are represented by the Ibbotson Associates SBBI US Long Term Government Bond Index Total Return, and commodities are represented by the S&P GSCI Index.

Commodity returns are driven by the appreciation/depreciation of the underlying commodity price and through changes in the price of commodity futures contracts. To get a sense of how commodities have performed over the long term we looked at their inflation-adjusted performance relative to stocks and bonds. From 1970 to 2013, commodities underperformed stocks but outperformed bonds, on average, after adjusting for inflation (see Exhibit 8). It’s also important to note that commodity futures contracts can be highly volatile as shown below.
Commodities are also viewed as a hedge against inflation. As we mentioned before, if you are looking for inflation protection, it’s beneficial to own an asset that moves with inflation. In other words, this asset should have a high return when inflation is high (and a low return when inflation is low). In our research, we studied the period from 1972 to 2013 and found that the average five-year correlation was 0.35 (shown in Exhibit 6 above). This suggests that commodities have historically provided some inflation protection at holding periods of at least five years. The benefits of commodities as an inflation hedge may not be apparent when correlations are calculated over short horizons because commodity price increases take a while to work their way into higher consumer prices.

We also looked at how stocks and commodities performed during periods when inflation was low (<2%), moderate (2-4%) and high (>4%) from 1970 to 2013. Here, we found that commodity returns increased as inflation increased, whereas stock returns didn’t (see Exhibit 9)—reinforcing the case for commodities as an inflation hedge.

![Bar chart showing average annual return for commodities and stocks across different inflation periods: Inflation < 2%, Inflation 2% - 4%, Inflation > 4%]

Source: Morningstar Direct. Data from January 1, 1970 to December 31, 2013. Stocks are represented by the S&P 500 Index, commodities are represented by the S&P GSCI Index and inflation is represented by the Ibbotson Associates SBBI US Inflation.

When it comes to commodities, we often caution investors to “know what you own and know how you own it.” There are four ways to access commodities, and investors should carefully evaluate their structures:

- **Purchase a physical asset**: With this “pure-play” vehicle, an investor holds the underlying commodity. This is a difficult proposition for those without access to physical storage.

- **Stocks**: An investor can buy the stock of a company that deals in commodities, but the price may exhibit a higher correlation to equities than the actual commodity would due to the potential influence of company-specific factors and overall market conditions.

- **Futures contracts**: As mentioned above, most investors invest in commodities through futures contracts. A futures contract is an agreement to buy or sell a set amount of a commodity at a predetermined price and date. Futures contracts trade on exchanges, similar to stocks and bonds. When a futures contract approaches the delivery date, the holder will typically “roll” that contract in exchange for another contract on the same commodity to be delivered further in the future. Futures trading can be complex, which is why for most investors the best way to invest in commodities is through an ETF or a mutual fund.

- **ETFs and mutual funds**: ETFs and mutual funds access commodities in one of the three ways above. For individual investors, ETFs and mutual funds provide the easiest way to gain exposure to commodity markets.
However, investors need to understand the fund’s underlying holdings and the potential impact of “contango” or “backwardation.” (See glossary.)

With the growth of ETFs and an increasing number of commodity mutual funds, investors now have more choices to gain exposure to commodities. Two investors who use different vehicles for gaining exposure to a commodity can have very different experiences.

IV. What is the optimal asset mix?

Broadly speaking, new market realities demand that we revisit traditional asset allocation. To make room for additional asset classes and diversify the portfolio further, we adjusted both the percentage allocated to core equities and fixed income and type of exposure. These adjustments will depend on how aggressive or conservative the investor is in terms of risk.

In calculating the optimal asset mix, Schwab sets parameters around the expected returns of each asset class, calculates current yields (for purposes of income models), and estimates risk based on historical data.

We also sought to address a shortcoming of MPT, which is that it disregards key findings from the field of behavioral economics. In the financial services industry, we tend to define risk in mathematical terms and use risk statistics to compare results. MPT defines risk as the standard deviation of returns, or how much they vary from the average. This assumes risks are symmetrical, meaning all risks are treated equally.

But investors often have a more emotional definition of risk. For example, investors tend to strongly prefer avoiding losses to acquiring gains, a phenomenon known as loss aversion. Studies suggest that the psychological pain investors feel from a loss is twice as strong as the joy they receive from a similar size gain.
In addition, we have to understand how asset classes relate to one another. In studying correlations from 2002 through 2013, we found ample opportunities for diversification across asset classes (see Exhibit 10). In fact, we found more than four dozen instances of assets being negatively correlated (as indicated by the green correlations).

**Exhibit 10: Expanded asset classes provide diversification opportunities (2002-2013)**

1.) Total return models

Schwab recommends a total return philosophy for most investors. Each of our five total return models is diversified across a wide variety of asset classes (see Exhibit 11). Even the most conservative plan has allocations to stocks and the most aggressive plan has allocations to bonds and cash. Only the moderately aggressive and aggressive models allocate more than 60% to stocks.

One of the changes to our models has been the lower allocations to core equity asset classes. This is the direct result of our desire to reduce the percentage of total portfolio risk coming from the core equity portion of the portfolio. In lieu of core equities, we include other sources of equity risk and return, such as international small-cap stocks and emerging-markets stocks. In addition, U.S and global REITs are included as distinct asset classes within the models because of their inflation-hedging properties. Commodities and TIPS also act as a partial hedge against inflation.

Focusing on the moderate allocation, the total allocation to U.S. investment-grade bonds and cash is just 30% - a reflection of our desire to lessen the allocation to these low-yielding asset classes. They are not completely eliminated from the portfolios, however, because of their defensive appeal. The total allocation to bonds is 51%, which is higher than the 35% allocation to bonds in traditional asset allocation. Of that 51%, however, 15% is allocation to high-yield and emerging market bonds, which correlate more highly with stocks than with bonds.

Investors interested in municipal bonds can substitute them for investment-grade U.S. bonds in all five of the models. For example, a moderate allocation with municipal bonds would consist of a 20% allocation to municipals in lieu of the total allocation of 20% to Treasuries, corporates, agencies and securitized bonds.
**Exhibit 11: Total return models**

<table>
<thead>
<tr>
<th>Conservative</th>
<th>Moderately conservative</th>
<th>Moderate</th>
<th>Moderately aggressive</th>
<th>Aggressive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core equity</td>
<td>Non-traditional equity</td>
<td>U.S. investment-grade bonds</td>
<td>Non-traditional bonds</td>
<td>Real assets</td>
</tr>
<tr>
<td>30%</td>
<td>10%</td>
<td>23%</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>35%</td>
<td>26%</td>
<td>8%</td>
<td>35%</td>
<td>30%</td>
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<td>23%</td>
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<td></td>
<td>10%</td>
</tr>
</tbody>
</table>

Source: Charles Schwab Investment Advisory, Inc.

**2.) Income models**

At Schwab, we recognize that many investors prefer not to sell investments or use principal when withdrawing money from their portfolio. For this reason, we have created a suite of models geared toward generating income.

The philosophy behind our approach to developing income models is two-fold. First, it’s unlikely that investors will be able to generate enough income off a portfolio of investment-grade bonds to support their spending in retirement. In order to address this gap in income, investors will have to look to other asset classes, such as high-yield bonds. Second, most investors will live long enough in retirement that it makes sense to have an allocation in the portfolio dedicated to growth; this can be addressed primarily through dividend-paying stocks, REITs and MLPs.

The first three of our four income models are total portfolio solutions that roughly correspond to the conservative, moderately conservative and moderate total return model allocations in terms of total portfolio risk (see Exhibit 12). Asset classes that pay little or no income, such as commodities and small-cap stocks, are not included in the income models. On the other hand, income-focused asset classes, such as MLPs, preferred stocks, and bank loans, are included in the income models but not in the total return models. In addition, the equity portion of the income models includes a greater allocation to dividend-paying equity securities than the total return models.
Note that the income models have a higher allocation to bonds than the corresponding total return portfolios. Although the income models have a growth element, it is important to stress that they offer less potential for capital gains and income growth.

The high income model has a higher expected yield than the other models but also higher risk. As a result, it is best used as a component within an otherwise diversified portfolio.

Investors should also be aware that the income models are more susceptible to credit events and to interest rate risk than the total return models.

### 3.) Tactical shifts

Once a strategic asset allocation is in place, an investor can make tactical adjustments in an attempt to take advantage of market opportunities or avoid risks in certain segments of the market. At Schwab, we don’t believe investors should try to time the market in the short term by making big shifts into and out of the markets. But we do believe that investors can benefit by overweighting and underweighting various asset classes during certain periods.

In support of this view, Schwab has developed and formalized an approach to incorporating tactical asset allocation in investor portfolios. Each of our asset allocation models incorporates a tactical range for each asset class, as the asset allocation framework for a moderate portfolio shows in Exhibit 13. These tactical ranges serve as guardrails surrounding the strategic allocations.
**Exhibit 13: Sample tactical ranges and recommendations in an asset allocation framework**

<table>
<thead>
<tr>
<th>Moderate total return portfolio</th>
<th>Strategic allocation (%)</th>
<th>Tactical range (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stocks</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.S. large-company stocks</td>
<td>13</td>
<td>8 - 17</td>
</tr>
<tr>
<td>U.S. small-company stocks</td>
<td>8</td>
<td>4 - 11</td>
</tr>
<tr>
<td>International large-company stocks</td>
<td>9</td>
<td>5 - 12</td>
</tr>
<tr>
<td>International small-company stocks</td>
<td>5</td>
<td>1 - 8</td>
</tr>
<tr>
<td>Emerging markets stocks</td>
<td>5</td>
<td>2 - 8</td>
</tr>
<tr>
<td>U.S. REITs</td>
<td>3</td>
<td>0 - 6</td>
</tr>
<tr>
<td>International REITs</td>
<td>2</td>
<td>0 - 5</td>
</tr>
<tr>
<td><strong>Fixed income</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treasuries</td>
<td>2</td>
<td>0 - 17</td>
</tr>
<tr>
<td>Corporate bonds</td>
<td>7</td>
<td>0 - 22</td>
</tr>
<tr>
<td>Agencies</td>
<td>5</td>
<td>0 - 20</td>
</tr>
<tr>
<td>Securitized bonds</td>
<td>11</td>
<td>0 - 26</td>
</tr>
<tr>
<td>TIPS</td>
<td>1</td>
<td>0 - 16</td>
</tr>
<tr>
<td>International developed bonds</td>
<td>5</td>
<td>0 - 20</td>
</tr>
<tr>
<td>High-yield bonds</td>
<td>10</td>
<td>1 - 12</td>
</tr>
<tr>
<td>Emerging market bonds</td>
<td>5</td>
<td>1 - 12</td>
</tr>
<tr>
<td><strong>Real Assets</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy</td>
<td>1</td>
<td>0 - 5</td>
</tr>
<tr>
<td>Precious metals</td>
<td>1</td>
<td>0 - 5</td>
</tr>
<tr>
<td>Industrial metals</td>
<td>1</td>
<td>0 - 5</td>
</tr>
<tr>
<td>Agriculture</td>
<td>1</td>
<td>0 - 5</td>
</tr>
<tr>
<td><strong>Cash</strong></td>
<td>5</td>
<td>0 - 20</td>
</tr>
</tbody>
</table>

**Tactical key:**  
+ Overweight  | - Underweight  

Source: Schwab Center for Financial Research.
The Schwab Center for Financial Research delivers views on market opportunities and their underlying rationale, and will communicate when the outlook changes. The application of these views depends upon the client’s unique circumstances—not all ideas are appropriate for all clients given factors such as their outside holdings, concentrated positions, tax considerations and individual preferences, or other unique circumstances.

V. Portfolio construction: Putting the pieces into place

While asset allocation provides the framework for allocating capital, portfolio construction involves actually assembling the pieces of the puzzle. There are many different ways investors can gain exposure to asset classes today, including individual securities (stocks and bonds), separately managed accounts (SMAs), mutual funds and ETFs. Depending upon the vehicle and investment option selected, investors can have dramatically different experiences.

For many years, academics and investors have debated whether active or passive management represents a better way of investing. We believe there is a role for both. Passive investments—like index funds—are a cost effective way to gain exposure to the market. However, some investors don't want to just settle for the index or benchmark returns. These investors are interested in alpha—or a return in excess of a benchmark. In addition, some investors are more concerned with downside protection because of their preference for loss aversion. The ability to adapt and play defense is an under-appreciated aspect of active management.

1.) Evaluating equity options

Active managers have widely divergent approaches to portfolio weighting, construction, cost structure and return strategy (see Exhibit 14). Passive managers—those whose portfolios mirror the components of a market index—focus on two dominant strategies: market-cap and non-market cap.

Among the non-market cap strategies, fundamental strategies—also known as alternative or strategic beta—have garnered the most attention recently. Fundamental strategies screen securities based on fundamental factors, such as sales, cash flow, dividends and buybacks. Then, they weight securities in their indexes based on these factors, as opposed to traditional indexing strategies, which weight securities based on their market capitalization.
2.) Customizing allocations

To determine the optimal blend of **active**, **market-cap** and **fundamental** strategies for a portfolio, Schwab considers four levers: loss aversion, tracking error, alpha and cost.

- **Loss aversion** is the desire to avoid losses. As we discussed, academic research has shown that investors react far more strongly to losses than gains.

- **Tracking error** is the standard deviation of the difference between the fund’s return and that of its benchmark.

- **Alpha** measures an investment’s risk-adjusted performance relative to its benchmark. Comparing an investment’s performance to that of a benchmark index, after adjusting for differences in risk, yields the investment’s alpha.

- **Cost** is a critical consideration. Costs can have a significant corrosive impact on the overall performance of a strategy.

Here’s how active, market-cap and fundamental strategies compare in terms of the four levers:

- **Active managers** seek to outperform their benchmark. Managers have the potential to provide alpha and/or a degree of downside protection over time. Generally, they have a greater ability to adjust their strategies in difficult markets and can become more defensive, based on their market outlook.
- **Market-cap strategies** are primarily used to gain low-cost exposure to the market. They generally experience little or no tracking error. However, they do not offer the potential for either downside protection or alpha.

- **Fundamental strategies** provide cost-effective exposure to the markets, and have the potential for alpha relative to a market-cap benchmark over a full market cycle. There are periods of time when fundamental strategies outperform or underperform the market. They have a higher tracking error than market-cap strategies and offer limited downside protection.

**Exhibit 15: Key levers for portfolio construction allocations**

<table>
<thead>
<tr>
<th>KEY LEVER</th>
<th>ACTIVE</th>
<th>MARKET CAP</th>
<th>FUNDAMENTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tracking error</td>
<td>Varies by manager</td>
<td>Little or no tracking error</td>
<td>Higher tracking error</td>
</tr>
<tr>
<td>Loss aversion</td>
<td>May provide a level of downside protection</td>
<td>No downside protection</td>
<td>Limited downside protection</td>
</tr>
<tr>
<td>Alpha</td>
<td>Varies</td>
<td>No</td>
<td>Potential alpha</td>
</tr>
<tr>
<td>Cost</td>
<td>Varies by manager and vehicle</td>
<td>Lowest cost</td>
<td>Low cost</td>
</tr>
</tbody>
</table>

Source: Schwab Center for Financial Research.

Depending on investors’ sensitivity to these levers, they could overweight or underweight allocations across active, market cap or fundamental strategies.

For instance, an investor who is concerned about tracking error may choose to have a higher allocation to market-cap strategies. Alternately, an investor who is concerned about loss aversion may be better served with active managers who have historically delivered better downside protection. If cost is the primary concern, investors may seek to increase their allocations to market-cap strategies, though fundamental strategies are also typically more cost-effective than most active mutual funds or SMAs. Still, for those seeking more upside opportunities, SCFR and other research has shown that fundamental strategies have historically delivered excess returns relative to their market-cap equivalents.⁵ Note, there are periods of time where market-cap indexes will outperform.

Based on our proprietary research, we recommend an active-passive allocation that skews higher to fundamental strategies in the most efficient markets (see Exhibit 16).

This recommendation is based on our belief that little potential exists for active managers to consistently outperform a benchmark in these markets, as well as historical data showing that that fundamental strategies have delivered excess return relative to market-cap strategies. We have a higher allocation to active in the least efficient markets (such as international small-company and emerging) because we believe that active managers can discern between good companies and bad companies, leaving more room for outperformance. Since these markets tend to be more volatile, we believe that investors would be better served by active management.

Exhibit 16: Active-passive allocations for equities

3.) Fixed income considerations

Investors can gain exposure to fixed income in a number of different ways. They can buy individual bonds, a mutual fund, a SMA or an ETF, among other options. Generally speaking, the more complex the investment, the greater value there is in working with a professional. It is difficult, for example, for the average investor to evaluate the risk and return potential of high-yield securities and emerging-market debt instruments.

Investors have begun to seek other sources of income, beyond traditional fixed income, including MLPs, REITs and preferred securities. Typically, there is a yield-risk trade-off: As investors seek increased yield in their search for income, they take on more risk (see Exhibit 17).
Exhibit 17: Select income options (2004-2013)

Fixed income investments are susceptible to a number of risks, which may include credit, currency, interest rate, and default. Active managers can generally do a better job evaluating and managing these risks. Despite the proliferation of ETFs in the fixed income space, investors need to carefully consider the risks of each asset class, and determine whether an ETF is a suitable structure for investment.

While we may segment sectors of the fixed income markets into discrete allocations (governments, corporates, asset-backed, floating rate and international), some active managers allocate across these sectors as they see opportunities.

Determining the best way to access an asset class is an important consideration. Investors can evaluate options on their own or leverage the expertise of a specialist. They can own individual securities, or access them via a diversified structure such as a mutual fund, SMA or ETF.

4.) Evaluating active managers

It is challenging to find managers who can consistently outperform their benchmarks. Part of this difficulty stems from the natural rotation that occurs in the market, from growth to value and back again, and from the rotation among the types of value and growth managers who perform well in a given market environment.
In addition, most new money flows into funds that have performed well recently. Those flows make it harder for managers of those funds to repeat that performance. For this reason, when you’re picking funds, you don’t necessarily want to follow the herd.

To see how we put this advice into action, let’s look at how Charles Schwab Investment Advisory, Inc. (CSIA) selects funds for Schwab’s Mutual Fund OneSource List®. CSIA looks at three factors that it believes are prognosticators of future performance.

- **Manager skill**: It’s tempting to attribute a fund’s past performance to management skill. But high recent returns could simply mean the fund was heavily concentrated in securities that were in vogue over a particular time period.

  A better method is to isolate the part of a fund’s return that results from security-selection skill. To do that, CSIA adjusts a fund’s total return for the fund’s market risk exposure. Returns are further adjusted for any style exposure, such as a fund’s exposure to value or growth stocks; a fund’s market-capitalization exposure; and (for bond funds) exposures to certain maturities or sectors of the bond market, such as corporate bonds. We do this because returns resulting from these exposures don’t tend to repeat. What’s left over is the return we attribute to the manager’s security-selection skill. Our belief is that this return is a more reliable predictor of future prospects. In addition, we look at returns over multiple, independent time periods (short, medium, and long) and favor funds that consistently demonstrate security-selection skill.

- **Expenses**: When market returns are almost 30% as they were in 2013, an expense ratio of 1.5% per year may not seem like much. However, when you’re only earning upper single digit returns, as CSIA is forecasting for the long term, these expenses can have a big impact on an investor’s ability to grow their portfolio over time. For that reason, the Select List includes only no-load funds and puts a high premium on funds where management fees and expense ratios are low.6

6Schwab’s short-term redemption fee of $49.95 will be charged on redemption of funds purchased through Schwab’s Mutual Fund OneSource service (and certain other funds with no transaction fee) and held for 90 days or less. Schwab reserves the right to exempt certain funds from this fee, including Schwab Funds, which may charge a separate redemption fee, and funds that accommodate short-term trading. For trade orders placed through a broker, a $25 service charge applies. Funds are also subject to management fees and expenses.
- **Fund and fund family size:** The amount of assets under management of the fund and its fund family can influence performance. Managing a lot of assets can be a plus—or a minus. For value managers, fund family size is generally a plus, since it enables them to invest in the kind of grassroots, bottom-up research that’s key to finding undervalued companies.

Likewise, large bond-fund companies can afford to do the kind of credit research needed to evaluate complex debt instruments. Larger bond-fund families also have more negotiating power when they buy and sell bonds in fixed income trading markets.

On the other hand, fund size can be a liability for small-cap funds if they have more assets to invest than good small-cap ideas. Throwing a lot of money at a limited universe of small companies ultimately undermines performance for the fund, which is why many successful small-cap funds eventually close their doors to new investors.

Each quarter, Schwab’s Select List team picks more than 100 funds they believe will outperform their peers in the coming one to five years. In addition to quantitative criteria like those just discussed, they also consider qualitative criteria, like manager turnover and insight gleaned from one-on-one interviews with managers.

For some investors, it’s important to understand how funds perform during bullish and bearish markets. To get a sense of this, look at the upside/downside capture ratios, which show how a fund outperformed (gained more or lost less) than a broad market benchmark in up and down markets (see Exhibit 18). Here’s how to interpret these ratios:

- **An upside capture ratio** over 100 means that when the market was up, the fund performed even better on average. The bigger the upside capture ratio, the better.

- **A downside capture** under 100 means that when the market was down, the fund lost less than its benchmark on average. The lower the downside capture ratio, the better.
Exhibit 18: Upside/downside capture ratios on the OneSource Select List

Click on the fund symbol for quarterly standardized returns and detailed fund expenses. Performance quoted is past performance and is no guarantee of future results. Current performance may be lower or higher. Investment value will fluctuate, and shares, when redeemed, may be worth more or less than original cost.

<table>
<thead>
<tr>
<th>Select Funds to Compare (15)</th>
<th>Source: Schwab.com. For illustrative purposes only. Fund list subject to change. For the most up to date Select List and performance, visit schwab.com.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Fund Name</th>
<th>Category</th>
<th>1 Year</th>
<th>3 Year</th>
<th>5 Year</th>
<th>7 Year</th>
<th>10 Year</th>
<th>Inception</th>
<th>Upside Capture Ratio</th>
<th>Downside Capture Ratio</th>
<th>Net Expense Ratio (%)</th>
<th>Gross Expense Ratio (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benchmark: S&amp;P 500 TR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Laudes US Large Cap Growth GIIX</td>
<td>Large Growth</td>
<td>+3.08</td>
<td>+26.70</td>
<td>+16.38</td>
<td>+19.36</td>
<td>+10.47</td>
<td>+6.36</td>
<td>(10/14/1997)</td>
<td>99.20</td>
<td>107.97</td>
<td>0.77</td>
</tr>
<tr>
<td>Schwab Dividend Equity SWDSX</td>
<td>Large Value</td>
<td>+5.03</td>
<td>+23.01</td>
<td>+16.17</td>
<td>+17.90</td>
<td>+8.33</td>
<td>-0.90</td>
<td>(09/22/2000)</td>
<td>97.68</td>
<td>97.81</td>
<td>0.89</td>
</tr>
</tbody>
</table>

--- Fundamental Index Funds (1 Fund) ---

| Schwab Fund US Large Cap Index SFLX | Large Value | +4.90  | +23.86 | +16.45 | +20.64 | -        | -7.78     | (04/02/2010)         | 103.17                 | 108.60                 | 0.35                   | 0.41                   |

--- Market-Cap Weighted Index Funds (1 Fund) ---

| Schwab S&P 500 Index SWPX       | Large Blend | +5.21  | +24.51 | +16.50 | +18.73 | +7.75   | -6.01     | (05/20/1997)         | 99.65                  | 99.89                  | 0.09                   | 0.09                   |

Leading 3rd Party Funds (15 Funds)

<table>
<thead>
<tr>
<th>Fund Name</th>
<th>Category</th>
<th>1 Year</th>
<th>3 Year</th>
<th>5 Year</th>
<th>7 Year</th>
<th>10 Year</th>
<th>Inception</th>
<th>Upside Capture Ratio</th>
<th>Downside Capture Ratio</th>
<th>Net Expense Ratio (%)</th>
<th>Gross Expense Ratio (%)</th>
</tr>
</thead>
</table>

In other words, the downside capture ratio shows how effective a fund has been at holding value during periods of market weakness—an important consideration for many investors. On the other hand, the upside capture shows how much positive market momentum the fund captured during periods of market strength as compared to its benchmark.
Conclusion

Asset allocation needs to evolve beyond stocks, bonds and cash to include a broader array of asset classes, and there are many ways to put this into action. Portfolios can yield dramatically different results based on the asset classes and sub-classes chosen. As the investing landscape has become more complex, ways to access the various asset classes have proliferated.

Portfolio construction should consider the array of structures and strategies available in the marketplace. It should evaluate active and passive options, and determine how the pieces of the puzzle fit together. Thoughtful portfolio construction should be integrated with both strategic and tactical asset

Fortunately, a wealth of data is available through Schwab and other sources, providing investors with the information they need to make more informed decisions. Investors should use this information in a dynamic way – not only when creating the portfolio but as market conditions warrant change.

A new crop of market-shaping trends may replace today's market realities. As such, investors need to allocate assets and then be nimble—by regularly reviewing your asset allocation and manager selections, and having a certain degree of elbow room within your portfolios to make tactical maneuvers. Knowing your asset allocation strategy and portfolio holdings is the first step to building a solid foundation for future investing strategies.

Talk to us about wealth management. Call your Schwab Representative to discuss how asset allocation can help you meet your financial goals.

Related resources:

- Fundamentally Weighted Indexes: An Alternative to the S&P 500?
- How Fundamental Strategies Can Help Diversify Your Portfolio
- Build a Smarter Portfolio with Fundamental Strategies
- Alternative Beta Strategies: An Evaluation of Different Approaches
- The Wealth-Building Power of Equities and The Elegance of Indexing
- Fundamentally Weighted Indexing: Weighing the Difference
Glossary

**Agencies** are issued by a U.S. government-sponsored agency, such as Fannie Mae and Freddie Mac. Agencies are backed, but not guaranteed, by the U.S. government. Given this, agency bonds generally trade at just a small premium to Treasury bonds of similar maturity.

**Alpha** is the risk-adjusted excess return of an investment relative to the return of its benchmark.

**Alternative beta strategies** (also known as strategic beta) attempt to deliver a better risk and return trade-off than conventional market-cap weighted indexes by using alternative weighting schemes based on measures such as volatility. Alternative beta strategies include a range of alternative weighting methodologies, including fundamental strategies, equal weighting, minimum variance, low volatility and high beta.

**Backwardation** is sometimes used to describe the downward trend in futures prices. A futures curve is in backwardation if the prices of longer-dated futures contracts are lower than the spot prices or shortest-dated futures contracts.

**Bank loans** are leveraged loans originated by banks and sold to institutional investors such as mutual funds. The loans are made to corporations, which use them to fund acquisitions and other strategic initiatives. The loans typically have floating rates, meaning they pay a set amount over a benchmark interest rate; this makes them particularly attractive to investors who think interest rates may be rising. Bank loans are generally less than investment-grade quality, but unlike high-yield bonds are generally secured by all or most of a company’s assets.

**Beta** is a measure of the volatility, or systematic risk, of a security or a portfolio in comparison to the market as a whole. Beta is used in the capital asset pricing model (CAPM), which calculates the expected return of an asset based on its beta and expected market returns.

**Contango** reflects the costs of delivering commodities in the future, compared to owning them now (spot price). A futures curve is in contango if the prices of longer-dated futures contracts are higher than the spot prices or shortest-dated futures contracts.

**Correlation** measures the relationship of two or more securities on a scale of –1 to +1. Perfect positive correlation (+1) implies that as one security moves up or down, the other security will move in lockstep, in the same direction. Perfect negative correlation means that if one security moves, the other will move in the opposite direction. If the correlation is 0, the movements of the securities are completely random.

**Equity REITs:** A real estate investment trust is a company that owns and generally operates income-producing real estate or mortgages. Equity REITs own many types of commercial properties, such as shopping malls, apartments, warehouses, and hotels.
Fundamentally weighted index is a type of equity index in which components are chosen based on fundamental criteria as opposed to market capitalization. Fundamentally weighted indexes may be based on fundamental metrics such as adjusted sales, operating cash flow, and dividends and buybacks.

Market-cap indexes are a type of market index whose individual components are weighted according to their market capitalization, so that larger components carry a larger percentage weighting. Most of the broadly used market indexes today are “cap-weighted” indexes, such as the S&P 500, Russell, and MSCI indexes.

Master limited partnerships are limited partnerships that trade publicly on a securities exchange and often pay high levels of income. To qualify as an MLP, a partnership must generate at least 90% of its income from what the Internal Revenue Service considers to be “qualifying” sources, including activities related to the production, processing or transportation of oil, natural gas and coal. Because MLPs are classified as partnerships, they avoid taxes at the state and corporate levels. However, mutual funds and ETFs with over a 25% investment in MLPs are classified as C-Corporations and may subject investors to K-1 reporting, pass-through taxes, as well as, regular expenses.

Preferred stocks are hybrid securities that have characteristics of both bonds and stocks. Preferred shares are senior to common stock but subordinate to bonds in the case of a claim on company assets, and they generally have priority over common stock in the payment of dividends and upon liquidation. Similar to bonds, preferred stock is rated by major credit-rating agencies; however, the ratings of preferred shares are generally lower than those of bonds since preferred dividends do not carry the same guarantees as interest payments from bonds and they are junior to all creditors.

Securitized bonds are bonds whose interest and principal payments are backed by the cash flows from a portfolio or pool of other assets. Securities backed by mortgages are called mortgage-backed securities (MBS) and securities backed by other debt instruments are called asset-backed securities (ABS).

Standard deviation is a statistical measurement that sheds light on historical volatility. For example, a volatile portfolio will have a higher standard deviation than a less volatile portfolio. It tells us how much variation or dispersion from the average exists.

Treasury Inflation-Protected Securities (TIPS) are inflation-index bonds issued by the U.S. Treasury that are designed to protect the holder against raising inflation, as measured by the Consumer Price Index. Specifically, the principal value adjusts upward if the index rises and downward if it falls. With a constant coupon rate, the level of interest a bond holder receives on TIPS grows with the rate of inflation.
ANTHONY B. DAVIDOW, CIMA®
Vice President, Alternative Beta and Asset Allocation Strategist
Schwab Center for Financial Research

Anthony Davidow is responsible for providing Schwab's point of view on asset allocation and portfolio construction. He is also responsible for providing research and analysis on alternative beta strategies, and how investors should incorporate them in their portfolios.

Prior to joining Schwab, Davidow was a Managing Director, Portfolio Strategist and Head of the ETF Knowledge Center for Guggenheim Investments. Prior to joining Guggenheim, Davidow was Executive Vice President and Head of Distribution for IndexIQ. Previously, he spent 15 years at Morgan Stanley where he served as Managing Director and Head of Sales and Training for the Consulting Services Group. While at Morgan Stanley, he worked with many of the firm's largest clients in developing and implementing asset allocation strategies, incorporating active and passive strategies, and using alternative investments as risk management tools.

Davidow has authored several white papers and strategy pieces, and spoken at industry conferences on a range of topics, including: “The Merits of Core-Satellite Investing,” “Asset Allocation & Manager Selection: Adaptive Allocation,” “Alpha-Beta Separation,” “Alternative Weighting Strategies,” “The Role and Use of Alternative Investments,” “An Evolutionary Approach to Portfolio Construction,” and “Alternative Beta Strategies.”

Davidow holds a B.B.A. degree in finance and investments from Bernard M. Baruch College, and has earned the Certified Investment Management Analyst (CIMA®) designation from the Investment Management Consultant’s Association (IMCA) and the Wharton School of the University of Pennsylvania. He sits on the board of directors for IMCA. He holds Series 7, 24 and 63 registrations.
JAMES D. PETERSON, PhD
Senior Vice President, Chief Investment Officer,
Charles Schwab Investment Advisory, Inc.

James D. Peterson is Chief Investment Officer of Charles Schwab Investment Advisory (CSIA). CSIA provides portfolio advisory services and research on investment managers to Charles Schwab & Co., Inc. (Schwab) clients and the advisors who serve them. The team is responsible for portfolio management of Schwab Managed Portfolios, a Schwab-sponsored wrap fee program with more than $19 billion in assets under management, and evaluates investment managers for a variety of Schwab lists, including the Mutual Fund OneSource Select List®, ETF Select List™, and Managed Account Select®.

Prior to joining Schwab in 1998, Peterson was a member of the finance faculty at the University of Notre Dame. Previously, Peterson served as a visiting assistant professor of finance at Indiana University, Bloomington, and visiting scholar at Ibbotson Associates, Chicago.


Peterson earned his Doctorate of Philosophy in finance from Louisiana State University.
Important Disclosures

Investors should consider carefully information contained in the prospectus, including investment objectives, risks, charges, and expenses. You can request a prospectus by clicking Investor Information or calling 800-435-4000. Please read the prospectus carefully before investing.

Investment returns will fluctuate and are subject to market volatility, so that an investor’s shares, when redeemed or sold, may be worth more or less than their original cost. Unlike mutual funds, ETF shares are bought and sold at market price, which may be higher or lower than the net asset value (NAV).

Performance may be affected by risks associated with non-diversification, including investments in specific countries or sectors. Additional risks may also include, but are not limited to, investments in foreign securities, especially emerging markets, real estate investment trusts (REITs), fixed income, small capitalization securities and commodities. Each individual investor should consider these risks carefully before investing in a particular security or strategy.

Trades in no-load mutual funds available through the Mutual Fund OneSource service (including Schwab Funds), as well as certain other funds, are available without transaction fees when placed through Schwab.com or our automated phone channels. For each of these trade orders placed through a broker, a $25 service charge applies. Schwab reserves the right to change the funds we make available without transaction fees and to reinstate fees on any funds. Funds are also subject to management fees and expenses.

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The information provided here is for general informational purposes only and should not be considered an individualized recommendation or personalized investment advice. The investment strategies mentioned here may not be suitable for everyone. Each investor needs to review an investment strategy for his or her own particular situation before making any investment decision.

This information is not intended to be a substitute for specific individualized tax, legal or investment planning advice. Where specific advice is necessary or appropriate, Schwab recommends consultation with a qualified tax advisor, CPA, financial planner or investment manager.

Past performance is no guarantee of future results.

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Charles Schwab Investment Advisory, Inc. is an affiliate of Charles Schwab & Co., Inc.

Indexes are unmanaged, do not incur management fees, costs and expenses, and cannot be invested in directly.

Alerian MLP Index is a composite of the 50 most prominent energy Master Limited Partnerships (MLPs) that provides investors with an unbiased, comprehensive benchmark for this emerging asset class.

FTSE NAREIT Equity REIT Index is comprised of US REITs and publicly-traded real estate companies and contains all Equity REITs not designated as Timber REITs or Infrastructure REITs. A REIT is a company that owns, and in most cases, operates income-producing real estate such as apartments, shopping centers, offices, hotels and warehouses. The shares of many REITs are freely traded, usually on a major stock exchange. To qualify as a REIT, a company must distribute at least 90% of its taxable income to its shareholders annually.

S&P U.S. Preferred Stock Index is designed to serve the investment community’s need for an investable benchmark representing the U.S. preferred stock market. Preferred stocks are a class of capital stock that pays dividends at a specified rate and has a preference over common stock in the payment of dividends and the liquidation of assets.
S&P 500® Index is a market-capitalization weighted index that consists of 500 widely traded stocks chosen for market size, liquidity, and industry group representation.

US Consumer Price Index measures changes in the price level of consumer goods and services purchased by households. The CPI in the United States is defined by the Bureau of Labor Statistics as “a measure of the average change over time in the prices paid by urban consumers for a market basket of consumer goods and services.”


Barclays US Floating Rate Note Index measures the performance of U.S. dollar-denominated, investment grade floating rate notes. Securities in the index have a remaining maturity of greater than or equal to one month and less than five years.

Barclays U.S. Aggregate Bond Index represents securities that are SEC-registered, taxable, and dollar denominated. The index covers the U.S. investment grade fixed rate bond market, with index components for government and corporate securities, mortgage pass-through securities, and asset-backed securities. These major sectors are subdivided into more specific indices that are calculated and reported on a regular basis.

Barclays U.S. Corporate High-Yield Bond Index covers the USD-denominated, non-investment grade, fixed-rate, taxable corporate bond market. Securities are classified as high-yield if the middle rating of Moody’s, Fitch, and S&P is Ba1/BB+/BB+ or below.

Barclays Global Aggregate Bond Index ex-US provides a broad-based measure of the global investment-grade fixed-rate debt markets. The two major components of this index are the Pan-European Aggregate, and the Asian-Pacific Aggregate Indices.

Barclays Emerging Markets Aggregate Index includes USD-denominated debt from emerging markets in the following regions: Americas, Europe, Middle East, Africa, and Asia. As with other fixed income benchmarks provided by Barclays, the index is rules-based, which allows for an unbiased view of the marketplace and easy replicability.

There are eligibility requirements to work with a dedicated Financial Consultant.

Wealth management refers to products and services available through the operating subsidiaries of The Charles Schwab Corporation of which there are important differences including, but not limited to, the type of advice and assistance provided, fees charged, and the rights and obligations of the parties. It is important to understand the differences when determining which products and/or services to select. The Charles Schwab Corporation provides a full range of brokerage, banking and financial advisory services through its operating subsidiaries. Its broker-dealer subsidiary, Charles Schwab & Co., Inc. (member SIPC), offers investment services and products, including Schwab brokerage accounts. Its banking subsidiary, Charles Schwab Bank (member FDIC and an Equal Housing Lender), provides deposit and lending services and products.

Brokerage Products: Not FDIC Insured • No Bank Guarantee • May Lose Value