Schwab Center for Financial Research

GUIDE TO ASSET CLASSES
The Guide to Asset Classes is intended to be used for informational and educational purposes. The benefits of asset class diversification are well documented, and the Guide to Asset Classes should help clients better understand the role of each asset class within their portfolio.

This document is intended to be used for reference and provides useful information about each asset class.
U.S. Large Company Stocks

**Overview**

U.S. large company stocks are publicly traded equities issued by the largest companies domiciled in the United States. Most traditional stock indexes are constructed based on a market-capitalization-weighted (“market cap”) approach (e.g., S&P 500®, Russell 1000®, etc.), in which companies with the largest market caps have the largest weights. Market cap is the most common measurement of a company’s size, and is computed by taking the number of outstanding shares and multiplying it by the price of the stock. U.S. large company stocks are one of the most widely recognized and liquid asset classes, and are commonly viewed as a key building block to any diversified portfolio. Some of the more well-known, publicly traded corporations included in this asset class are older companies that have been around since the 19th century such as General Electric and Procter & Gamble, as well as much younger companies such as Alphabet and Facebook.

**Role in portfolio**

U.S. large company stocks are meant to help provide growth to a portfolio. Many of these companies also provide income through the payment of dividends.

**Asset class size**

$22.1 trillion*

**When do they perform well?**

U.S. large company stocks typically perform well when underlying companies are growing and fundamentals are strong. When these companies are investing profits back into their businesses for research and development, personnel and technology, this can be a positive signal. Often, periods of strong U.S. large company growth happen simultaneously with strong overall economic growth and low inflation. Valuation matters, as well. When stock prices are low relative to earnings, for example, subsequent price performance is more likely to be strong.

**When do they perform poorly?**

These stocks tend to perform poorly during economic slowdowns, or amid expectations of such slowdowns, and when interest rates are high. Unexpected inflation may also hurt these stocks. When prices are high relative to earnings, price performance can suffer.

**Investability**

This is one of the most accessible asset classes for investors, and transaction costs are typically very low. There are many passive and active mutual funds investors can invest in, along with a number of exchange-traded funds (ETFs). Investors also can purchase individual stocks, although adequate diversification may be more challenging to achieve when choosing this path.

**Fun fact**

The combined market capitalization of the top 20 U.S. large company stocks is greater than the gross domestic product of all but a handful of countries in the world.

* S&P 500 total market capitalization, as of 12/31/2018
U.S. Small Company Stocks

Overview
U.S. small company stocks—often called “small caps”—represent equity in smaller publicly traded U.S. companies, generally those that represent the bottom 10% of the market by total market capitalization (“market cap”). Market cap is the most common measurement of a company’s size, and is computed by taking the number of outstanding shares and multiplying it by the price of the stock. Small company stocks may provide greater potential for growth than large company stocks. However, they are riskier because their size makes them more vulnerable to economic shocks, inexperienced management, competition and financial instability. Many investors consider U.S. small company stocks as a more “direct” investment in the local economy due to their closer link to it.

Role in portfolio
U.S. small company stocks provide an opportunity to participate in potentially faster-growing companies. Investors seeking to benefit from a regional economic cycle may consider taking a look at small company stocks.

Asset class size
$2.1 trillion*

When do they perform well?
U.S. small company stocks generally perform well when the economy is expanding or when investors expect such expansions to occur. U.S. small company stocks tend to be more directly tied to the strength of the U.S. economy than large company stocks, because they typically generate most of their revenue within the United States, while large multinational companies often generate a substantial portion of revenue in geographies around the world. Valuation matters, as well. When prices are low relative to earnings, for example, subsequent price performance is more likely to be strong. Relative to U.S. large company stocks, U.S. small company stocks are more directly aligned with the performance of the U.S. dollar.

When do they perform poorly?
During economic slowdowns these stocks tend to perform poorly. When prices are high relative to earnings, their performance can suffer.

Investability
U.S. small company stocks are easily accessible. While less liquid relative to U.S. large company stocks, U.S. small company stock liquidity has improved drastically over the past 20 years. Investors also can purchase individual stocks, although adequate diversification may be more challenging to achieve when choosing this path. For greater diversification, there are a wide variety of passive and active mutual funds and exchange-traded funds (ETFs) for investors to choose from.

Fun fact
The number of U.S. small company stocks peaked in 1997 at more than 2,500.†

* Russell 2000® total market capitalization, as of 12/31/2018
† Center for Research in Security Prices (CRSP)
Fun fact
For a short period during the late 1980s and into 1990, Japan's total stock market capitalization was higher than that of the United States. Today, the total stock market capitalization of companies domiciled in Japan is less than 20% of those domiciled in the United States.†
International Developed Small Company Stocks

Overview
International developed small company stocks represent the equity of smaller foreign companies that are domiciled in countries with mature economies and stock markets that benefit from strong investor protections, corporate governance, and legal infrastructure. Investing in international developed small company stocks involves additional risks, which may include differences in financial accounting standards, currency fluctuations, geopolitical risk, foreign taxes and regulations, and the potential for illiquid markets. The lower liquidity of this asset class can drive up the trading costs when investing in these markets. While these markets are more developed relative to emerging markets, attaining exposure to some of the more thinly traded international small cap stocks can be costly.

Role in portfolio
Like U.S. small company stocks, these investments offer greater potential for growth than their large-cap counterparts. In addition, they provide diversification relative to U.S. markets because the revenues of these companies tend to be tightly tied to their home countries.

Asset class size
$2.1 trillion*

When do they perform well?
International developed small company stocks typically perform well during the earlier stages of a global economic recovery. A strong foreign currency relative to the U.S. dollar also enhances the returns of international developed small company stocks. Valuation also factors into the performance of these stocks. When prices are low relative to earnings, for example, subsequent price performance is more likely to be strong.

When do they perform poorly?
A struggling global economy adversely affects the performance of these stocks. When prices are high relative to earnings, price performance can suffer.

Investability
There are many product options that provide exposure to international developed small company stocks. Funds that invest in these markets generally have higher fees than funds that invest in international large company stocks, due to the lower liquidity of the asset class. Investors also can purchase individual stocks, although adequate diversification may be more challenging to achieve when choosing this path.

Fun fact
International developed small company stocks typically offer more diversification and foreign exposure than international developed large company stocks due to a larger percentage of their revenues being generated in the country where they are domiciled.

* MSCI EAFE Small Cap total market capitalization, as of 12/31/2018
Overview
International emerging market stocks are equity investments in foreign companies domiciled in countries with developing economies that have been experiencing rapid growth and industrialization. International emerging markets differ from their developed market counterparts in four main ways: they have lower household incomes; they are undergoing structural changes, such as modernization of infrastructure or moving from a dependence on agriculture to manufacturing; their economies are undergoing development and reform programs; their markets are less mature. International emerging markets are riskier than developed markets, due to greater potential for political instability, currency fluctuations, an uncertain regulatory environment, lack of full transparency, and higher investment costs.

Role in portfolio
International emerging markets can offer a unique combination of benefits. One is higher growth potential than developed markets, as corporate revenues have the potential to grow faster when economic growth is higher. Another is diversification, as international emerging markets can perform differently than developed markets.

Asset class size
$5.4 trillion*

When do they perform well?
International emerging market stocks generally perform well during periods of higher growth, when commodities are trading at relatively high levels, local export markets are thriving due to a growing global economy, and local governments implement policies more conducive to private sector growth. Valuation matters, as well. When prices are low relative to earnings, for example, subsequent price performance is more likely to be strong.

When do they perform poorly?
International emerging market stocks typically struggle when the U.S. is in a recession or experiencing a slow growth environment. Also, due to their relatively high dependence on commodity sales, they typically don’t perform well when commodities are experiencing declining prices. Periods of high geopolitical risk are also harmful for international emerging market stocks. When stock prices are high relative to earnings, price performance can suffer.

Investability
This asset class has grown significantly since the term “emerging market” was coined by an economist at the World Bank in the 1980s. As many investors continue to look for pockets of growth in the global economy, they have been drawn toward the expectations this asset class offers, which in turn has led to many mutual fund and exchange-traded fund (ETF) offerings. Investors also can purchase individual stocks, although adequate diversification may be more challenging to achieve when choosing this path.

Fun fact
As of the end of 2018, while their market cap only makes up approximately 12.2%† of the world’s market cap, China and India contain approximately 36%‡ of the world’s population.

* MSCI EM IMI total market capitalization, as of 12/31/2018
† World Bank
‡ U.S. Census Bureau estimate, 2018
U.S. REITs

Overview
U.S. real estate investment trusts (REITs) are real estate-related securities traded on U.S. exchanges. REITs invest in many underlying properties, including hospitals, shopping centers, office buildings, apartment buildings, and hotels. The IRS requires REITs to pay out at least 90% of their taxable income to unit holders every year. By doing so, REITs are often exempt from corporate income taxes on the portion of their income that is paid out to unit holders, avoiding the double taxation that many publicly traded companies experience.

There are two different major REIT categories: equity REITs and mortgage REITs. Equity REITs are much more common and make up more than 90% of the U.S. REIT market. Equity REITs own properties, and most of their earnings come from rental income. Mortgage REITs, on the other hand, provide loans to investors to purchase properties, meaning that much of their revenue comes from interest payments.

Role in portfolio
U.S. REITs can provide both inflation protection and income potential to a portfolio. REITs can also provide diversification to a portfolio of more traditional asset classes.

Asset class size
$1 trillion*

Higher dividend yields are common with REITs

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>Dividend Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>REITs</td>
<td>4.20%</td>
</tr>
<tr>
<td>U.S. Large Company Stocks</td>
<td>2.07%</td>
</tr>
<tr>
<td>U.S. Small Company Stocks</td>
<td>1.44%</td>
</tr>
<tr>
<td>Int'l Developed Large</td>
<td>3.49%</td>
</tr>
<tr>
<td>Company Stocks</td>
<td></td>
</tr>
</tbody>
</table>

* Dividend yields for U.S. REIT Index (REITs), S&P 500 Index (U.S. Large Company Stocks), Russell 2000 Index (U.S. Small Company Stocks) and MSCI EAFE Index (Int'l Developed Company Stocks), as of 1/31/2019. Past performance is no guarantee of future results.

When do they perform well?
Since dividends from REITs generally increase with inflation, REITs tend to perform better than most other asset classes in moderate- or high-inflation environments.

When do they perform poorly?
REITs typically perform poorly during recessions, as occupancy rates and valuations may both fall in such environments. REITs also tend to perform poorly during periods of rising interest rates when that rise isn’t accompanied by higher inflation.

Investability
It is easy to get exposure to U.S. REITs, as there are a variety of mutual funds and ETFs that invest directly in them. U.S. REITs can also be purchased directly in the same way that U.S. stocks can.

Fun fact
This asset class has grown from $13 billion in 1991 to over $1 trillion in 2018, according to the National Association of Real Estate Investment Trusts (NAREIT). Largely due to their recent growth, U.S. REITs became a key part of the GICS® Real Estate sector, which was launched in 2016.

* National Association of Real Estate Investment Trusts, December 2018
† The Global Industry Classification Standard (GICS®) is an industry classification system that was developed in 1999 by MSCI and Standard & Poor's.
Overview
International real estate investment trusts (REITs) are real estate-related securities traded in foreign countries. REITs invest in many underlying properties including hospitals, shopping centers, office buildings, apartment buildings, and hotels. Like most securities, REITs are exposed to downturns in specific sectors/regions of the real estate market and the broader economy, and also contain additional risks due to potential leverage. The taxation of international REITs can get very complex due to the various taxation policies of the different governments involved. While many countries offer tax benefits for these types of holdings, it does vary.

Role in portfolio
International REITs can provide inflation protection, income potential, and diversification to a portfolio.

Asset class size
$576 billion*

When do they perform well?
As is the case with many other securities with exposure to real estate markets, international REITs typically perform well during declining interest rate environments and when banks are expanding their lending portfolios. They also tend to hold up well against inflationary pressures.

When do they perform poorly?
As is the case with most asset classes, recessions generally don’t bode well for international REITs. Periods of sharply rising interest rates can also be difficult for this type of investment.

Investability
There are many mutual funds and ETFs that provide exposure to international REITs. Many broad international stock funds will provide some exposure to international REITs, but for a more isolated offering it’s best to look for funds that purchase only these investments.

Fun fact
International REITs is a market that has grown significantly over the past 20 years and is catching up in size to the U.S. REIT market. International REITs in more than 20 countries are tracked by the S&P Global ex-U.S. REIT Index.†

---

* S&P Dow Jones Indices, as of 1/31/2019
† National Association of Real Estate Investment Trusts, S&P Dow Jones Indices
Master Limited Partnerships (MLPs) trade publicly on a securities exchange like stocks and can often pay higher levels of income than other investments. To qualify as an MLP, a partnership must generate at least 90% of its income from what the IRS considers to be "qualifying" sources, including activities related to real estate or the production, processing, or transportation of oil, natural gas, coal, and other commodities. MLPs provide a tax advantage to investors, as cash flows generated from them are not taxed at the company level, only at the individual level. However, the taxation of these investments can be complex at times.

Role in portfolio
MLPs can provide income to a portfolio, along with growth potential.

Asset class size
$278 billion*

When do they perform well?
MLPs have tended to perform well during periods of high commodity production, especially in oil and gas. While energy MLPs typically generate revenue based on the volume of oil, natural gas, or coal transported rather than price, the correlation of performance to commodity prices, historically, has been pretty high. However, as the chart shows, there have been exceptions. Rising commodity prices tend to positively affect production, and MLPs, in turn, tend to perform well during these periods. Returns for MLPs also tend to be correlated to returns on stocks. Therefore, when the economy is doing well and equity prices are rising, MLPs generally rise, as well.

When do they perform poorly?
MLPs tend to perform poorly when commodity production is declining—which tends to be influenced by commodity prices. Falling commodity prices are generally a negative for MLP returns. Returns for MLPs are also correlated to stock returns. So, when the economy is doing poorly, and equities are declining in price, MLP returns generally suffer. Their prices can also be volatile, at times, given their equity-like characteristics and relatively small number of securities in the sector.

Investability
While there are not as many paths for investing in funds that offer only MLP exposure, some are definitely available. With the rise in the price of oil in the late 2000s, many were introduced during this period. Currently there are more than 50 mutual funds and exchange-traded funds (ETFs) focused on investing in MLPs.

Fun fact
MLPs make money by "charging a fee per distance traveled for every barrel of oil or cubic foot of natural gas."†

* Alerian, as of 12/31/2018
† Alerian
Overview
Treasury securities, or Treasuries, are debt securities of the U.S. government issued through the U.S. Treasury Department at various maturities, from one year or less to as long as 30 years. They generally pay interest on a semiannual basis, and timely payment of principal and interest is backed by the full faith and credit of the U.S. government, making them among the highest credit-quality investments available. Interest on Treasuries is taxable at the federal level, but exempt from state and local taxes. Yields on Treasury securities are usually lower than for most other bonds because investors are willing to accept less income in exchange for lower risk. While these bonds are generally considered free from credit risk, they do carry interest rate risk—all else being equal, their prices increase when interest rates fall and vice versa.

Role in portfolio
U.S. Treasuries are considered a relatively safe, defensive asset class.

Asset class size
$15.6 trillion*

When do they perform well?
Treasuries tend to perform best when inflation is low and interest rates are falling, like most bonds. But they tend to outperform most bonds, on a relative basis, when market volatility is high and when the economy is weakening and stock prices are falling. Investors often put money into Treasuries as a perceived safe haven during times of economic and/or geopolitical turmoil due to their high level of safety and liquidity.

When do they perform poorly?
Treasuries tend to perform poorly when inflation and interest rates are rising and market volatility is low. If investors perceive that the economic and financial environment is low risk, then Treasuries are seen as less attractive to hold than other types of investments, such as corporate bonds or stocks.

Investability
There are many available funds that invest in this asset class. With the high liquidity that comes with investments in U.S. Treasuries, transaction costs that come with investing in them are often very low relative to other asset classes.

Fun fact
Foreign investors are major buyers of U.S. Treasuries, accounting for more than 40% of all holders in 2018, and many foreign central banks hold a large proportion of their reserves in U.S. Treasuries due to their perceived safety and liquidity. As of December 2018, the largest foreign owners of U.S. Treasuries were Japan and China, with Brazil coming in at a distant third.†

* Securities Industry and Financial Markets Association, as of 12/31/2018
† U.S. Treasury Department, 2018
U.S. Investment Grade Corporate Bonds

Overview
U.S. investment grade corporate bonds represent the debt of U.S. corporations with relatively high credit ratings provided by one or more of the major U.S. credit rating agencies. Investment grade corporate bonds are those rated BBB- or higher by Standard and Poor’s, or Baa3 or higher by Moody’s Investors Service. The high rating indicates that these bonds have relatively low default risk, and as a result the bonds generally pay a lower interest rate than debt issued by entities with below-investment-grade credit ratings. These bonds pay higher interest than comparable bonds issued by the U.S. government, all else being equal.

Role in portfolio
U.S. investment grade corporate bonds are relied on mostly for the income they provide to investors.

Asset class size
$8 trillion*

When do they perform well?
Investment grade corporate bonds tend to perform well when the economy is growing and default rates are low and are expected to stay low. In addition to the higher yields that corporate bonds offer, investment grade corporate bonds can appreciate in price as well. The yield advantage that corporate bonds offer relative to Treasuries is called a credit spread; it can be thought of as compensation for their additional risks compared with Treasuries. If the economic outlook is strong or default rates are expected to remain low, investors may accept lower compensation, as the perceived risks of default may decline. When the credit spread falls, the price of corporate bonds generally rises relative to U.S. Treasury bonds.

When do they perform poorly?
Investment grade corporate bonds tend to perform poorly if economic growth slows and defaults or downgrades are expected to rise. Even though investment grade corporate bonds tend to default significantly less than high yield corporate bonds, investors may demand higher yields to compensate for the potential of a higher rate of corporate defaults and the increase in downgrade risk. As a result, yields tend to rise relative to Treasuries, pushing prices lower. During periods of market distress, investment grade corporate bonds are generally less liquid than more conservative investments like U.S. Treasuries, which could exacerbate price volatility.

Investability
Many passive and active mutual funds and exchange-traded funds (ETFs) invest in this asset class. Investors also can purchase individual bonds, although adequate diversification may be more challenging to achieve when choosing this path. Transaction costs are higher than those for U.S. Treasuries but lower than what investors would pay for international developed and emerging market bonds.

Fun fact
While corporations generally have only one series of common stock, many corporations issue a number of different individual bonds, with varying maturities, coupons, or deal sizes. Some companies, including Walt Disney and Coca Cola, have issued bonds that will not mature for 100 years. However, the average corporate investment grade bond maturity is around 10 years.

* Estimate, Securities Industry and Financial Markets Association, Bloomberg, 12/31/2018
U.S. Securitized Bonds

Overview

U.S. securitized bonds are securities in which principal and interest payments are backed by cash flows from a particular asset or pool of assets. Some of the most common assets used as collateral for these bonds include mortgages, automobile loans, and credit card debt. Often these securities will be structured into various groups of assets, or tranches, based on the credit rating of the underlying debt.

One well-known type of securitized bond is a mortgage-backed security (MBS). Mortgage-backed securities are created by pooling mortgages purchased from their original lenders. As homeowners make their mortgage payments, those payments get passed on to MBS holders. If the mortgages in the pool get paid off earlier than expected (from homeowner prepayments) then MBS investors would get their principal back more quickly, and any associated interest payments would come to an end. Some of the more common types of mortgage-backed securities are those guaranteed by the Government National Mortgage Association (Ginnie Mae) and those issued by the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac).

Role in portfolio

U.S. securitized bonds are relied on mostly for the income they provide investors.

Asset class size

$11.4 trillion*

When do they perform well?

Mortgage-backed securities generally perform well when interest rates are relatively stable or falling. Just like traditional bonds, the price and yields of MBS tend to move in opposite directions. However, because falling interest rates can lead to an increase in prepayments—due to homeowners refinancing their mortgages—the price of mortgage-backed securities might not rise as high as they would have in the absence of a prepayment option. In this case, price appreciation may be tempered, and because of an increase in prepayments, MBS investors are then left to reinvest at lower interest rates.

When do they perform poorly?

MBS perform poorly when interest rates rise, due to what is known as extension risk. Extension risk occurs when interest rates rise and homeowners become less likely to prepay their mortgages, because they would have to refinance at higher rates. This means it can take longer for investors to get their money back, and in turn longer before those investors are able to reinvest at higher yields. And like Treasury bonds, higher MBS yields lead to lower prices. If long-term interest rates rise, mortgage-backed securities tend to perform poorly.

Investability

Many passive and active mutual funds and exchange-traded funds (ETFs) invest in this asset class.

Fun fact

While Ginnie Mae officially became its own entity in 1968, its origins can be traced back to 1934, when Congress passed the National Housing Act as part of the New Deal. High demand for mortgage securitization products, which led to lax lending standards by providers, is widely believed to have been one of the primary causes of the 2007-2008 global financial crisis.

*Mortgage-backed securities dominate the U.S. Securitized Bond investable universe

<table>
<thead>
<tr>
<th>Security Type</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asset-Backed Securities</td>
<td>1.69%</td>
</tr>
<tr>
<td>Commercial Mortgage-Backed Securities</td>
<td>6.25%</td>
</tr>
<tr>
<td>Covered</td>
<td>0.15%</td>
</tr>
<tr>
<td>MBS Passthrough</td>
<td>91.91%</td>
</tr>
</tbody>
</table>

Source: Bloomberg, Bloomberg Barclays U.S. Securitized Bond Index, as of 12/31/2018

* Securities Industry and Financial Markets Association, as of 12/31/2018
Overview
The U.S. Treasury issues inflation-protected bonds called Treasury Inflation-Protected Securities (TIPS). TIPS protect investors against inflation by adjusting the principal value based on changes in the U.S. Consumer Price Index. Like traditional Treasury bonds, they are backed by the full faith and credit of the U.S. government. Inflation-protected bonds pay interest on a semiannual basis, based on a fixed rate at issuance. The actual coupon payment may vary, since that fixed coupon rate is based on principal that adjusts for inflation or deflation. Inflation-protected bonds are issued several times a year, with initial maturities of five, 10, and 30 years. However, due to the passage of time, these bonds can be bought in the secondary market with various maturities. The principal value rises with inflation, and falls with deflation. The coupon payment is based on the adjusted principal, even if it falls below its initial par value due to deflation. However, at maturity, investors receive the greater of the adjusted par value or its initial par value. In other words, the initial principal amount of an inflation-protected bond is protected from deflation, but the coupon payments are not.

Role in portfolio
As their name suggests, these securities are used by investors to protect against rising inflation.

Asset class size
$1.4 trillion*

When do they perform well?
TIPS generally perform well when inflation rises, since the principal and coupons would both rise as well. TIPS may also perform well when inflation expectations rise, as investor demand can push the prices higher relative to traditional U.S. Treasuries, as investors seek inflation protection. Inflation-protected bonds are still bonds whose prices and yields move in opposite directions. If traditional Treasury bond yields are falling, inflation-protected bonds’ yields may follow suit, pushing prices higher.

When do they perform poorly?
TIPS generally perform poorly if inflation is declining, outright deflation takes hold, or inflation expectations decline. If expectations for future inflation are tame, investors may prefer traditional Treasury bonds, pushing inflation-protected bond prices lower. Also, if Treasury yields rise without an accompanying rise in inflation, inflation-protected bond prices would likely fall as well.

Investability
There are many available passive and active mutual funds and ETFs that invest solely in this asset class. Investors can also choose to purchase TIPS directly.

Fun fact
Not surprisingly, some of the top-performing years for TIPS were 2007 and 2011, when inflation was 4.1% and 3.0% respectively, higher than the average value of 2.1% since 2000.†

* U.S. Department of Treasury, as of 12/31/2018
† Morningstar Direct and Bloomberg Barclays U.S. TIPS Index
Overview

U.S. high yield corporate bonds—sometimes known as “junk” bonds—are the debt of U.S. corporations with lower credit ratings provided by the major U.S. credit rating agencies. High yield bonds have ratings of BB+ or below by Standard and Poor’s and Ba1 or below by Moody’s Investors Service. The low rating indicates these companies have relatively high default risk, meaning the issuer has a higher likelihood of being unable to meet its debt payment obligations compared to an investment grade bond issuer. Because these bonds are riskier than those issued by entities with investment grade credit ratings, they generally pay a higher interest rate than a comparable investment grade bond.

Role in portfolio

High yield corporate bonds are relied on mostly for their income, but can also experience price changes. These bonds can add a source of diversification to an income portfolio.

Asset class size

$1.2 trillion*

When do they perform well?

High yield corporate bonds tend to perform well when the economy is strong and default rates are low and are expected to remain low. In addition to the higher yields that high yield corporate bonds can offer, these bonds can experience price appreciation, as well. The yield advantage that high yield bonds offer relative to Treasuries is called a credit spread; it can be thought of as compensation for their extra risks compared with Treasuries. If the economic outlook is strong or default rates are expected to remain low, investors may accept lower compensation, as the perceived risks of default may decline. When the credit spread falls, the price of corporate high yield bonds generally rises relative to U.S. Treasury bonds.

When do they perform poorly?

High yield corporate bonds tend to perform poorly if economic growth slows and defaults are expected to rise. High yield corporate bonds tend to be much less liquid than investment grade corporate bonds, and are more prone to significant sell-offs—as was seen during the 2007-2008 financial crisis.

Investability

The availability of high yield bond funds has increased significantly over the years. There are many passive and active mutual funds and exchange-traded funds (ETFs) for investors to choose from. Investors also can purchase individual bonds, although adequate diversification may be more challenging to achieve when choosing this path.

Fun fact

Bond ratings can change over a bond’s life. Bonds that were initially issued with investment grade ratings, but were then downgraded to “junk” status, are called “fallen angels.” Conversely, bonds that were initially issued with high yield ratings but were upgraded to investment grade, are called “rising stars.”

* Bloomberg, as of 12/31/2018
International Developed Country Bonds

Overview
International developed country bonds are debt instruments issued by a government, agency, municipality, or corporation domiciled in a developed country other than the United States. They may be issued in the home currency of the country of origin or denominated in U.S. dollars or some other currency. International developed country government bonds typically carry investment grade credit ratings, but some may be rated below investment grade. Corporate bonds issued in developed market countries may be investment grade or non-investment grade.

Role in portfolio
International developed country bonds are a defensive asset class that offers U.S.-based investors geographic and currency diversification benefits along with income potential.

Asset class size
$26.4 trillion*

When do they perform well?
International developed country bonds tend to perform well when the U.S. dollar is declining against other major currencies and/or interest rates in the U.S. are low relative to other major countries. As with all bonds, performance is strongest when interest rates and inflation are falling. When foreign bond yields are higher than U.S. yields for comparably rated bonds of similar maturity, investors often buy foreign bonds to capture the more attractive yields. They have also historically performed well when the U.S. stock market is declining, as that often leads investors to shift out of U.S. securities and into other markets.

When do they perform poorly?
International developed country bonds tend to perform poorly when the U.S. dollar is strengthening and/or interest rates and inflation are rising. Country-specific events can affect the performance of international bonds, as well, such as rising government budget deficits or adverse political developments. Monetary policies also affect the performance of international developed country bonds, both in terms of the direction of interest rates and credibility. A country with a central bank that has a history of managing inflation well may pay less interest on its bonds than one where lax central bank policies have allowed inflation to be higher. International corporate bonds, much like U.S. corporate bonds, tend to perform poorly when the issuing company is experiencing poor growth in earnings, or perhaps has increased its balance sheet leverage through high borrowing.

Investability
Many passive and active mutual funds and exchange-traded funds (ETFs) invest in international developed country bonds. Investors also can purchase individual bonds, although adequate diversification may be more challenging to achieve when choosing this path.

Fun fact
According to the Bank for International Settlements, as of December 2018 the largest government bond issuers among developed markets are the United States ($18.7 trillion), Japan ($9.2 trillion), the United Kingdom ($2.6 trillion), France ($2.3 trillion), Italy ($2.2 trillion), and Germany ($1.8 trillion).

* Estimate based on the Bloomberg Barclays Global Aggregate ex-USD Index, excluding the investment-grade emerging markets portion, as of 12/31/2018
International Emerging Market Bonds

Overview

International emerging market bonds (EM bonds) are issued by a government, agency, municipality, or corporation domiciled in a developing country. These investments typically offer higher yields to reflect the elevated risk of default, which can stem from underlying factors such as political instability, poor corporate governance, and currency fluctuations. The asset class is relatively new compared with other sectors of the bond market. EM bonds may be denominated in local currency, U.S. dollars, or other hard currencies. While some EM countries have taken on the characteristics of developed market economies, with more stable fiscal and monetary policies and sounder financial institutions, there remain wide differences among the countries categorized as emerging markets.

Role in portfolio

EM bonds can be a source of income, diversification, and offer the potential for capital appreciation.

Asset class size

Over $4.8 trillion*

When do they perform well?

EM bonds tend to perform well when the U.S. dollar and other hard currencies, like the euro or Japanese yen, decline, because EM assets look more attractive by comparison. A growing global economy tends to benefit EM country bonds, as well, because exports generally represent a larger proportion of EM economies. A low-interest-rate, low-volatility environment also has tended to be positive for EM bonds, because investors are attracted to the higher interest rates EM bonds offer.

When do they perform poorly?

In addition to the factors that contribute to the poor performance of developed country bonds, EM bonds tend to perform poorly when investors are averse to taking risk or when global growth slows. Because many EM countries derive much of their growth from exports to developed countries, slower growth in global trade tends to be a negative factor for the economies and currencies of EM countries.

Investability

This asset class has grown significantly over the past 15 years, and so has the number of funds available to invest in. There are a wide variety of passive and active mutual funds and ETFs in the marketplace for investors to choose from. Investors also can purchase individual bonds, although adequate diversification may be more challenging to achieve when choosing this path.

Fun fact

Although EM debt has gained widespread acceptance among investors, it is a relatively new asset class. Brady bonds, introduced in the late 1980s and named after then-U.S. Treasury Secretary Nicholas Brady, allowed Latin American governments to convert defaulted bank loans into tradable bonds, and are largely credited with increasing acceptance of these bonds.

* Estimate is a sum of the following indices: ICE BofA Merrill Lynch All Maturity Emerging Markets Inflation-Linked Sovereign Bond Index, JPMorgan GBI-EM Broad Index, JPMorgan CEMBI Broad Index, and JPMorgan EMBI Global Index) indexes, as of 12/31/2018.
Overview

Preferred stocks are often referred to as a “hybrid” investment, sharing characteristics of both stocks and bonds. As a stock, they are generally paid after a company’s bonds in the event of a corporate liquidation. Similar to a bond, however, they have a fixed par value, generally make regular fixed payments, and their market value can rise or fall as interest rates change. Preferred stocks are senior to common stock—meaning their holders have priority over holders of common stock in the event of a claim on the company’s assets—and some rank as high as senior unsecured bonds.

Preferred stocks are most commonly issued in the Financials, Industrials and Utilities sectors. Most preferred stocks have a call feature allowing the issuer to purchase the stock back from the investor at a certain price and date. Call features can be a benefit to issuers, providing them with flexibility. Unlike common stock, preferred stocks do not come with voting rights.

Role in portfolio

Due to their higher yield, preferred stocks help investors add income potential to their portfolios.

Asset class size

$190 billion*

When do they perform well?

Preferred stocks tend to perform well when long-term bond yields are stable or falling, and the economic outlook is positive. These stocks have two key risks: interest rate risk and credit risk. Preferred stocks tend to have high durations—a measure of interest rate sensitivity—so their prices are very sensitive to a rise or fall in interest rates. If long-term interest rates are falling, the prices of preferred stocks likely would rise. Also, preferred stocks may perform well when investors demand less of a credit spread to hold them, which would push their prices higher relative to U.S. Treasuries.

When do they perform poorly?

Preferred stocks tend to do poorly when long-term interest rates are rising, due to their relatively high durations. Preferred stocks also tend to do poorly when the perceived credit risk of the corporate market increases, as the risk rises issuers could suspend the dividend or interest payments.

Investability

Investing in preferred stocks can be done through a wide variety of mutual funds and exchange-traded funds (ETFs). Investors also can purchase individual preferred stocks, although adequate diversification may be more challenging to achieve when choosing this path.

Fun fact

Unlike common stocks, whose prices rise and fall based on a company’s earnings, preferred stocks have a set par value. Preferred stock prices will still experience some movement, but typically not the same level of volatility investors experience with common stocks.

* This is the estimated retail total. This total is the combined market value of the Bank of America Merrill Lynch Preferred Stock Fixed Rate Index and the Bank of America Merrill Lynch Preferred Stock Fixed Rate High Yield Index, as of 12/31/2018.
Overview
Bank loans are loans that banks make to commercial borrowers, who use them to fund acquisitions and other strategic initiatives. These loans then are often sold to investment vehicles like mutual funds and exchange-traded funds (ETFs). The loans typically have floating coupon rates, meaning they pay a set amount over a benchmark interest rate, often the three-month London Interbank Offered Rate (LIBOR). Bank loans are generally rated below investment grade, meaning BB+ or below by Standard & Poor’s or Ba1 or below by Moody’s Investors Service, and as a result typically carry higher yields. Because they pay a floating rate, bank loans are often used as a hedge against rising interest rates.

Bank loans are usually “secured,” which means that they are backed by a pledge of the issuer’s assets, such as inventories or receivables. They also generally are senior to most other corporate debt, so in default, they would get paid before the issuer’s other corporate bonds. Due to bank loans’ senior and secured status, they generally have higher recovery rates than traditional corporate bonds in the case of a default.

Role in portfolio
The primary role of bank loans within a portfolio is to provide income potential.

Asset class size
Over $1.15 trillion*

When do they perform well?
Bank loans tend to perform well when short-term interest rates—specifically three-month LIBOR—are rising and default rates remain low. In this scenario, investors can potentially benefit from higher coupon payments, with less risk of prices falling due to defaults. Bank loans also tend to perform well when market volatility is low.

When do they perform poorly?
Bank loans can perform poorly when short-term interest rates are falling. In this scenario, the coupon payments would decline, likely reducing the total return. Bank loans tend to perform poorly when the economy is expected to slow and default rates are rising or expected to rise. The default rate on bank loans can surge as well. According to Moody’s Investors Service, the trailing 12-month speculative grade loan default rate rose as high as 12% in 2009, compared with less than 1% for investment grade bonds.

Investability
Bank loan funds have grown in popularity as investors continue to seek ways to produce income and make their portfolios less susceptible to long-term interest rates. There are over 50 U.S. domiciled unique mutual funds & ETFs that invest primarily in bank loans.

Fun fact
Bank loans became a very popular investment after the financial crisis. From 2009 through 2018, bank loan mutual funds and ETFs experienced more than $97 billion† in net investor inflows. In the previous 10 years ending in 2008, bank loan mutual funds and ETFs only saw $8 billion† in net inflows.

* S&P/LSTA Leveraged Loan Index total market capitalization, as of 12/31/2018
† Morningstar, as of 12/31/2018
Overview
Investment grade municipal bonds are issued by municipalities—cities, states, and counties—as well as enterprises that serve a public purpose, such as universities, hospitals, and utilities. These investments generally receive high credit ratings from the major rating agencies. The coupon payments made by these bonds are typically exempt from federal and state income tax (if issued by a municipality located within the investor’s home state).

Role in portfolio
These investments can provide income, which is often tax-exempt, making them even more attractive to investors in high tax brackets who are investing in taxable accounts.

Asset class size
$3 trillion*

When do they perform well?
Like most bonds, investment grade municipal bonds tend to perform best when interest rates are falling and inflation is low. Money used to pay municipal bonds tends to be tied to tax revenues or usage fees, so they often perform well when the economy is improving and tax receipts or usage is high. Municipal bonds tend to perform similarly to Treasuries and corporate bonds, based on changes in market interest rates. Other factors, however, can cause differences in performance, including higher or lower demand for the tax advantages. Already issued municipal bonds often tend to trade infrequently compared to many other fixed income markets. Therefore, municipal bonds may also do well compared to other fixed income investments when the amount of newly issued municipal bonds is low, because the scarce supply can drive prices up.

When do they perform poorly?
When interest rates are rising or inflation is high, investment grade municipal bonds tend to perform poorly. They also tend to perform poorly when, among other things, municipal credit conditions are deteriorating (often driven by lower tax revenues or higher municipal expenses). The municipal bond market is also more prone to headline risk—or the risk that investors will sell their investments due to a single negative event that is not actually affecting the rest of the market—compared to other markets. Because municipal bonds pay interest that is generally exempt from federal taxes, lower federal tax rates make municipal bonds less attractive compared with other taxable fixed income investments, because it reduces the benefit of the tax exemption. The smaller size of the municipal bond market increases the potential liquidity risk, which can drive down prices when selling into an illiquid market.

Investability
This is a very accessible asset class through passive and active mutual funds and exchange-traded funds (ETFs). Investors also can purchase individual bonds, although adequate diversification may be more challenging to achieve when choosing this path.

Fun fact
Since 1990, the Bloomberg Barclays Municipal Bond Index (which tracks the performance of investment grade municipal bonds) has had only four years of negative annual total returns, with the worst year coming in 1994 at -5.2%.

* Bloomberg, as of 2/26/2019
† Morningstar Direct
Gold and Other Precious Metals

Overview
Precious metals include gold, silver, platinum, and other metals. Gold is an asset class that is commonly used by investors as an inflation hedge or as an alternative to the U.S. dollar. Many reserve currencies, including the U.S. dollar, have an inverse relationship with gold, meaning that when one performs well the other performs poorly, and vice versa. Historically, when investors have panicked and grown wary of the overuse of the U.S. dollar and other fiat* currencies, they have purchased physical commodities, such as gold, for its tangible value.

Role in portfolio
Gold can be used as a defensive investment that helps protect against rising inflation and shocks to the market.

When do they perform well?
Precious metals tend to perform well when expectations for future inflation are increasing, the U.S. dollar is falling, geopolitical unrest is rising, or there are widespread concerns about the stability of the financial system.

When do they perform poorly?
Precious metals tend to perform poorly when expectations for future inflation are decreasing, the U.S. dollar is rising, geopolitical unrest is declining, or concerns about financial system stability are declining.

Investability
There are various ways to access this asset class, but exchange-traded funds (ETFs) are the lowest-cost option for investing in gold. There are also funds that track stocks of gold miners that are highly correlated to the price of gold.

Fun fact
If all the gold ever mined by humans was put into a single cube, it would have a length, height, and width of about 66 feet per side, according to the American Museum of Natural History.

* Fiat money is a currency without intrinsic value. Fiat money has value only because a government maintains its value, or because parties engaging in exchange agree on its value.
Commodities

Overview
Investing in commodities can be a way for investors to gain exposure to an asset class that can provide some diversification to a traditional stock and bond portfolio. Commodities include real assets such as energy, agriculture, industrial metals, precious metals (discussed separately), and livestock. Historically, commodities have had a very low, sometimes negative, correlation to stocks and bonds. What this means is that the market forces which affect stock and bond performance may not have the same effect on commodities’ performance.

Most commodity investors do not directly purchase the underlying commodity. Rather, many invest in mutual funds and exchange-traded funds (ETFs) that purchase futures contracts, which are agreements to purchase a certain amount of a commodity at an agreed-upon price and date in the future. However, instead of taking delivery of the physical commodities at expiration, the funds “roll” the contract as the future date gets closer—meaning they sell it and purchase a longer-dated contract. When futures are involved, there are three main sources of return: spot return, roll yield, and collateral yield. The spot return is simply the price movement driven by the underlying commodity. The roll yield is a little more complex, and can be positive or negative depending on a number of factors. The final component of the return, collateral yield, is generated from the collateral the investor must set aside for the futures contract. Normally the collateral is invested in short-term fixed income securities, such as Treasury bills. We should note that there is a high degree of leverage in futures trading, as only a small percentage of the full value of a futures contract is required to control a futures position. This leverage can work against you as well as for you, and can lead to both large losses as well as large gains.

Role in portfolio
Commodities can provide both diversification and inflation protection to a portfolio.

When do they perform well?
Commodities typically perform well during periods of rising inflation, as goods that are created from commodities are often in high demand during these times, or when the prices of these commodities are rising, thereby causing inflation. Commodities also can perform well during supply shocks created by events like natural disasters or a geopolitical crisis.

When do they perform poorly?
Commodities often perform poorly during economic recessions and periods of low or declining inflation. Supply increases and/or decreases in demand often do not bode well for investments in commodity markets.

Investability
Purchasing physical commodities is not the most efficient or practical method of investing in this asset class for individual investors. Instead, exposure to commodity futures via mutual funds and exchange-traded funds (ETFs) is typically the chosen path for most investors.

Fun fact
Commodity futures trading in the United States dates back to the mid-19th century, when the Chicago Board of Trade was created.* However, modern-day futures trading dates back to the early 18th century in Osaka, Japan when rice futures began trading on the Dojima Rice Market.†

Fundamental Index Strategies

Overview
Fundamental index strategies are index-based strategies that screen and weight companies based on economic measures such as sales, cash flows, and dividends. Most traditional stock indexes are constructed based on a market capitalization-weighted (“market cap”) approach (e.g., S&P 500®, Russell 2000®, etc.) in which companies with the largest market caps have the largest weights. Due to their differences in construction, fundamentally weighted indexes tend to behave differently than market-cap-weighted indexes in different market environments, while retaining the benefits of traditional indexing, such as transparency and relatively low cost implementation.

Role in portfolio
Investments in fundamental index strategies and traditional market-cap-weighted funds can be used to complement each other, because their performance differs in various market environments. The result is a portfolio that can result in better risk-adjusted returns over time.

When do they perform well?
Fundamental index strategies have outperformed market-cap indexes over longer time periods, according to research conducted by Research Affiliates, FTSE Russell, and the Schwab Center for Financial Research, among others.* This is partly because fundamental index strategies break the link with the price of the stock. The market cap of a stock is simply its current price multiplied by the number of outstanding shares. As a result, market-cap indexes can be described as overweighting overpriced stocks and underweighting undervalued stocks.

Fundamental index strategies provide the largest weights to the companies that exhibit strong fundamental characteristics. They demonstrate a dynamic value tilt, and consequently often do best when valuations are taken into consideration. As for their absolute level of performance, fundamental index strategies have tended to be affected in much the same way and by the same factors as their market-cap-weighted counterparts.

When do they perform poorly?
Fundamental index strategies may lag market-cap indexes in growth- and momentum-driven markets.

Investability
The availability of fundamentally weighted strategies has increased significantly over the last few years, and they can be efficiently accessed via mutual funds and exchange-traded funds (ETFs). As demand has increased, providers of these strategies have continued to introduce new funds. While the underlying factors may vary from strategy to strategy, they are all based on economic measurements of company size. Commonly available fundamental index strategies cover the following asset classes: U.S. large company stocks, U.S. small company stocks, international developed large company stocks, international developed small company stocks, and international emerging market stocks.

Fun fact
Fundamental index strategies are some of the largest within the so-called smart beta or strategic beta strategies. In recent years, assets in strategic beta exchange-traded products have been growing at a faster rate than traditional market-cap-weighted index strategies, although the pace of their gains decelerated in 2018, according to Morningstar.†

* Schwab Center for Financial Research, using data from Morningstar Direct.
U.S. High Dividend Stock Strategies

Overview
U.S. high dividend stocks represent the equity of U.S. companies that tend to distribute higher-than-average dividends to shareholders. These are typically large company stocks, as a higher percentage of large companies pay dividends compared with small companies. Historically, high dividend strategies have resulted in vastly different sector weights than market capitalization-weighted strategies. Currently within the S&P 500, a market-cap-weighted index, the largest sectors are Information Technology and Health Care. Within high dividend strategies the largest sectors have often been high dividend-yielding sectors such as Industrials.

Role in portfolio
U.S. high dividend stocks can provide both income and growth potential to a portfolio.

When do they perform well?
High dividend-paying stocks perform well in most markets. They have exhibited particularly strong relative performance versus non-dividend-paying equities during bear markets. Valuation matters, as well. When prices are low relative to earnings, for example, subsequent price performance is more likely to be strong.

When do they perform poorly?
High dividend-paying stocks may struggle to keep pace during more speculative bull market periods when stock price returns make up a larger portion of total returns, which include dividends plus stock price appreciation. Faster-growing companies that pay little or no dividends may see stronger stock price returns in this type of environment than companies that distribute earnings in the form of dividends rather than investing those earnings back into potential growth.

Investability
High dividend stocks and strategies are available through a wide variety of passive and active investment funds. Investors also can purchase individual stocks, although adequate diversification may be more challenging to achieve when choosing this path.

Fun fact
As of February 2019, 1,517 of the 2,924 U.S. companies that are tracked by Schwab Equity Ratings pay dividends. An ability to pay a high and/or growing dividend is often considered a sign of confidence in the business from management.
Overview
International high dividend stocks represent the equity of foreign companies that tend to distribute higher-than-average dividends. Dividend-paying companies are generally perceived to be more stable than those that don’t pay dividends, because they are returning excess capital to shareholders. As with most international assets, investing in international high dividend stocks involves additional risks, which include differences in financial accounting standards, currency fluctuations, geopolitical risk, foreign taxes, and regulations, and the potential for illiquid markets.

Role in portfolio
International high dividend stocks can provide income, growth, and diversification to a portfolio.

When do they perform well?
International high dividend stocks perform competitively with other stocks in general in most market climates, but tend to outperform relative to other stocks during market downturns. Valuation matters, as well. When prices are low relative to earnings, for example, subsequent price performance is more likely to be strong.

When do they perform poorly?
These stocks may perform poorly in more speculative markets where capital appreciation accounts for a higher percentage of total return.

Investability
These stocks and strategies are available through a wide variety of passive and active investment funds. Investors also can purchase individual stocks, although adequate diversification may be more challenging to achieve when choosing this path.

Fun fact
As of February 2019, 4,629 of the 5,430 international stocks that are tracked by Schwab Equity Ratings paid dividends. An ability to pay a high and/or growing dividend is often considered a sign of confidence in the business from management.
Asset Class Size

Asset class grouping

- US Treasuries: $15.6 trillion
- US Securitized Bonds: $11.4 trillion
- US Investment Grade Corporate Bonds: $8.0 trillion
- International Developed Country Bonds: $26.4 trillion
- US Large Company Stocks: $22.1 trillion
- US Exchange-Traded REITs: $1 trillion
- Master Limited Partnerships: $278 billion
- US Small Company Stocks: $2.1 trillion
- US Emerging Markets Bonds: $4.8 trillion
- US Corporate High Yield Bonds: $1.4 trillion
- US Corporates, HY Bonds: $1.2 trillion
- Bank Loans: $1.15 trillion
- Preferred Stocks: $190 billion
- International Developed Large Company Stocks: $12.5 trillion
- Intl. Dev. Small Co. Stocks: $2.1 trillion
- Investment Grade Municipal Bonds: $3 trillion
- US Inflation Protected Bonds: $576.0 billion

Note: The blocks in the above chart are representative of the size of each asset class. Specific details regarding the size of each can be found on the previous pages. This chart is not representative of the entire global investable universe. These are meant to represent relative size global asset classes. These are estimated figures. No reliable estimate is available for Commodities and Precious Metals.
Important Disclosures

Past performance is no guarantee of future results and the opinions presented cannot be viewed as an indicator of future performance.

Diversification and asset allocation strategies do not ensure a profit and do not protect against losses in declining markets.

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, shares of ETFs are not individually redeemable directly with the ETF. Shares are bought and sold at market price, which may be higher or lower than the net asset value (NAV).

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.

All expressions of opinion are subject to change without notice in reaction to shifting market or economic conditions. Data contained herein from third party providers is obtained from what are considered reliable sources. However, its accuracy, completeness or reliability cannot be guaranteed.

Specific company names mentioned are not an endorsement or recommendation of any individual stocks.

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 consulting with a qualified tax advisor, CPA, financial planner or investment manager.

Page 4, 6: Small cap stocks are subject to greater volatility than those in other asset categories.

Page 5-7, 9, 16-17, 25: International investments involve additional risks, which include differences in financial accounting standards, currency fluctuations, geopolitical risk, foreign taxes and regulations, and the potential for illiquid markets. Investing in emerging markets may accentuate these risks.

Page 8-9: Risks of REITs are similar to those associated with direct ownership of real estate, such as changes in real estate values and property taxes, interest rates, cash flow of underlying real estate assets, supply and demand, and the management skill and creditworthiness of the issuer.

Page 10: Investments in securities of MLPs involve risks that differ from an investment in common stock. MLPs are controlled by their general partners, which generally have conflicts of interest and limited fiduciary duties to the MLP which may permit the general partner to favor its own interests over the MLPs.

Page 11-17, 19-20: Fixed income securities are subject to increased loss of principal during periods of rising interest rates. Fixed income investments are subject to various other risks including changes in credit quality, market valuations, liquidity, prepayments, early redemption, corporate events, tax ramifications and other factors. Lower-rated securities are subject to greater credit risk, default risk, and liquidity risk.

Page 14: Treasury Inflation Protected Securities (TIPS) are inflation linked securities is-sued by the U.S. government whose principal value is adjusted periodically in accordance with the rise and fall in the inflation rate. Thus, the dividend amount payable is also impacted by variations in the inflation rate, as it is based upon the principal value of the bond. It may fluctuate up or down. Repayment at maturity is guaranteed by the U.S. Government and may be adjusted for inflation to become the greater of the original face amount at issuance or that face amount plus an adjustment for inflation.

Page 18: Preferred stocks (1) generally have lower credit ratings than the firm's individual bonds (2) generally have a lower claim to assets than the firm's individual bonds (3) often have higher yields than the firm's individual bonds due to these risk characteristics. (4) are often callable, meaning the issuing company may redeem the stock at a certain price after a certain date.

Page 20: Tax-exempt bonds are not necessarily a suitable investment for all persons. Information related to a security's tax-exempt status (federal and in-state) is obtained from third-parties and Schwab does not guarantee its accuracy. Tax-exempt income may be subject to the Alternative Minimum Tax (AMT). Capital appreciation from bond funds and discounted bonds may be subject to state or local taxes. Capital gains are not exempt from federal income tax.

Page 22: Commodity related products carry a high level of risk and are not suitable for all investors. Commodity related products may be extremely volatile, illiquid and can be significantly affected by underlying commodity prices, world events, import controls, worldwide competition, government regulations, and economic conditions.

Page 22: Futures trading carries a high level of risk and is not suitable for all investors. Certain requirements must be met to trade futures.

Page 23: There can be no assurance that the Fundamental Index methodologies will achieve their desired outcomes. Each investing strategy brings with it its own set of unique risks and benefits.

Page 24-25: Dividend-focused funds may underperform funds that do not limit their investment to dividend paying stocks. Stocks held by the fund may reduce or stop paying dividends, affecting the fund's ability to generate income.

Indexes are unmanaged, do not incur management fees, costs and expenses and cannot be invested in directly. For more information on indexes please see www.schwab.com/indexdefinitions.

MSCI Emerging Markets Investable Market Index (IMI) measures the performance of large-, mid-, and small-cap companies across over 20 emerging markets countries. It is a free-float-adjusted market capitalization-weighted index and targets coverage of approximately 99% in each country.

JPMorgan Emerging Market Bond Index (EMBI) Global measures the performance of U.S. dollar-denominated debt instruments issued by emerging-market sovereign and quasi-sovereign entities: Brady bonds, loans, and Eurobonds. It is a market-value weighted index.

JPMorgan Corporate Emerging Market Bond Index (CEMBI) measures the performance of U.S. dollar-denominated debt instruments issued by corporate entities in emerging markets countries. It is a market-value-weighted index.

ICE BofA Merrill Lynch All Maturity Emerging Markets Inflation-Linked Sovereign Bond Index measures the performance of inflation-linked emerging markets sovereign debt publicly issued and denominated in the issuer's own domestic currency. It is a market-value-weighted index.
Source: Bloomberg Index Services Limited. BLOOMBERG® is a trademark and service mark of Bloomberg Finance L.P. and its affiliates (collectively "Bloomberg"). BARCLAYS® is a trademark and service mark of Barclays Bank Plc (collectively with its affiliates, "Barclays"), used under license. Bloomberg or Bloomberg’s licensors, including Barclays, own all proprietary rights in the Bloomberg Barclays Indices. Neither Bloomberg nor Barclays approves or endorses this material, or guarantees the accuracy or completeness of any information herein, or makes any warranty, express or implied, as to the results to be obtained therefrom and, to the maximum extent allowed by law, neither shall have any liability or responsibility for injury or damages arising in connection therewith.

The Schwab Center for Financial Research is a division of Charles Schwab & Co., Inc.