T. Rowe Price
REPORT
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Myriad Disruptions Pose Challenges To Global Financial Markets In 2019

The potential for volatility in equity and fixed income markets around the world remains high amid signs of slowing global growth.

Disruption in its various forms—technological, political, economic, and monetary—is likely to determine the direction of global financial markets in the coming year, T. Rowe Price experts believe.

With the United States moving into the later stages of the business cycle, the U.S. Federal Reserve raising interest rates, and monetary and credit conditions diverging widely across the other major global economies, the potential for renewed volatility in both equity and fixed income markets remains high.

Political risks are adding to the uncertainty. These include the trade dispute between the United States and China, the possibility of a disorderly Brexit in March, and renewed fiscal conflict between Italy's populist government and European Union (EU) officials.

These are among the key observations offered by three leading T. Rowe Price investment professionals—David Giroux, chief investment officer (CIO) for U.S. equity and multi-asset and the firm's head of investment strategy; Justin Thomson, CIO, equity; and Andy McCormick, head of U.S. taxable fixed income. (Mr. McCormick took over as head of fixed income effective January 1, 2019.)

Disruptions reshaping landscape

The global corporate landscape continues to be reshaped by a revolutionary combination of technological innovation and changing consumer preferences, which is upending established business models. Correctly identifying the winners and losers in this competitive struggle will remain the key to portfolio outperformance, Mr. Giroux says.

"I'd argue that the disruptive environment we're in is why active management will be well positioned over the next decade," he says. "High-quality, active managers can really benefit from having a longer-term horizon, which allows them to make the kind of investments that potentially will add value in our clients' portfolios over the next five to 10 years."

In recent discussions, the three investment professionals identified six key investment themes they believe will play out in 2019 and beyond:

1) Global growth momentum slowing

The latest forecasts by the International Monetary Fund (IMF) projected that growth will slow across the developed markets and in China in 2019. (See Figure 1.)

While the United States is furthest along in the economic cycle and the risks to growth are tilted to the downside, a healthy private sector, strong consumer demand, and the lingering effects of the 2017 tax cut stimulus should continue to sustain the U.S. expansion through the first half of 2019, T. Rowe Price economists say.

European economies are earlier in the business cycle, but growth has been slowing since the fourth quarter of 2017,

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Mr. Thomson notes. The UK economy continues to suffer from Brexit uncertainties.

In the eurozone, the German labor market shows some signs of overheating, but unemployment is significantly higher in most other Continental economies, curbing inflation pressures but also limiting income gains. Efforts by European households to rebuild savings could dampen eurozone growth in 2019.

The IMF forecasts that Japan, which saw economic momentum slow sharply in 2018, will decelerate further in 2019. On the positive side, Japanese corporate profitability is at an all-time high, according to Mr. Thomson, and the risk of deflation has eased.

Can China shift back into higher gear?

China's economic outlook is a particular focus of concern, as official economic reports in late 2018 showed a slowdown in growth. Independent indicators of consumer demand, such as auto sales and Macau casino revenues, also have shown weakness, Mr. Thomson says.

"What's crucial is the extent to which China re-stimulates," he adds. "Beijing is trying to reduce indebtedness in its corporate sectors. But they do have scope for selective tax cuts in certain areas or for reducing banking reserve requirements, which is a way of loosening policy as well."

Overall, growth in the emerging markets (EM) is expected to remain stable in 2019, the IMF predicts, with the slowdown in China offset by recoveries in some other major EM economies.

David Giroux

Andrew McCormick

Justin Thomson

Higher rates and a flattening yield curve create downside risk.

Although U.S. growth is slowing, T. Rowe Price economists expect the U.S. unemployment rate to continue to fall, putting upward pressure on inflation. Higher interest rates—plus a flattening U.S. yield curve, wherein the usually positive differential between short- and longer-term Treasury rates narrows—could increase the risk of a sharper economic slowdown in 2020.

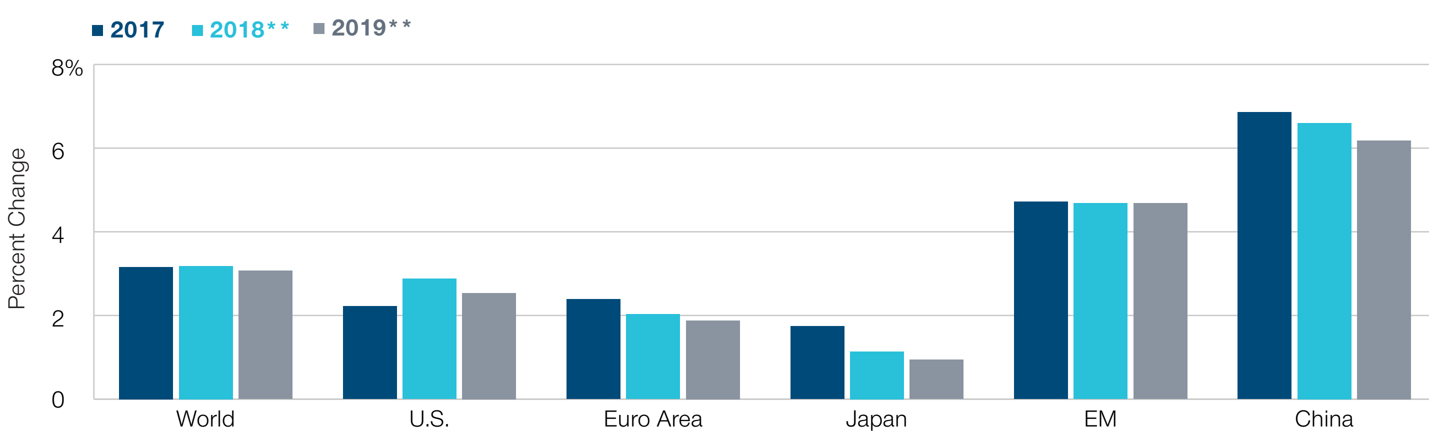
2) Global equity valuation disparities

U.S. equity valuations declined as equity markets corrected in late 2018 but at year-end still appear relatively high compared with those in Europe, Japan, and the emerging markets—especially the latter. (See Figure 2.) However, differing sector weights also need to be taken into account, Mr. Giroux says.

The U.S. market, with its large technology, health-care, and business services sectors, tends to sell at a higher average price/earnings (P/E) ratio than most European markets, which have smaller tech sectors and tend to be heavily weighted with financial stocks that typically feature lower P/E multiples.

Figure 1 Global Growth Is Slowing

GDP* Growth, as of October 31, 2018



*Gross domestic product. **International Monetary Fund projection as of October 31, 2018, the last IMF projection in 2018. Sources: IMF Word Economic Outlook, Haver Analytics, and data analysis by T. Rowe Price.

Adjusted for sector mix, relative valuations between the United States and Europe appear to be within historical norms, Mr. Giroux adds. "Maybe you can still make the argument that Europe is earlier in the cycle and thus more attractive, but it's not just because of valuations."

U.S. valuations need to be seen in context.

Relative to their own history, U.S. equity valuations do not appear excessive, especially in the wake of the late 2018 correction, Mr. Giroux says. As of the end of 2018, the S&P 500 Index was trading at roughly 14.4 times expected forward earnings, below the 20-year historical average of 15.9.

However, with the United States moving into the later stages of the business cycle, that multiple might be less attractive than the long-term average would suggest, he cautions.

"What we've typically seen is that once you hit an earnings peak, it can take between three and five years to get back to that peak," Mr. Giroux says. "So the S&P 500 might actually be selling at 14.4 times 2024 earnings, which is saying something very different."

Boosting the appeal of EM assets, in Mr. Thomson's view, are extremely undervalued EM currencies. "History suggests that you want to buy EM equity and debt when EM currencies are cheap, and we're certainly seeing that at the moment," he says.

3) Growth and value disruptions

Relative valuations between equity styles (Figure 3) are also being impacted by disruption, pushing valuations for the winners and the losers in sharply opposite directions.

Although many investors equate disruption with the major technology platform companies, the effects also are being felt by a host of other sectors and industries, Mr. Giroux says. Energy markets, for example, are being disrupted by the crosscurrents of shale fracking and the increased competitiveness of solar and wind.

> **When companies fall into the secularly challenged bucket, what we normally see is that multiples compress even more than earnings growth. Those can be horrible stocks to own.**

"Our work suggests that about 31% of S&P 500's market capitalization—and up to 35% of S&P revenue—is being impacted by some level of secular challenge," he says.

Secular challenges create more value traps.

Challenged companies are likely to experience slower revenue and earnings growth over the next 10 years than they did in the previous decade, Mr. Giroux warns. The hit to valuations could be dramatic. "When companies fall into the secularly challenged bucket, what we normally see is that multiples compress even more than earnings growth," he says. "Those can be horrible stocks to own."

This same bifurcation is playing out in other global equity markets, Mr. Thomson says. Japan is a case in point: Although the MSCI Japan Index sported a relatively low 11.18 P/E ratio at the end of 2018, the Japanese market is sharply divided between firms that are increasing shareholder returns and those that are essentially stagnating. "In situations like that," Mr. Thomson says, "the aggregate multiple doesn't give you much useful information."

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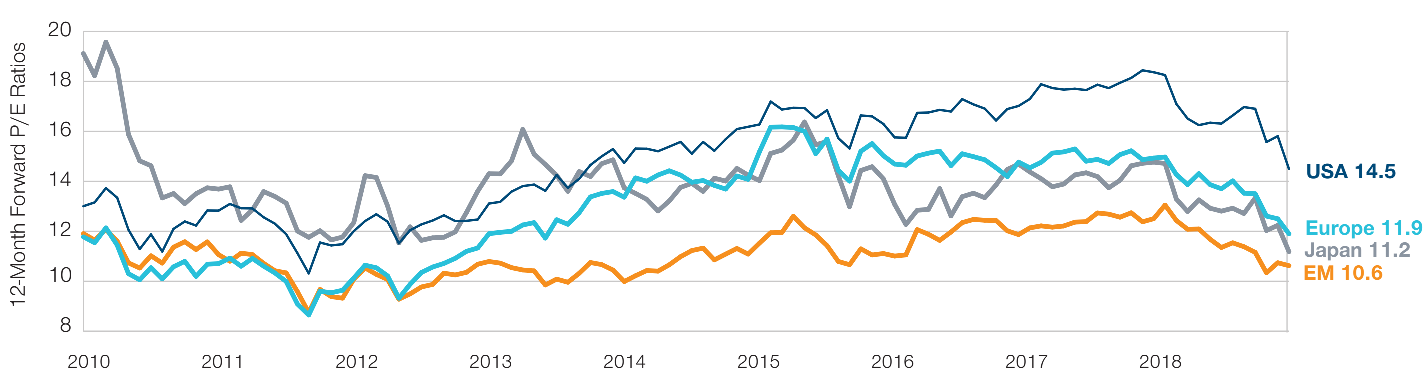
Figure 2 U.S. Equity Valuations Appear High Versus the Rest of the World

12-Month Forward P/E Ratios,* as of the End of 2018



*Price-to-earnings ratios. Indices used: United States, MSCI USA Index; Europe, MSCI Developed Europe Index; emerging markets, MSCI Emerging Markets Index; and Japan, MSCI Japan Index. Sources: FactSet, MSCI, and data analysis by T. Rowe Price. **Additional disclosures on page 24.**

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On the other hand, structural change may have made aggregate EM equity valuations more attractive. As of the end of 2018, technology and communication services together accounted for more than 28% of the MSCI Emerging Markets Index, up from virtually nothing 10 years ago, he notes. This reflects not only the growth of China's own technology giants, but also the rise of other high-value EM industries based on intellectual property.

"You not only have strong growth potential, but the opportunity set is widening and deepening as well," Mr. Thomson says.

Diverging monetary policy is likely to be another catalyst for volatility.

4) Desynchronized global credit cycles

Since the recovery from the 2008–2009 global financial crisis, global credit cycles have grown increasingly out of step. (See Figure 4.)

Mr. McCormick says he expects that trend to continue in 2019.

"Diverging monetary policy is likely to be another catalyst for volatility," he says. "Markets were simpler to understand when every force was moving in a similar direction. It's a little bit more interesting now."

The low volatility seen in many major markets in recent years wasn't sustainable without the ample liquidity provided by the world's major central banks in the wake of the financial crisis, Mr. McCormick says, adding that now, with the Fed shrinking its balance sheet and the European Central Bank shifting to a less stimulative posture, "markets are searching for a new footing at more sensible valuation levels given less accommodative monetary conditions."

U.S. dollar strength will be a key variable.

Faster U.S. growth and widening interest rate differentials helped lift the U.S. dollar about 7.5% on a broad trade-weighted basis in the first 11 months of 2018. Whether that trend continues or reverses in 2019 will heavily influence the relative attractiveness of international assets—EM assets in particular.

"The dollar exchange rate is crucial," Mr. Thomson says. "Not just because of the currency effect on returns, but because in many markets a strengthening dollar raises the cost of funding in dollars, which is another form of [monetary] tightening."

Relative growth trends will largely determine the dollar's course in 2019, Mr. McCormick says. If markets perceive that U.S. growth is slowing, they are more likely to believe the Fed is nearing the end of—or at least a pause in—its tightening program. Stronger growth in the rest of the world also could weaken the dollar.

"If the U.S. economy surprises to the upside, or if Italy turns out to be a bigger problem for the eurozone than we expect, the dollar could stay strong," Mr. McCormick says. "But if we do get to a place in 2019 where the dollar stalls, we think that would be an excellent time for U.S. investors to consider moving some fixed income assets into global markets."

5) Late-cycle shifts

Historically, bond market sectors have shown varying return patterns over the economic cycle. As the U.S. economy moves into the later stages of that cycle in 2019, Mr. McCormick says, some sectors may offer attractive relative value opportunities.

"In the middle of the cycle, the aggregate bond indexes typically have had very positive risk-adjusted returns," he notes. "But returns decrease late in the cycle. They're not necessarily negative, but you don't get paid as much for taking risk."

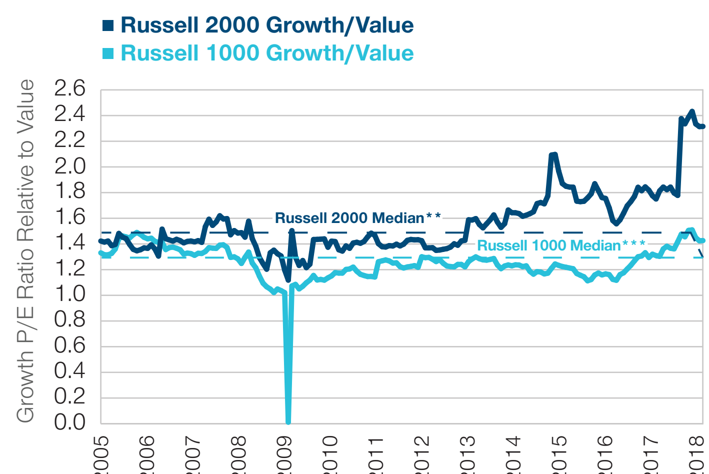
Mr. McCormick points to several sectors that historically have featured relatively strong late-cycle performance. These include:

- Floating rate bank loans: In 2018, strong U.S. growth supported credit fundamentals, while U.S. floating rates, as measured by the London Interbank Offered rate (LIBOR), rose in line with Fed rate hikes. As long as credit conditions remain favorable, bank loans should continue to perform relatively well, even if the Fed pauses raising rates. However, the sector's bull run has stretched valuations and raised concerns about underwriting standards, requiring strong credit analysis by investors.

- Collateralized loan obligations (CLOs): These floating rate instruments typically carry AAA ratings from the major credit

Figure 3 Equity Valuations Bifurcating

Growth Versus Value, One-Year Forward P/E Ratios*



*Price-to-earnings ratios. **December 1997 through December 2018. ***September 1998 through December 2018. Sources: FactSet and data analysis by T. Rowe Price. **Additional disclosures on page 24.**

agencies and historically have traded at yield spreads over LIBOR comparable to lower-quality investment-grade (IG) corporate bonds. Their short-duration profile and structural credit enhancements make CLOs attractive, especially as the end of the credit cycle approaches, Mr. McCormick says.

- EM debt: Historically, corporate and sovereign EM bonds both have outperformed late in the U.S. credit cycle, typically because the U.S. dollar has started to depreciate, boosting commodity prices and easing financial conditions in EM countries.

- Short-duration Treasuries and IG corporates: Investors who did well with riskier assets in 2018 now have an opportunity to earn relatively attractive yields at the less volatile short end of the U.S. yield curve, Mr. McCormick says.

Mr. Giroux recommends that investors also consider another, relatively battered fixed income sector: U.S. Treasuries. Although they performed poorly in the strong growth/rising rate environment of 2017 and 2018, longer-duration Treasuries have reached relatively attractive yield levels, he says, especially compared with comparable sovereign assets, such as German bunds and Japanese government bonds.

"Having a little defense in your portfolio with Treasuries makes sense at this point in the cycle," he says.

6) Geopolitical flash points

A range of political risks have the potential to disrupt global markets in 2019, with perhaps the most serious being the danger of a trade war between the U.S. and China.

> **...the 2019 outlook would turn darker—both for the U.S. and the global economy—if the Trump administration were to follow through on its threats to impose tariffs on all foreign auto and auto-part imports.**

Moves by the Trump administration to raise tariffs on Chinese goods, plus Beijing's retaliatory measures, already have taken a toll on U.S. stocks that rely on China-related revenues. While the top China-oriented stocks in the S&P 500 outperformed the index by a considerable margin in 2016 and 2017, much of that return advantage quickly disappeared after trade tensions rose to a boiling point in the summer of 2018. (See Figure 5.) Although President Trump and Chinese President Xi Jinping agreed in early December to a temporary halt to tariff increases set for the end of 2018, the underlying issues remained unresolved.

T. Rowe Price economists estimate that higher tariffs on Chinese exports could do real, but manageable, damage to the U.S.

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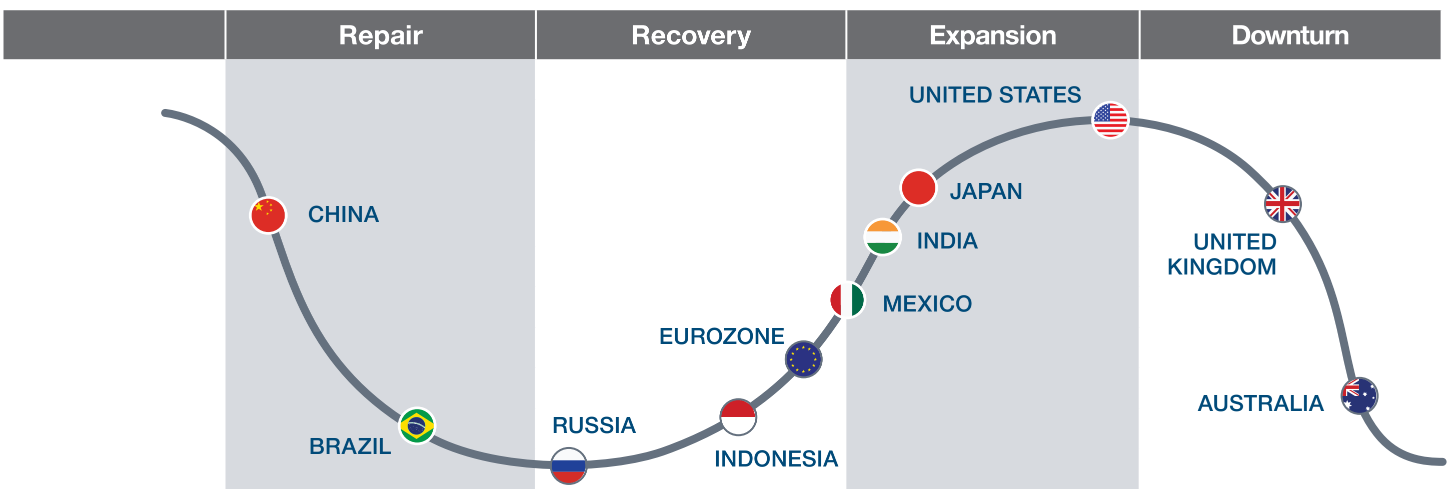
Figure 4 Unsynchronized Global Credit Cycles

Macroeconomic Positions*



	Repair	Recovery	Expansion	Downturn
Macro Environment	Still-challenging and uncertain outlook	Moderate, but improving	Growth is back but plateauing	Weak and deteriorating

*Source: T. Rowe Price estimates as of December 31, 2018.

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economic expansion. However, they say that the 2019 outlook would turn darker—both for the U.S. and the global economy—if the Trump administration were to follow through on its threats to impose tariffs on all foreign auto and auto-part imports.

Mr. Giroux believes markets should not underestimate the possibility that the United States and China ultimately will be able to settle their trade dispute. Beijing, he argues, has signaled its willingness to accommodate the United States in some areas, such as tariff cuts, safeguards for intellectual property, and increased purchases of U.S. goods and services. "The question is whether that will be enough for the Trump administration," Mr. Giroux says.

Some of President Trump's advisors, Mr. Giroux adds, may not trust China to comply with any deal. Others may believe criticizing China would be smart politics in the runup to the 2020 presidential election. Still, he says, given the economic benefits and the boost it could give to asset valuations, there also are strong political incentives for President Trump to negotiate.

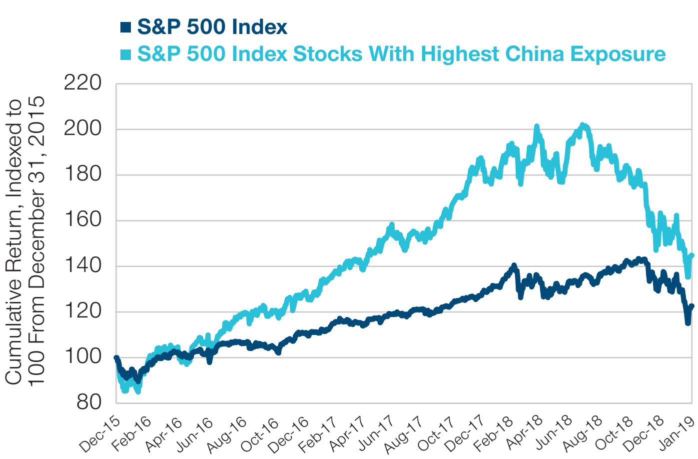
The U.S.-China trade battle is not the only risk.

Other geopolitical developments could trigger renewed volatility in 2019, T. Rowe Price investment professionals say. These risks include:

- Brexit: While the UK government and EU leaders have agreed on the technical terms of Britain's exit from the EU, the narrow path to resolution suggests that the key issues will complicate the UK-EU relationship for years to come. While negative headlines have weighed on investor sentiment, a successful deal would give a considerable lift to UK assets, particularly the British pound, Mr. Thomson says.

Figure 5 China Trade Policy Impact

Performance of Stocks With Highest China Exposure*



*Performance shown for stocks with the highest China revenue exposure derived from an equal-weighted portfolio of the 15 companies in the S&P 500 Index with the greatest proportion of revenues generated in China, as of December 31, 2018. Sources: Strategas Research Partners, FactSet, and data analysis by T. Rowe Price. **Additional disclosures on page 24.**

> **There's no question that markets tend to get trickier late in the cycle. But it also can be a great time to take a strategic approach to investing.**

- Italy: The populist coalition that took power in 2018 has put forward a fiscal stimulus plan that exceeds EU deficit limits, bringing it into conflict with EU authorities. However, market measures of default risk suggest those fears have not—as yet—spread to other peripheral eurozone countries such as Spain and Ireland. "This tells us the markets believe the tail risk of a dissolution of the single currency is still limited at this point," Mr. Thomson says.

- U.S. politics: Although the Democratic Party regained the majority in the lower house of the U.S. Congress in November's elections, Mr. Giroux calls the result "a nonevent, or at least a neutral event," because the Senate remains in Republican hands. The main event, he says, will be the 2020 elections, when the House, the Senate, and the presidency all will be at stake.

Challenges could yield opportunities

The upswing in volatility that disrupted global markets—equity markets in particular—in 2018 appears likely to persist in 2019, driven by slowing economic momentum, tighter liquidity, monetary divergence, and political risk. Meanwhile, technological innovation and competitive challenges will continue to threaten established leaders in a host of global industries.

In this less supportive environment, Mr. McCormick notes, markets have begun to punish bad behavior, taking aim at overleveraged companies, antiquated business models, and inflation-prone sovereign debtors. As a result, security-specific risks are becoming increasingly critical.

But these same risks also can generate potential opportunities for active investors to buy attractive assets at temporarily depressed prices. In-depth research and solid fundamental analysis are vital.

"There's no question that markets tend to get trickier late in the cycle," Mr. McCormick says. "But it also can be a great time to take a strategic approach to investing." ■

Diversification cannot assure a profit or protect against loss in a declining market. All investments are subject to market risk, including the possible loss of principal. Non-U.S. securities are subject to the unique risks of international investing, including currency fluctuation and political and economic risks. Emerging markets tend to have economic structures that are less diverse and less mature and political systems that are less stable than those of developed countries. ***Past performance cannot guarantee future results.***

U.S. ECONOMY

In 2019, Don't Expect A Repeat Of 2018, As Tailwinds Fading And Growth Likely Falling

Economic growth likely to fall with less favorable monetary policy and financial conditions.

BY **ALAN LEVENSON**,
T. ROWE PRICE CHIEF
U.S. ECONOMIST

What a difference a year makes.

The U.S. economy accelerated in 2018, expanding at a 3.3% annual rate over the first nine months of the year and posting an estimated 3% growth rate for the full year—compared with a 2.2% average over the preceding eight years of the current, long-running expansion.

But the 2018 pace is unlikely to persist in 2019. Growth is likely to average roughly 2.25% in 2019.

One reason is that the tailwind from fiscal stimulus is abating. The two-year, $300 billion increase in discretionary spending enacted last March had most of its impact on growth in 2018, and that will likely moderate in 2019.

Similarly, the *reduction* in corporate and personal income tax rates at the beginning of the year was more stimulative for 2018 than the *persistence* of those lower rates into 2019 will be.

Also, the monetary policy and financial conditions going into 2019 are less favorable than a year ago.

Financial conditions, which affect the economy with a lag, were a tailwind for growth entering 2018. The Fed raised policy rates by 0.75% over the course of 2017, but the underlying policy stance was still very clearly accommodative.

Moreover, while the Fed was raising rates in 2017 with the intention of throttling growth, a broad array of financial conditions, through which changes in Fed policy rates are transmitted to private sector decision-making, became more supportive of growth. Stock prices rose, the dollar weakened, interest rates slid, and credit spreads tightened. (See Figure 1.)

Another 100 basis points of rate hikes in 2018 lifted the real fed funds rate by 0.75% to 0.50% at the end of the year, and this shift to a less accommodative underlying policy stance finally began to feed through to broader financial conditions.

In all, financial conditions are not tight by historical standards, but they are markedly less supportive for growth than they were a year ago. Stock market indexes netted losses in 2018; broad measures of the dollar's foreign exchange value rose, unwinding most of the previous year's declines; long-term Treasury yields rose to five-year highs; and corporate bond spreads reversed the previous year's tightening.

While the stage is set for slower growth in 2019, risks of a recession over the next 12 months remain low. The underlying monetary policy stance will not be too restrictive—with the real fed funds rate likely to stay below the potential rate of real gross domestic product growth.

Indeed, inflation in the personal consumption expenditures price index is barely meeting the Fed's 2% objective and unit labor costs are not yet presenting a persistent impetus to higher inflation, giving the Fed room to let the expansion run. Moreover, imbalances in the real economy that typically speak to cyclical vulnerability are largely absent. Business inventories are lean, new housing construction has been unusually restrained, and business investment has been modest.

Finally, aggregate household finances are strong: debt and debt service are low, the saving rate is relatively high, and equity in household real estate has returned to levels that prevailed before the early 2000s housing bubble.

This is not to dismiss downside risks in the outlook, including elevated levels of corporate debt and mounting trade tensions. Yet given its solid underpinnings, the U.S. economy should see moderately above-potential growth through 2019.

Figure 1 The Federal Funds Rate and Financial Conditions

2017 and 2018: Same Fed Pattern, Different Financial Transmission

*Goldman Sachs U.S. Financial Conditions Index is a weighted average of riskless interest rates, the exchange rate, equity valuations, and credit spreads, with weights that correspond to the direct impact of each variable on gross domestic product. Sources: Goldman Sachs and data analysis by T. Rowe Price.

ASSET ALLOCATION

Volatile Markets: Good Time To Check Your Asset Allocation

Your asset mix of stocks, bonds, and cash should reflect your goals, time horizon, and risk tolerance.

After several years of relatively placid, rising markets, investors this year encountered increasing volatility and some sharp setbacks as concerns over rising interest rates, trade tensions with China, and slowing global growth overshadowed strong corporate fundamentals.

While periods of such volatility are an inevitable part of investing, during such unsettling times investors may overreact and undermine their long-term investment programs. Rather than succumb to knee-jerk reactions, investors should review their asset allocation strategy and try to maintain a long-term perspective.

As long as your asset mix of stocks, bonds, and cash appropriately reflects your financial goals, time horizon, risk tolerance, and personal circumstances, sticking with your investment plan should prove rewarding over longer periods. Reducing equity exposure for fear of incurring further short-term losses could result in having less money to fund long-term goals such as saving for retirement.

Diversification

Portfolios also should be diversified within each asset class. So an equity portfolio might include exposure to large- and small-cap stocks, growth- and value-oriented investments, and international equities. A bond portfolio might include international, high yield, and investment-grade corporate bonds as well as government debt.

Because sectors outperform others at various times, having such broad diversification provides exposure to sectors that are leading without being derailed by sectors that are lagging. Of course, investment diversification cannot assure a profit or protect against loss in a declining market.

Although the bond markets have been pressured by rising rates, fixed income securities have traditionally provided ballast to help offset periods of equity declines. It has been almost 50 years since both the S&P 500 and 10-year Treasury bonds posted negative returns in the same calendar year.

Bonds typically offer greater return potential than cash and more stability than stocks, which is important for investors with nearer-term financial goals.

However, investors with longer time horizons (at least five to 10 years) should continue to emphasize equities because they have outperformed other financial assets and provided a better hedge against inflation over the long term. Those approaching retirement might consider gradually reducing their equity exposure.

Over the past 20 years through 2018, the U.S. stock market has suffered through two historic bear markets (a 49% decline in the 2000–2002 technology bust and a 57% fall in the 2007–2009 global financial crisis), as well as several corrections (declines of at least 10%). Yet, the market recovered to reach new highs, showing an annualized return of 5.62% for the 20-year period ended December 31, 2018, compared with 4.55% for the Bloomberg Barclays U.S. Aggregate Bond Index. (See Figure 1.)

Stock returns can vary widely year to year, and past performance does not guarantee future results, but U.S. stocks (as measured by the S&P 500 Index) have provided positive returns over every rolling 20-year period since 1950 through 2018. During the 63 rolling 30-year periods since 1926 over that time frame, the market's worst performance was an annualized return of 8.5%.

Investors also should consider periodically rebalancing their portfolio—at least annually—to maintain a consistent risk profile and make sure their strategy is aligned with their financial goals, particularly if their assets are in a tax-deferred account (for which they may consider enrolling in an automatic rebalancing program).

So, if your target strategy allocates 60% for equities and market gains increase that level to 65%, you might reduce the equity position to retain your core strategy or increase it after a period of poor performance, taking advantage of lower prices.

> "...what's happening in the headlines may not be what's happening in your accounts.

Asset Allocation Committee

T. Rowe Price's Asset Allocation Committee, composed of senior investment professionals, maintains a well-diversified portfolio strategy that is adjusted monthly, based on relative valuations of various asset classes over a 6- to 18-month horizon, as well as various macro and market factors.

The committee does not make big bets favoring one asset class over another, but its gradual tactical decisions are intended to add value over time for the firm's various target date retirement and other asset allocation portfolios.

In its equity portfolio, as of December 2018, the committee has reduced its tactical underweight to U.S. stocks to take advantage of more attractive valuations, particularly among growth stocks, after the market sell-off toward year-end and the steep declines in leading technology companies.

At the same time, the committee reduced its overweight position in international equities but added to emerging market exposure based on attractive relative valuations, expectations for a more modest pace of tighter monetary policy, and a bearish view on U.S. dollar strength.

Within fixed income, the committee currently favors U.S. investment-grade debt and emerging market bonds. It has underweight positions in developed bonds outside the U.S. and global high yield bonds, and it pared investment in floating rate loans.

However, it has been taking advantage of more attractive valuations in the high yield bond market recently.

"Over the past several years, relatively riskier assets such as stocks have consistently rebounded from sell-offs," says Sebastien Page, T. Rowe Price's head of Global Multi-Asset. "While we don't know if market conditions will deteriorate further, we are seeing more opportunities, especially in emerging market equities and U.S. growth stocks.

"The stock market ended the year facing the same risks that fueled the decline—concerns over trade tensions, global growth, political uncertainty, and Federal Reserve rate hikes—but valuations have fallen to levels not seen in nearly five years, which better reflect those risks. And we don't expect a recession, so we're using this opportunity to take a less defensive posture toward risk assets."

Guidelines

When undergoing periods of market turbulence, Judith Ward, CFP®, a T. Rowe Price senior financial planner, reminds investors, "what's happening in the headlines may not be what's happening in your accounts. Stick to fundamentals and focus on what you can control."

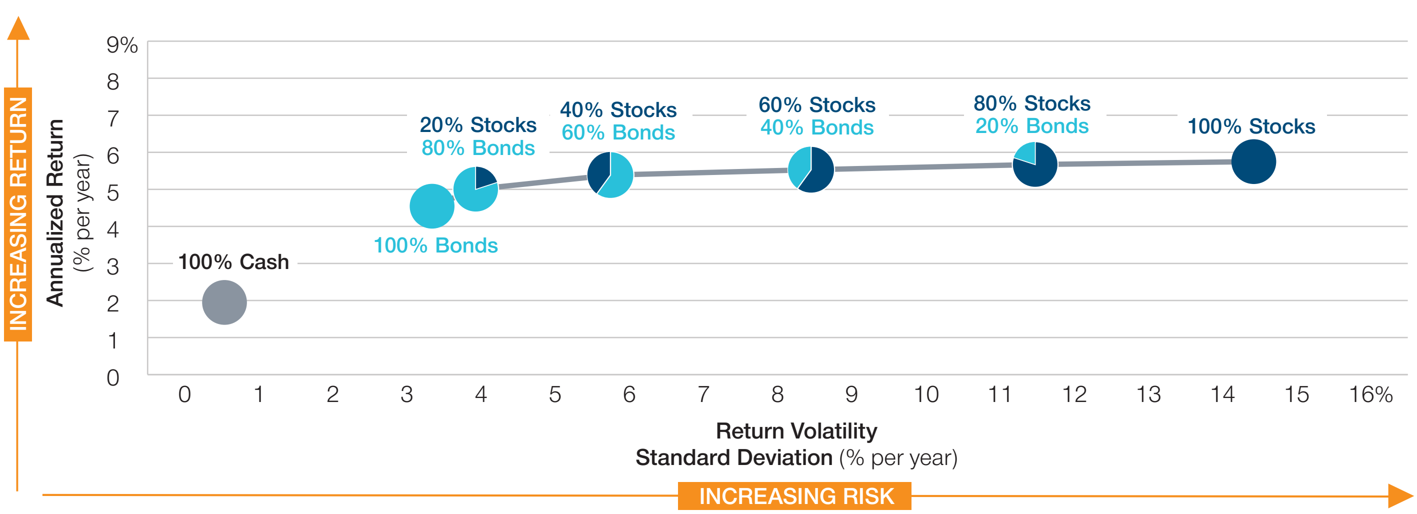
- Make sure your asset allocation is properly diversified and appropriate for your financial goals.
- Keep contributing to your retirement and college savings accounts. Investors with longer time horizons, in particular, can take advantage of investing during down markets.
- Rebalance on a regular basis to maintain your target portfolio diversification.
- Don't panic or try to time the markets.

"Regardless of the environment, investors should aim for a diversified portfolio that could provide reasonable returns over time," Ms. Ward says. "Looking beyond the short-term swings and adhering to your strategy may be the best bet to achieving your financial goals." ■

Past performance cannot guarantee future results. *All investments are subject to market risk, including the possible loss of principal. Diversification cannot assure a profit or protect against loss in a declining market. International investing, particularly in emerging markets, entails additional risks, including currency and political risks.*

Figure 1 Various Asset Allocations' Risks Versus Rewards Since December 1998

Greater Risks and Returns Have Gone Hand in Hand



These hypothetical portfolios combine stocks and bonds to represent a range of potential risk/reward profiles. For each allocation model, historical data are shown to represent how the portfolios would have fared in the past. Figures include changes in principal value and reinvested dividends and assume the portfolios are rebalanced monthly. It is not possible to invest directly in an index. **Past performance cannot guarantee future results.** Charts are shown for illustrative purposes only and do not represent the performance of any specific security or T. Rowe Price product. Sources: Analysis provided by T. Rowe Price using Zephyr StyleAdvisor. Returns used in the analysis supplied by Morningstar. Stocks, S&P 500 Index; bonds, Bloomberg Barclays U.S. Aggregate Bond Index; cash, FTSE 3 Month US T-Bill Index. Through December 31, 2018. **Additional disclosures on page 24.**

INTERVIEW

For More Than 25 Years, Investing In All-Season Large-Cap Growth Stocks

Despite many risks in this environment, the basic building blocks of stock performance remain.

Larry Puglia has managed the Blue Chip Growth Fund for more than 25 years, a remarkable feat. He also has been twice nominated for Morningstar's Domestic-Stock Fund Manager of the Year award. In this interview, Mr. Puglia discusses his consistent approach to managing the fund, his market outlook, and how the fund is positioned going into 2019.*

Q. What are the key lessons you've learned in managing this fund for such a long time?

A. Among many lessons is that no one has a monopoly on intelligence. So, I try to learn from various sources and remain open to opposing views, innovations, or other disruptive developments.

Second, in investing in volatile markets, it is especially important not to dwell on mistakes or celebrate winning stocks. We strive to focus on investments' values going forward. You also should realize that you only rarely are able to buy at the bottom and sell at the top.

Third, investing is not a popularity contest. If you buy the same stocks as others, you will get about the same results. Portfolios generally need to include a least a few controversial ideas. Being contrarian often can lead to significant investment gains.

We try not to confuse activity with true insight. Successful investing requires calm thinking. Recognizing mistakes early—and earlier than your competitors—is necessary. At the same time, it is important to not judge investment ideas over too short of a time horizon. The best ideas often take some time to be recognized by the market.

Q. What's your approach to running this fund, and how has it evolved?

A. Our approach to investing has remained consistent. Stock prices tend to follow earnings and free cash flow growth over time. As a result, we seek out companies with sustainable earnings and free cash flow growth.

We particularly look for high-quality growth stocks that can sustainably compound earnings at a strong rate. These rare companies tend to have strong market share, large addressable markets, and—not to be underestimated—very strong managements that know how to allocate capital. They typically generate durable free cash flow growth.

We also prize companies with a high degree of recurring or service revenue and companies that are well diversified by product and geography. Warren Buffett talks about franchise businesses; Morningstar describes quality businesses as having a moat surrounding them; others call it a sustainable competitive advantage.

Last, we try to be aware of the fund's benchmarks [the S&P 500 and Russell 1000 Growth indices] but not overly concerned about having investments in certain components. Some of our best decisions have been to avoid large components of the benchmarks that did not meet our criteria.

Q. What's your market outlook for 2019?

A. At the start of 2019, there were very significant risks in the market and perhaps more challenges than existed at the end of 2018. I would put the unsettled trade negotiations with China at the top of our concerns, but some slowing in global growth also is noteworthy. Moreover, we're evaluating the unsettled political environment in several countries, including Brexit uncertainties in Europe and the possibility of greater regulation from the change in the U.S. House leadership.

However, the basic building blocks of stock performance remain. Specifically, corporate earnings continue to grow at solid rates, and the revenue growth underlying earnings remains resilient.

It is true that corporate tax reform boosted earnings in 2018, and that will create more difficult comparisons. But valuations, which were becoming a significant potential impediment to future stock performance, appear more reasonable with time and the market pullback in the fourth quarter of last year.

Q. How was the fund positioned coming into 2019?

A. We entered 2019 with overweight positions in consumer discretionary, health-care, and communication services stocks. We have experienced volatile markets and a significant pullback in technology but also in several other sectors. However, the type of company in which we invest has not really changed significantly. Our turnover rate has run only about 30%, and many of our large positions entering 2018 continue to be large positions.

These include consumer discretionary stocks, such as Amazon and Alibaba; health-care stocks, such as Becton Dickinson, Intuitive Surgical, Stryker, Cigna, and UnitedHealthcare; and technology stocks, such as MasterCard, Visa, PayPal, Intuit, and Microsoft. Several of our large holdings, such as Alphabet [formerly Google] and Facebook, have been reclassified into the new communication services sector, where we have an overweight position. So, we actually are now underweight in technology after the latest sector classification changes effective in the fourth quarter of 2018. (See Figure 1.)

We have strived to maintain ownership in a broad array of growth companies, and most of these companies are quite reasonably valued. For example, even stocks such as Amazon and Google, which had experienced strong, consistent revenue growth and solid stock performance, now trade at well below 20 times the free cash flow they may generate in 2020. However, we should point out that we own large positions in companies outside these sectors, such as Boeing and Ameritrade.

Q. What about sector underweights?

A. We have generally underweighted sectors and industries that are deeply cyclical and overly fragmented or where most of the participants do not earn their cost of capital. We also have avoided industries in which the competitive environment or structural changes are making consistent growth challenging.

Consequently, we now are underweighting the materials and industrials and business services sectors. We also have largely avoided the consumer staples sector as we believe that private-label products will continue to be a significant threat to the pricing power of branded staples. And we have had very limited investment in the energy, utilities, and real estate sectors.

Q. What are the top risks these days?

A. We've already noted the risk of a broadening trade war with China, which could hamper global economic growth, as the most significant concern.

In addition, antitrust or data privacy issues or rhetoric directed at many of the internet leaders are certainly potential challenges. Slowing growth and greater regulation in China also could weigh on the growth of such holdings as Alibaba and Tencent. Finally, increased regulation from a divided Congress could affect such sectors as health care and financials.

However, our investment approach recognizes that it is very difficult to forecast how these macro factors will develop and how much they will affect stock prices. So, we continue to emphasize companies that we believe can continue to generate strong earnings and free cash flow growth in most scenarios.

Essentially, we are trying to buy all-season growth companies that we think can do reasonably well in most economic and regulatory environments. We acknowledge that a growth fund may not be especially defensive relative to certain other funds. However, over reasonable time horizons, we believe the quality and growth prospects of our holdings could provide relatively favorable prospects.

Q. Last word?

A. It has been an honor to manage the Blue Chip Growth Fund for more than a quarter century. I especially appreciate the confidence that our clients have placed in our investment team by maintaining their investments and adding periodically, including during market turbulence. I also very much appreciate the extensive research platform T. Rowe Price continues to build and its unwavering commitment to research excellence. ■

Figure 1 Blue Chip Growth Fund

Diversification, as of December 31, 2018

Sector	BCG*	S&P 500**	R1000G***
Information Technology	26.99%	20.12%	31.46%
Consumer Discretionary	22.49	9.94	15.12
Health Care	20.46	15.54	14.29
Industrials and Business Services	9.05	9.20	11.85
Financials	6.35	13.31	4.40
Materials	0.50	2.73	1.84
Utilities	0.14	3.34	0.00
Real Estate	0.02	2.96	2.32
Consumer Staples	0.05	7.41	6.03
Energy	0.00	5.32	0.76
Communication Services	13.92	10.12	11.93

*Blue Chip Growth Fund. **S&P 500 Index. ***Russell 1000 Growth Index.
T. Rowe Price uses the current MSCI/S&P Global Industry Classification Standard (GICS) for sector and industry reporting. T. Rowe Price will adhere to all updates to GICS for prospective reporting. **Additional disclosures on page 24.**
Source: T. Rowe Price.

As of December 31, 2018, Amazon made up 10.04% of the Blue Chip Growth Fund; Alibaba, 2.95%; Becton Dickinson, 1.99%; Boeing, 3.86%; Intuitive Surgical, 1.71%; Stryker, 1.95%; Cigna, 1.74%; UnitedHealthcare, 3.22%; MasterCard, 2.90%; Visa, 3.50%; PayPal, 1.72%; Intuit, 1.62%; Microsoft, 5.75%; Alphabet, 6.09%; Facebook, 3.84%; Tencent, 2.26%; and Ameritrade, 1.51%. Funds that invest in growth stocks are subject to the volatility inherent in common stock investing, and their share price may fluctuate more than that of a fund investing in income-oriented stocks. ***Additional disclosures on page 24.***

Established in 1988, the Morningstar Fund Manager of the Year award recognizes portfolio managers who demonstrate excellent investment skill and the courage to differ from the consensus to benefit investors. To qualify for the award, managers' funds must have not only posted impressive returns for the year, but the managers also must have a record of delivering outstanding long-term risk-adjusted performance and of aligning their interests with shareholders'. Managers' funds must currently have a Morningstar Analyst Rating™ of Gold or Silver. The Fund Manager of the Year award winners are chosen based on research and in-depth qualitative evaluation by Morningstar's Manager Research Group. For more information about Morningstar Awards, visit* ***https://go.morningstar.com/Morningstar-Awards**.*

LARGE-CAP GROWTH STOCKS

Not All About FAANG Stocks: Opportunities In Lesser-Known Names

There are significant opportunities for generating gains apart from those of the tech titans.

BY **TAYMOUR TAMADDON**, A T. ROWE PRICE LARGE-CAP GROWTH STOCK MANAGER

The group of large technology and consumer discretionary companies known as the FAANG stocks have dominated headlines in the large-cap growth equity market in recent years. They drove stock markets to new highs and then in the fourth quarter of last year drove markets down, losing more than $1 trillion in combined value from their highs earlier in the year.

Despite these stocks' increased volatility in the second half of 2018, investors' attention on them has been largely well deserved as the stocks of Facebook, Amazon, Apple, Netflix, and Google-parent Alphabet have produced outsized long-term returns.

However, about three-quarters of the Russell 1000 Growth Index's total returns during the five years to the end of 2018 have come from non-FAANG stocks, and we believe there are significant opportunities for generating alpha away from the tech titans. (See Figure 1.)

Fundamental research can help investors identify companies that can add diversification to their portfolio along with the potential for outperformance. In this article, we highlight some examples from across a variety of sectors—namely payment providers, health care, software as a service, and cloud computing—where possessing deep knowledge of a company or subsector yielded attractive investment ideas.

Understanding companies

We believe that a key to being a successful investor is achieving a deep understanding of how companies make money, and our decision to invest in PayPal came from insights into the financial incentives that were driving the actions of several players in the electronic payments industry.

Visa and credit card-issuing banks such as JPMorgan Chase saw upstart PayPal as a threat, but after we spent a significant amount of time analyzing the businesses of Visa, JPMorgan Chase, and PayPal, we concluded there was room for these companies to work together profitably.

PayPal originally only allowed its customers to make payments from a bank account, but we realized the company—along with Visa and JPMorgan Chase—could benefit if it allowed customers to link their payments to a credit card. This gave us confidence that PayPal had a growth opportunity ahead.

After PayPal started to offer the credit card option, new customer sign-ups accelerated. Although earnings took a slight hit initially from the higher expenses of processing credit card transactions, the growing customer base drove PayPal's price/earnings multiple higher than we expected.

Sector changes

Apart from stock-specific insights, a powerful way to drive alpha—gains greater than those of sector benchmarks—is understanding what is occurring in a sector and weighting subsectors within a sector appropriately to take advantage of these insights. This theme has informed our approach to health care.

It wasn't long ago that biotechnology companies experienced a golden era as advances in genetics contributed to successes in the development of new treatment options. However, biotechs started to face headwinds in 2015 as their product pipelines shrank and pricing and regulatory pressures increased.

At the same time, we saw positive developments occurring in the equipment and supplies and provider segments. We shifted from an overweight to an underweight in biotech as we expanded our allocation to more promising health-care subsectors.

Over the three years through December 2018, equipment and supplies was the strongest segment within the health-care sector, with an 82% gain, while biotech was the weakest segment, declining 6%.

> **"...about three-quarters of the Russell 1000 Growth Index's total returns during the past five years have come from non-FAANG stocks...**

Company growth

Our investment in ServiceNow is an example of how being able to follow a company as it develops can generate alpha. Our firm's mid-cap franchise had owned ServiceNow for more than three years before the company grew big enough for it to be considered for our large-cap portfolio.

The insights we received during this period made us comfortable adding it to our portfolio as we saw the benefits of the software-as-a-service business model.

Charging clients annually for services is a less volatile business than selling software products one at a time, which was the old way of operating.

But the real benefit is that these companies were able to innovate at a much more rapid rate than their traditional competitors, who often had one big product rollout but then struggled. With the software-as-a-service business model, ServiceNow has continued to succeed as it grows and evolves.

New research

A final example of how we seek to generate alpha involves cloud computing and shows the importance of revisiting an investment thesis when necessary.

In 2015, our internal research suggested that businesses would quickly make a complete transition to the cloud and away from maintaining their own tech infrastructure. And, in fact, we did see a significant migration over the next couple of years.

But as we started to talk to enterprise information technology (IT) managers about how they were using the cloud and visited their firms to deepen our understanding, we realized the story was a little more nuanced.

The IT managers told us that, even though they were building their new work processes to benefit from the public cloud, they didn't see a financial benefit to transitioning all their legacy workloads.

This shift in tone prompted us to take a fresh look at companies, including Red Hat and VMware, which the market had left for dead based on projections that Amazon was going to completely own the space. Our analysis led us to conclude that they had a vibrant future, and we purchased both Red Hat and VMware for our portfolio.

At the same time, our research led us to continue to overweight Amazon. Even though its market share in this area was going to be smaller than anticipated, the total market was larger than we expected, which benefited Amazon.

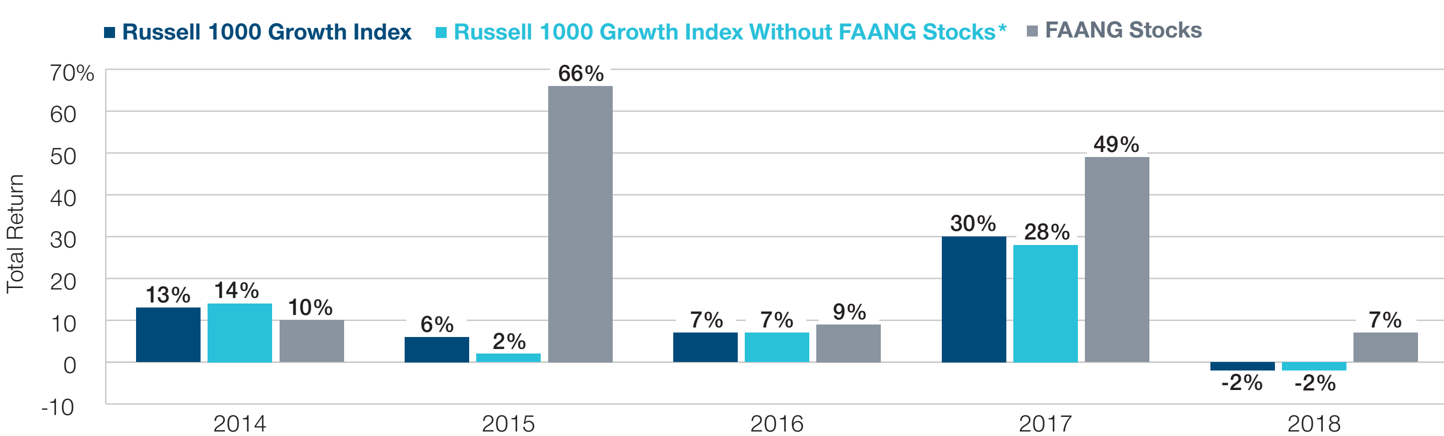
"Apart from stock-specific insights, a powerful way to drive alpha—gains greater than those of sector benchmarks—is understanding what is occurring in a sector and weighting subsectors within a sector appropriately...

Our insights into what was going on in the cloud came from our ability to do customer surveys, to attend conferences, and to talk to many consultants and experts in the field. This story exemplifies the point that alpha generation comes from having the resources to do thorough research. ■

Mr. Tamaddon is manager of the Institutional Large-Cap Growth Equity Fund. As of December 31, 2018, the companies noted in this article represented the following percentages of that fund: PayPal, 1.33%; Visa, 4.70%; JPMorgan Chase, 0.00%; ServiceNow, 0.79%; Amazon, 8.25%; Red Hat, 2.18%; and VMware, 1.56%. This material is not intended to be investment advice or a recommendation to take any investment action. Funds that invest in growth stocks are subject to the volatility inherent in common stock investing, and their share price may fluctuate more than that of a fund investing in income-oriented stocks. ***Past performance cannot guarantee future results.***

Figure 1 Putting FAANG Stock Performance in Perspective

FAANG Stocks' Outperformance Has Been Only Part of U.S. Large-Cap Stock Returns



*FAANG stocks' return is a simple average of the stocks' return over that year. **Past performance is not a reliable indicator of future returns. Additional disclosures on page 24.**

RETIREMENT SAVINGS

Roth Or Pretax Savings? What To Consider In Looking At The Options

Established more than 20 years ago, Roth IRAs have proven popular with younger investors.

BY **ROGER YOUNG, CFP®**, T. ROWE PRICE SENIOR FINANCIAL PLANNER

Many investors can save for retirement with contributions to a Roth account. Typically, there are two ways to do this:

- Roth individual retirement accounts (IRA): You must have earned income and meet IRS income limits. You are not required to take distributions, and you have access to your contributions anytime, tax-free.

- Through 401(k) plans:* Your plan must offer a designated Roth account. There is no income limitation, but distributions are generally required at age 70½ unless you roll the account into a Roth IRA.

If you're eligible to save via a Roth, it's critical to evaluate whether you may benefit more with a Roth or a pretax retirement savings investment option.

Keep in mind that Roth contributions, unlike traditional pretax contributions, don't reduce your taxes today, but qualified Roth distributions are tax-free.** So the primary factor to consider is whether your marginal tax rate will be higher or lower during retirement.

If the tax rate will be higher, paying taxes now with a Roth makes sense. If lower, you likely should consider deferring taxes until then by using the pretax approach.

For someone whose marginal tax rate remains constant from the working years through retirement, choosing between a Roth and pretax contribution is a toss-up mathematically, independent research has shown. Unfortunately, tax rates are hard to predict due to changes in the law, income levels, or both.

More than 75% of new IRAs at T. Rowe Price opened by investors under age 40 are Roth IRAs. (See Figure 1.) Moreover, employees making designated Roth contributions in their workplace savings plans have tended to skew younger as well.

Examples

In sorting through the pros and cons of the options, it may be helpful to consider these hypothetical investors:

Millie, a single professional in her 20s, is currently in a low tax bracket. But a few promotions at work could easily put her in a higher bracket. Contributing to a Roth IRA or 401(k) means she pays the relatively low rate on taxable income now but will pay no taxes on qualified distributions when she's retired. That seems like a reasonable deal, especially since it's hard to guess what tax rates will be that far in the future.

Xavier, on the other hand, is approaching his peak earning years. He's in his 40s and is in a higher tax bracket than Millie. When he retires, his expenses will probably be lower—no more mortgage or college bills. As a result, the combined income from Social Security and the amount he chooses to draw from retirement accounts may be less than what he earns today. So, his federal tax bracket could go down in retirement. His state tax rate also could decrease, for example, if he moves to an income tax-free state like Florida.

So, for Xavier, taking the tax benefit now with a pretax contribution may make more sense than the Roth option. That's because he could reduce his current taxable income now while paying a higher tax rate and then make withdrawals later in retirement at a potentially lower tax rate.

If the tax rate will be higher, paying taxes now with a Roth makes sense. If lower, you likely should consider deferring taxes until then by using the pretax approach.

Bernard, a third taxpayer, is around 10 years from retirement with a more complicated situation. His tax rate is not likely to fall after he retires. He has been a disciplined saver, contributing a healthy percentage of income to his pretax accounts for many years. After reaching age 70½, he must begin taking required minimum distributions (RMDs) from IRAs and from his 401(k) if he has retired, even though he probably doesn't need all that income to live comfortably.

Those RMDs could bump Bernard to a higher tax bracket. Qualified distributions from a Roth 401(k) or Roth IRA, on the other hand, would not create taxable income or increase Bernard's tax rate. Therefore, a Roth contribution may be preferable for Bernard to limit the RMD income taxed at a higher rate. Because in Bernard's situation he seems likely to leave assets to heirs, it's especially important for him to ask a tax or financial planning professional about multi-generational planning.

For retirement savers who are unsure which type of contribution may be more beneficial, the tiebreaker should often go to the Roth. Roth accounts are generally better for heirs since assets can continue to grow tax-free.

Tax diversification also makes sense—using both Roth and pretax plans (and taxable accounts)—to hedge the risk of tax law changes or significant changes in personal circumstances.

Because the Roth 401(k) is a relatively recent development, many savers haven't amassed significant balances and could benefit from building them now. (The Roth IRA has been available more than 20 years, but it has lower contribution limits and restrictions on high-income taxpayers.)

Saving

A person's ability to save could be another factor. If prodigious saver **Patricia** can contribute the maximum level to a retirement plan, the Roth effectively enables her to save more in a tax-advantaged manner. Saving the maximum ($19,000 for 2019, or $25,000 for someone over 50) ultimately results in more after-tax retirement assets.

On the other hand, for someone struggling to save like entry-level **Edward**, the pretax approach may enable him to get the employer's full 401(k) match with less impact on take-home pay, because taxable income is reduced by the amount of his contribution.

Of course, the most important factor in reaching your financial goals is how much money you save. We recommend saving at least 15% of your gross salary for retirement annually, including any employer matching contributions.

"Of course, the most important factor in reaching your financial goals is how much money you save. We recommend saving at least 15% of your gross salary for retirement annually...

That said, using Roth and pretax contributions wisely can make a difference—so we recommend consulting with a tax accountant or financial planner before deciding on a strategy. ■

**Designated Roth accounts also may be offered in 403(b) and governmental 457(b) plans. **Generally, a distribution is qualified if taken at least 5 years after the year of your first Roth contribution and you've reached age 59½.*

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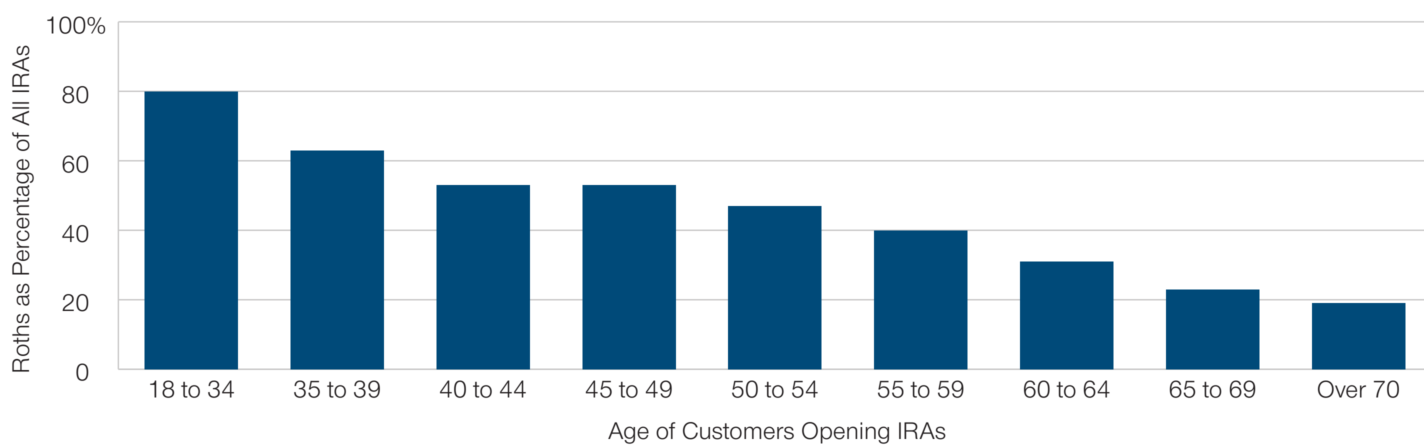
Figure 1 Roths as a Share of All New Individual Retirement Accounts at T. Rowe Price

Younger Investors Favored Roth IRAs When Opening Accounts in 2017



Source: T. Rowe Price customer data, 2017 calendar year.

LAST WORD

Working Or Retired, Cash On The Side Can Help You Cope With The Unexpected

Working households should have three to six months of living expenses, or more.

BY **JUDITH WARD, CFP®**,
T. ROWE PRICE SENIOR FINANCIAL PLANNER

Life happens: The car breaks down, the basement floods, or the stock market unexpectedly becomes choppy. No one is immune, yet these events can throw a wrench into your budget and make you anxious about the longevity of your retirement savings.

For years, financial experts have stressed the importance of an emergency or "rainy day" fund for such events during your working years. When you retire, however, those savings are more of a "cash cushion" to have in addition to resources for funding your daily living expenses.

Whether you are working or in retirement, having cash on the side can serve as a personal safety net during periods of financial stress.

Working?

The primary purpose of an emergency fund is to keep your financial and savings goals on track should you lose your job or expect a change in income for a brief time. It also can help cover large, unanticipated expenses not included in your budget. This fund can help prevent having to put unexpected expenses on a credit card or taking money out of retirement accounts—and likely paying taxes and penalties as a result.

For starters, try to save $1,000 immediately for emergencies. Then, gradually build up to an amount that can cover three to six months of expenses if you are in a two-income household. (See Figure 1 on unemployment duration.) If you only have one income or your income is less predictable, you may want to set aside enough for six months or more.

Retired?

Retirees may view their need for available cash differently. It's more like a cash cushion than an emergency fund. This cushion may be invested in a savings account, a money market account, or other short-term investments.

This money can be used as an alternative to fund living expenses if there is an extended down market. You can draw from this account instead of having to sell investments at an inopportune time and locking in a loss. The last two bear markets—the technology bubble crash in 2002 and the global financial crisis in 2009—lasted 2½ and 1½ years, respectively. Their recovery periods took almost five years.*

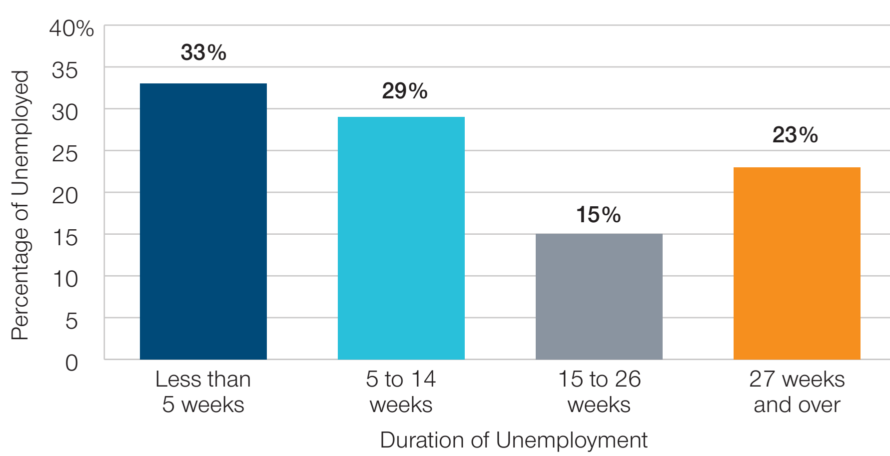
While a five-year recovery may seem alarming, keep in mind that many retirees do not have all their investments in the stock market. At retirement, we suggest taking a more balanced approach in your portfolio allocation, with 40% to 60% in stocks. A portfolio composed of 60% stocks and 40% bonds during the last two bear markets recovered within two years. Of course, past performance is not a reliable indicator of future performance.

Given this backdrop, it may be reasonable that a cash cushion should cover one to two years of living expenses. For both retirees and workers, an emergency fund can help weather periods of uncertainty. ■

Stocks are represented by the S&P 500 Index. Bonds are represented by the Bloomberg Barclays U.S. Aggregate Bond Index. The evaluation periods for stocks from peak to trough to recovery was 3/2000–5/2007 and 10/2007–3/2013. The evaluation periods for a 60% stock/40% bond portfolio from peak to trough to recovery was 3/2000–11/2003 and 10/2007–12/2010.* **Additional disclosures on page 24. *This article does not provide fiduciary recommendations concerning investments or investment management; it is not individualized to the needs of any specific benefit plan or retirement investor, nor is it directed to any recipient in connection with a specific investment or investment management decision. Investors will need to consider their own circumstances before making an investment decision. All investments involve risk, including possible loss of principal.*

Figure 1 Most Unemployment Tends to Endure for 14 Weeks or Less

Duration of Periods of Unemployment



Source: U.S. Bureau of Labor Statistics, seasonally adjusted, July 2018.

Global Stocks Plunge; Worst Year for U.S. Equities Since 2008

December 31, 2018

KEY POINTS

- Major indexes ended the year in or very close to bear market territory—down at least 20% from recent highs
- Fed raised rates in December; two more rate increases expected in 2019
- U.S.-China trade tensions continue; slower U.S. corporate earnings growth is likely, as tax cut tailwinds that boosted 2018 earnings subside

EQUITY REVIEW

Non-U.S. shares outperform U.S. stocks; domestic large-caps hold up better than small-caps

Most Wilshire 5000 sectors declined. Energy stocks fared worst as U.S. oil prices fell to an 18-month low. Information technology and industrials and business services shares also did poorly. Utilities stocks, which often behave like bonds due to relatively high dividend yields, produced a slight gain.

In Asia, Japanese shares fell 14% in U.S. dollar terms, but other developed markets held up better. In Europe, UK shares dropped almost 12%, in part because of Brexit-related uncertainty. Parliament is expected to vote on a UK withdrawal agreement before the end of January. Italian stocks also fell close to 12%, as the country's populist government was in a standoff with the EU for much of the quarter over its plans to increase government spending.

Certain emerging markets in Asia rose slightly, but stocks in China and many other Asian markets dropped at least 10%. In emerging Europe, Turkish shares rose close to 5%, but Russian stocks fell 9%. In Latin America, Mexican stocks fell almost 19% amid concerns about the new president's governing style. Brazilian shares rose more than 13% on optimism that the newly elected president would pursue business-friendly reforms.

Figure 1 U.S. and International Stock Market Performance

Total Returns for Periods Ended December 31, 2018

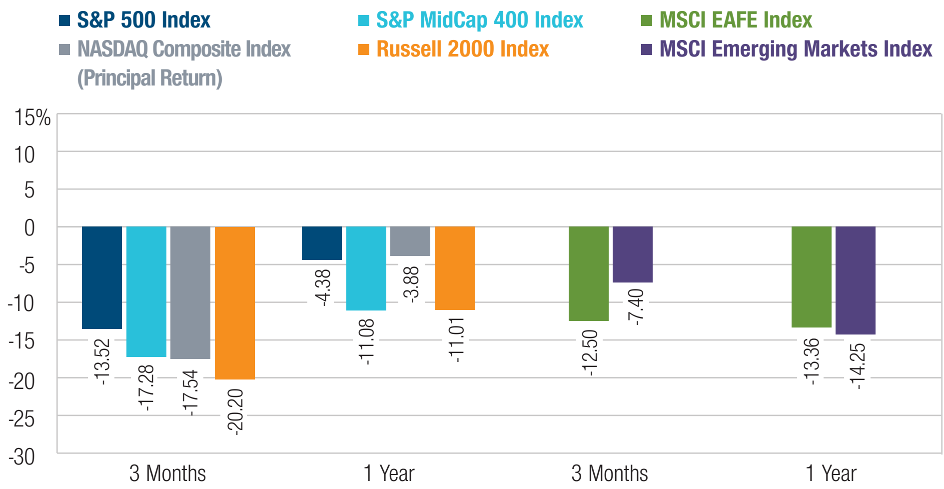
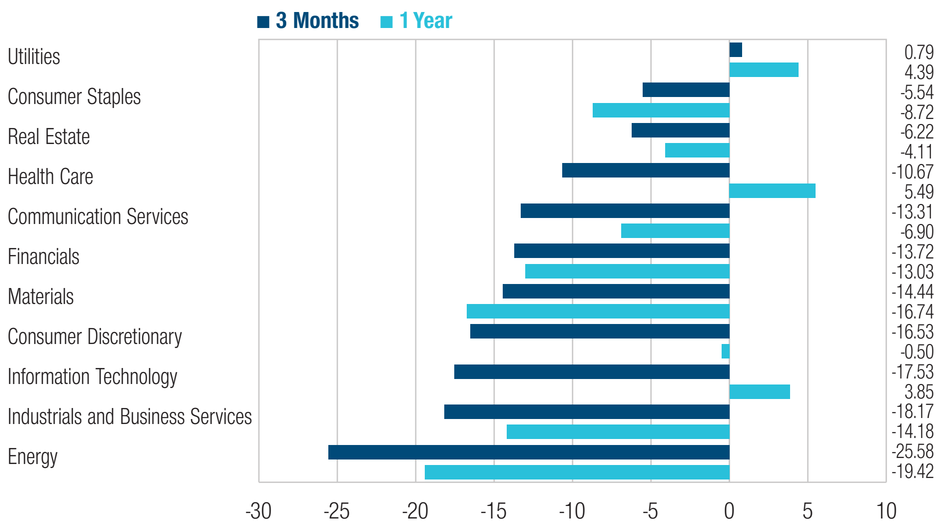


Figure 2 Performance of Wilshire 5000 Series

Total Returns for Periods Ended December 31, 2018



Ranked by highest to lowest quarterly returns.

FIXED INCOME REVIEW

Domestic bonds produced mostly positive returns, as increased demand for the relative safety of Treasuries pushed long-term yields lower and bond prices higher. As expected, the Fed raised rates on December 19, but some investors were disappointed that the Fed projected two more rate increases in 2019.

In the investment-grade universe, long-term Treasuries performed well. Mortgage- and asset-backed securities trailed somewhat, and corporate bond returns were flat to slightly negative as credit spreads—the difference between yields of bonds with higher and lower credit risk—widened. Municipal bonds were mostly in line with taxable securities. High yield bonds fared poorly as credit spreads widened significantly due to risk aversion. A steep drop in oil prices weighed especially on bonds issued by energy companies.

Bond returns in developed non-U.S. markets were slightly positive in dollar terms. While yields declined and bond prices rose in many markets as investors fled equity market volatility, the stronger dollar versus European currencies reduced local returns to U.S. investors.

Emerging markets bonds were mixed. Dollar-denominated debt declined, but bonds issued in local currencies produced positive returns, due in part to strength in certain key currencies.

Figure 3 U.S. and International Bond Market Performance

Total Returns for Periods Ended December 31, 2018

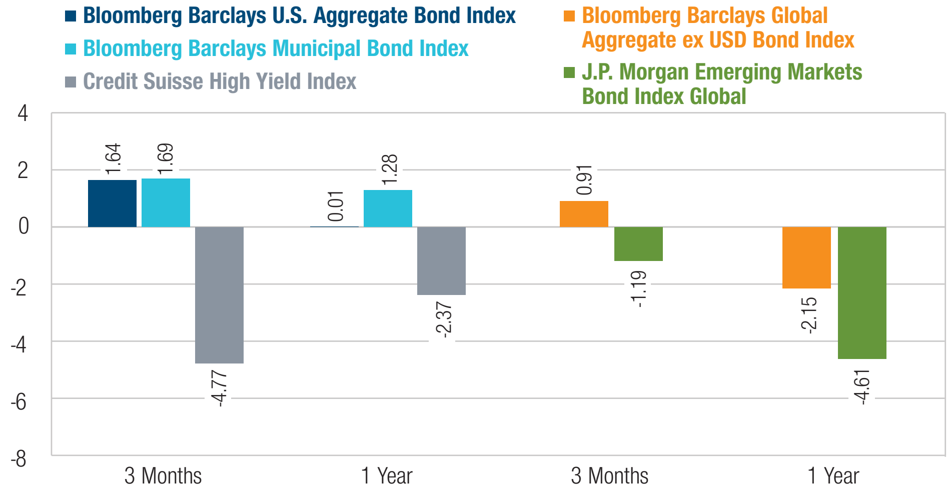
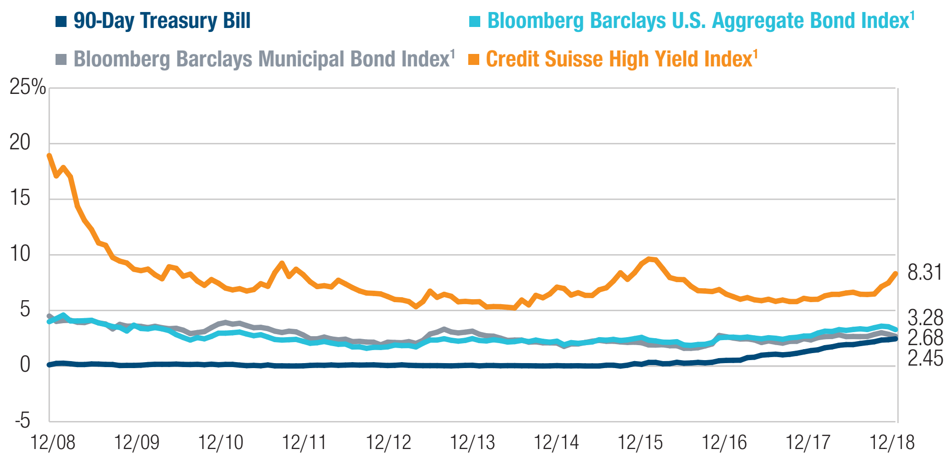


Figure 4 Trends in Interest Rates

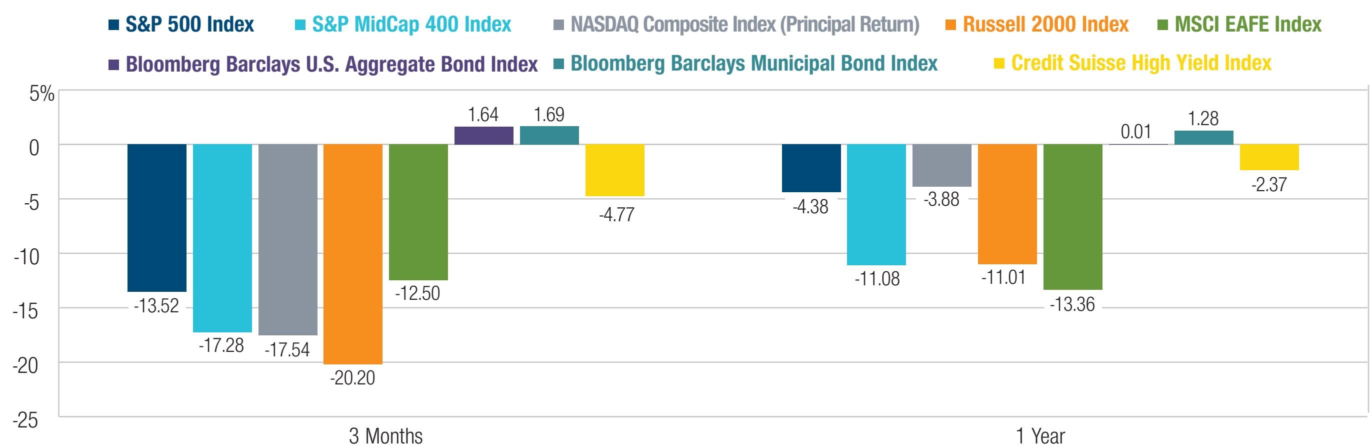
As of December 31, 2018



[1]Yield-to-worst

Figure 5 Stock and Bond Market Performance

Total Returns for Periods Ended December 31, 2018



Unlike stocks, U.S. government bonds are guaranteed as to the timely payment of interest and principal.

The performance information presented here includes changes in principal value, reinvested dividends, and capital gain distributions. *Current performance may be higher or lower than the quoted past performance, which cannot guarantee future results. Share price, principal value, yield, and return will vary, and you may have a gain or loss when you sell your shares. To obtain the most recent month-end performance, call us at 1-800-225-5132 or visit our website. The performance information shown does not reflect the deduction of redemption fees (if applicable); if it did, the performance would be lower. Call 1-800-225-5132 to request a prospectus or summary prospectus; each includes investment objectives, risks, fees, expenses, and other information that you should read and consider carefully before investing.* Funds are placed in alphabetical order in each category. To learn more about each fund's objective and risk/reward potential, visit **troweprice.com/mutualfunds**.

Figure 6 Stock Funds

Domestic	Ticker symbol	3 months	1 year	3 years	5 years	10 years or since inception[1]	Inception date	Redemption fee	Redemption fee period	Expense ratio	Expense ratio as of date
Blue Chip Growth	TRBCX	-14.22%	2.01%	12.05%	11.31%	17.04%	6/30/93			**0.70%**	12/31/17
Capital Appreciation[2]	PRWCX	-6.31	0.62	7.90	8.25	12.58	6/30/86			**0.71**	12/31/17
Capital Opportunity	PRCOX	-13.80	-4.63	9.16	8.47	13.12	11/30/94			**0.71**	12/31/17
Communications & Technology[3]	PRMTX	-12.90	-1.83	11.96	10.36	19.70	10/13/93			**0.78**	12/31/17
Diversified Mid-Cap Growth	PRDMX	-14.40	-3.11	9.11	8.13	15.20	12/31/03			**0.84**	12/31/17
Dividend Growth	PRDGX	-9.18	-1.06	9.63	8.67	12.87	12/30/92			**0.64**	12/31/17
Equity Income	PRFDX	-12.35	-9.30	7.92	4.75	10.66	10/31/85			**0.65**	12/31/17
Equity Index 500	PREIX	-13.56	-4.58	9.01	8.24	12.85	3/30/90	**0.5%**	**90 days**	**0.22**	12/31/17
Extended Equity Market Index	PEXMX	-18.11	-9.66	7.31	5.16	13.52	1/30/98	**0.5**	**90 days**	**0.35**	12/31/17
Financial Services	PRISX	-13.01	-10.00	7.81	6.34	11.46	9/30/96			**0.85**	12/31/17
Growth & Income	PRGIX	-11.14	-3.23	7.90	8.10	12.84	12/21/82			**0.66**	12/31/17
Growth Stock	PRGFX	-14.14	-1.03	10.28	10.10	16.08	4/11/50			**0.67**	12/31/17
Health Sciences	PRHSX	-15.81	1.23	5.11	11.60	19.42	12/29/95			**0.77**	12/31/17
Mid-Cap Growth[2]	RPMGX	-13.15	-2.04	9.14	9.41	16.23	6/30/92			**0.76**	12/31/17
Mid-Cap Value[2]	TRMCX	-14.51	-10.61	7.46	5.80	12.99	6/28/96			**0.79**	12/31/17
New America Growth	PRWAX	-14.40	1.28	11.39	10.47	16.40	9/30/85			**0.79**	12/31/17
New Era	PRNEX	-19.05	-16.21	5.02	-2.81	4.82	1/20/69			**0.69**	12/31/17
New Horizons[2]	PRNHX	-17.04	4.04	13.82	10.33	19.33	6/3/60			**0.78**	12/31/17
QM U.S. Small-Cap Growth Equity	PRDSX	-19.32	-6.86	8.18	6.63	15.70	6/30/97	**1.0**	**90 days**	**0.79**	12/31/17
QM U.S. Small & Mid-Cap Core Equity	TQSMX	-17.62	-10.89	–	–	9.53	2/26/16	**1.0**	**90 days**	**1.61†**	12/31/17
QM U.S. Value Equity	TQMVX	-14.58	-10.92	–	–	8.85	2/26/16			**2.46†**	12/31/17
Real Assets	PRAFX	-10.37	-11.52	5.76	0.49	2.07	7/28/10	**2.0**	**90 days**	**0.82**	12/31/17
Real Estate	TRREX	-8.81	-8.99	0.25	6.50	11.75	10/31/97	**1.0**	**90 days**	**0.73**	12/31/17
Science & Technology	PRSCX	-14.49	-6.99	13.13	12.10	18.04	9/30/87			**0.80**	12/31/17
Small-Cap Stock[2]	OTCFX	-16.19	-3.24	9.76	6.48	15.09	6/1/56			**0.89**	12/31/17
Small-Cap Value	PRSVX	-18.88	-11.49	8.97	4.31	11.80	6/30/88	**1.0**	**90 days**	**0.91**	12/31/17
Tax-Efficient Equity[4]	PREFX						12/29/00	**1.0**	**365 days**	**0.83**	2/28/18
Returns before taxes		-14.91	-0.47	9.60	8.94	15.11					
Returns after taxes on distributions		–	-0.80	9.20	8.46	14.78					
Returns after taxes on distributions and sale of fund shares		–	-0.07	7.46	7.01	12.79					
Total Equity Market Index	POMIX	-14.29	-5.59	8.72	7.68	13.04	1/30/98	**0.5**	**90 days**	**0.30**	12/31/17
U.S. Large-Cap Core	TRULX	-11.18	-3.39	7.76	8.66	13.17	6/26/09			**0.79†**	12/31/17
Value	TRVLX	-10.48	-9.44	6.12	5.89	13.03	9/30/94			**0.81**	12/31/17

†This fund currently operates under a contractual expense limitation that may be lower than the expense ratio shown in the table above; for information about the expense limitation, including its expiration date, please see the fund's prospectus.

[1] If a fund has less than 10 years of performance history, its since-inception return is shown.

[2] Closed to new investors except for a direct rollover from a retirement plan into a T. Rowe Price IRA invested in this fund.

[3] Formerly the T. Rowe Price Media & Telecommunications Fund.

[4] The returns presented reflect the return before taxes; the return after taxes on dividends and capital gain distributions; and the return after taxes on dividends, capital gain distributions, and gains (or losses) from redemptions of shares held for 1-, 5-, and 10-year periods, as applicable. After-tax returns reflect the highest federal income tax rate but exclude state and local taxes. The after-tax returns reflect the rates applicable to ordinary and qualified dividends and capital gains effective in 2003. During periods when a fund incurs a loss, the post-liquidation after-tax return may exceed the fund's other returns because the loss generates a tax benefit that is factored into the result. An investor's actual after-tax return will likely differ from those shown and depend on his or her tax situation. Past before- and after-tax returns do not necessarily indicate future performance.

Figure 7 Benchmarks

Domestic Stock	3 months	1 year	3 years	5 years	10 years
S&P 500 Index	-13.52%	-4.38%	9.26%	8.49%	13.12%
S&P MidCap 400 Index	-17.28	-11.08	7.66	6.03	13.68
NASDAQ Composite Index (Principal Return)	-17.54	-3.88	9.84	9.70	15.45
Russell 2000 Index	-20.20	-11.01	7.36	4.41	11.97
Lipper Indexes					
Large-Cap Core Funds	-13.23	-5.13	8.80	7.33	12.09
Equity Income Funds	-10.78	-6.61	7.53	5.96	10.98
Small-Cap Core Funds	-18.81	-11.19	7.43	4.33	12.24

Figure 8 Stock Funds

International/Global	Ticker symbol	3 months	1 year	3 years	5 years	10 years or since inception[1]	Inception date	Redemption fee	Redemption fee period	Expense ratio	Expense ratio as of date
Africa & Middle East	TRAMX	-2.64%	-8.92%	6.07%	1.05%	6.53%	9/4/07	**2.0%**	**90 days**	**1.54%**	10/31/17
Asia Opportunities	TRAOX	-5.10	-11.16	10.04	–	7.13	5/21/14	**2.0**	**90 days**	**1.72†**	10/31/17
Emerging Europe	TREMX	-8.16	-14.44	7.57	-6.39	6.52	8/31/00	**2.0**	**90 days**	**1.63**	10/31/17
Emerging Markets Stock[2]	PRMSX	-6.79	-16.20	10.25	3.76	9.39	3/31/95	**2.0**	**90 days**	**1.23**	10/31/17
Emerging Markets Value Stock	PRIJX	-5.31	-9.90	10.39	–	9.25	9/14/15	**2.0**	**90 days**	**2.35†**	10/31/17
European Stock	PRESX	-12.25	-12.72	-0.59	-1.44	7.49	2/28/90	**2.0**	**90 days**	**0.96**	10/31/17
Global Consumer	PGLOX	-13.68	-7.56	–	–	5.19	6/27/16			**3.15**	12/31/17
Global Growth Stock	RPGEX	-11.77	-7.07	8.58	7.04	12.19	10/27/08	**2.0**	**90 days**	**1.10†**	10/31/17
Global Industrials	RPGIX	-15.85	-12.18	6.69	3.40	4.06	10/24/13			**2.12†**	12/31/17
Global Real Estate	TRGRX	-6.74	-7.43	0.84	3.56	9.30	10/27/08	**2.0**	**90 days**	**1.08†**	12/31/17
Global Stock	PRGSX	-14.03	-4.41	10.49	8.97	13.06	12/29/95	**2.0**	**90 days**	**0.84**	10/31/17
Global Technology[2]	PRGTX	-10.13	-9.49	12.38	16.33	22.69	9/29/00			**0.89**	12/31/17
International Concentrated Equity	PRCNX	-9.73	-10.66	4.15	–	0.97	8/22/14	**2.0**	**90 days**	**2.35†**	10/31/17
International Discovery[2]	PRIDX	-15.39	-17.47	5.02	4.85	12.33	12/30/88	**2.0**	**90 days**	**1.19**	10/31/17
International Equity Index	PIEQX	-12.70	-14.27	3.21	0.53	6.18	11/30/00	**2.0**	**90 days**	**0.45**	10/31/17
International Stock	PRITX	-12.23	-13.96	4.10	2.11	8.69	5/9/80	**2.0**	**90 days**	**0.82**	10/31/17
International Value Equity[5]	TRIGX	-14.00	-18.21	-0.20	-1.83	5.53	12/21/98	**2.0**	**90 days**	**0.83**	10/31/17
Japan	PRJPX	-18.28	-12.17	9.02	6.37	7.53	12/30/91	**2.0**	**90 days**	**0.98**	10/31/17
Latin America	PRLAX	6.01	-8.23	15.89	-0.29	5.68	12/29/93	**2.0**	**90 days**	**1.31**	10/31/17
New Asia	PRASX	-7.22	-15.04	6.60	4.22	12.49	9/28/90	**2.0**	**90 days**	**0.93**	10/31/17
Overseas Stock	TROSX	-13.68	-15.05	3.55	0.66	7.32	12/29/06	**2.0**	**90 days**	**0.83**	10/31/17
QM Global Equity	TQGEX	-12.67	-9.99	–	–	6.19	4/15/16	**2.0**	**90 days**	**2.92**	12/31/17

Figure 9 Benchmarks

International/Global Stock	3 months	1 year	3 years	5 years	10 years
MSCI EAFE Index	-12.50%	-13.36%	3.38%	1.00%	6.81%
Lipper Averages					
Emerging Markets Funds	-7.41	-16.27	6.73	0.37	7.53
International Large-Cap Core Funds	-13.44	-15.46	1.72	-0.50	5.60
International Large-Cap Growth Funds	-12.85	-14.32	2.77	0.66	6.48
International Small/Mid-Cap Growth Funds	-16.76	-18.78	2.85	1.76	10.46

[5] Formerly the T. Rowe Price International Growth & Income Fund.

All mutual funds are subject to market risk, including possible loss of principal. Funds that invest overseas generally carry more risk than funds that invest strictly in U.S. assets due to factors such as currency risk, geographic risk, and emerging markets risk. Funds that invest in fixed income securities are subject to credit risk and liquidity risk, with high yield securities having a greater risk of default than higher-quality securities. Such funds are also subject to the risk that a rise in interest rates will cause the price of a fixed rate debt security to fall. During periods of extremely low or negative interest rates, some funds may not be able to maintain a positive yield.

MSCI index returns are shown with gross dividends reinvested.

Figure 10 Bond Funds

Domestic Tax-Free[6]	Ticker symbol	3 months	1 year	3 years	5 years	10 years or since inception[1]	Inception date	Redemption fee	Redemption fee period	Expense ratio	Expense ratio as of date
California Tax-Free Bond	PRXCX	1.17%	0.74%	2.08%	4.24%	5.41%	9/15/86			**0.54%**	2/28/18
Georgia Tax-Free Bond	GTFBX	1.36	0.54	1.71	3.59	4.77	3/31/93			**0.59**	2/28/18
Intermediate Tax-Free High Yield	PRIHX	0.77	1.31	2.69	–	3.25	7/24/14	**2.0%**	**90 days**	**1.15†**	2/28/18
Maryland Short-Term Tax-Free Bond	PRMDX	0.92	0.98	0.61	0.59	1.02	1/29/93			**0.63**	2/28/18
Maryland Tax-Free Bond	MDXBX	1.32	0.82	2.19	3.79	5.25	3/31/87			**0.47**	2/28/18
New Jersey Tax-Free Bond	NJTFX	1.30	1.30	2.36	4.05	5.05	4/30/91			**0.57**	2/28/18
New York Tax-Free Bond	PRNYX	1.18	0.79	1.94	3.91	4.93	8/28/86			**0.54**	2/28/18
Summit Municipal Income	PRINX	0.97	0.39	2.21	4.27	5.77	10/29/93			**0.50**	10/31/17
Summit Municipal Intermediate	PRSMX	1.44	0.80	1.63	2.93	4.02	10/29/93			**0.50**	10/31/17
Tax-Free High Yield	PRFHX	0.19	0.65	3.07	5.51	7.95	3/1/85	**2.0**	**90 days**	**0.71**	2/28/18
Tax-Free Income	PRTAX	1.12	0.69	2.03	3.90	5.16	10/26/76			**0.53**	2/28/18
Tax-Free Short-Intermediate	PRFSX	1.14	1.13	0.85	1.10	2.19	12/23/83			**0.51**	2/28/18
Virginia Tax-Free Bond	PRVAX	1.14	0.69	2.02	3.81	4.80	4/30/91			**0.50**	2/28/18

Figure 11 Bond Funds

Domestic Taxable	Ticker symbol	3 months	1 year	3 years	5 years	10 years or since inception[1]	Inception date	Redemption fee	Redemption fee period	Expense ratio	Expense ratio as of date
Corporate Income	PRPIX	0.13%	-3.06%	2.77%	3.14%	6.31%	10/31/95			**0.61%**	5/31/18
Credit Opportunities	PRCPX	-3.67	-1.47	6.99	–	1.40	4/29/14	**2.0%**	**90 days**	**1.49†**	5/31/18
Floating Rate	PRFRX	-2.94	-0.10	3.63	2.69	3.29	7/29/11	**2.0**	**90 days**	**0.78†**	5/31/18
GNMA[7]	PRGMX	1.40	0.57	1.16	1.94	2.91	11/26/85			**0.60**	5/31/18
High Yield[2]	PRHYX	-4.16	-3.33	5.92	3.24	10.00	12/31/84	**2.0**	**90 days**	**0.73**	5/31/18
Inflation Protected Bond	PRIPX	-0.48	-1.33	1.62	1.34	3.15	10/31/02			**0.58**	5/31/18
Limited Duration Inflation Focused Bond	TRBFX	-0.20	0.28	1.06	0.32	1.47	9/29/06			**0.49**	5/31/18
New Income	PRCIX	1.03	-0.63	1.99	2.36	4.05	8/31/73			**0.56**	5/31/18
Short-Term Bond	PRWBX	0.64	1.38	1.43	1.10	2.20	3/2/84			**0.47**	5/31/18
Total Return	PTTFX	1.32	0.23	–	–	2.25	11/15/16			**1.50†**	5/31/18
Ultra Short-Term Bond	TRBUX	0.34	1.87	1.90	1.28	1.10	12/3/12			**0.42†**	5/31/18
U.S. Bond Enhanced Index	PBDIX	1.66	-0.01	2.16	2.56	3.51	11/30/00	**0.5**	**90 days**	**0.30**	10/31/17
U.S. High Yield[8]	TUHYX	-5.56	-3.82	–	–	-0.05	5/19/17	**2.0**	**90 days**	**1.13†**	5/31/18
U.S. Treasury Intermediate[7]	PRTIX	2.89	1.01	1.01	1.69	2.24	9/29/89			**0.52**	5/31/18
U.S. Treasury Long-Term[7]	PRULX	4.20	-1.87	2.26	5.33	3.76	9/29/89			**0.48**	5/31/18

Figure 12 Benchmarks

Bond	3 months	1 year	3 years	5 years	10 years
Bloomberg Barclays U.S. Aggregate Bond Index	1.64%	0.01%	2.06%	2.52%	3.48%
Bloomberg Barclays Municipal Bond Index	1.69	1.28	2.30	3.82	4.85
Credit Suisse High Yield Index	-4.77	-2.37	7.34	3.70	10.66
Lipper Averages					
Short Investment Grade Debt Funds	0.38	1.03	1.67	1.17	2.64
Core Bond Funds	0.90	-0.69	1.99	2.20	4.19
GNMA Funds	1.53	0.41	0.88	1.65	2.78
High Yield Funds	-4.54	-2.84	5.49	2.65	9.25
Short Municipal Debt Funds	0.63	1.23	0.84	0.84	1.46
Intermediate Municipal Debt Funds	1.10	0.72	1.57	2.70	3.91
General & Insured Municipal Debt Funds	1.03	0.68	2.05	3.86	5.28

[6] Some income from the tax-free funds may be subject to state and local taxes and the federal alternative minimum tax.

[7] The market value of shares is not guaranteed by the U.S. government.

[8] The T. Rowe Price U.S. High Yield Fund (Fund) commenced operations on May 19, 2017. At that time, the Fund received all of the assets and liabilities of the Henderson High Yield Opportunities Fund (the Predecessor Fund) and adopted its performance and accounting history. The Fund and the Predecessor Fund have substantially similar investment objectives and strategies. The Predecessor Fund was managed by the same portfolio manager as the Fund.

Figure 13 Bond Funds

International/Global	Ticker symbol	3 months	1 year	3 years	5 years	10 years or since inception[1]	Inception date	Redemption fee	Redemption fee period	Expense ratio	Expense ratio as of date
Dynamic Global Bond[9]	RPIEX	1.29%	0.87%	1.16%	–	1.91%	1/22/15			**0.63%**	12/31/17
Emerging Markets Bond	PREMX	-2.42	-7.23	5.04	3.78%	7.77	12/30/94	**2.0%**	**90 days**	**0.92†**	12/31/17
Emerging Markets Corporate Bond	TRECX	-0.22	-1.60	6.03	4.08	4.61	5/24/12	**2.0**	**90 days**	**1.44†**	12/31/17
Emerging Markets Local Currency Bond	PRELX	1.90	-7.63	5.64	-1.19	-1.20	5/26/11	**2.0**	**90 days**	**0.99†**	12/31/17
Global High Income Bond	RPIHX	-2.57	-1.79	7.14	–	5.23	1/22/15	**2.0**	**90 days**	**1.13**	12/31/17
Global Multi-Sector Bond	PRSNX	1.19	0.44	4.54	3.56	5.98	12/15/08			**0.72†**	5/31/18
International Bond	RPIBX	0.92	-2.94	3.31	0.01	1.79	9/10/86	**2.0**	**90 days**	**0.67**	12/31/17
International Bond (USD Hedged)	TNIBX	1.64	1.56	–	–	2.16	9/12/17	**2.0**	**90 days**	**0.67†**	12/31/17

Figure 14 Benchmarks

International/Global Bond	3 months	1 year	3 years	5 years	10 years
Bloomberg Barclays Global Aggregate ex USD Bond Index	0.91%	-2.15%	3.15%	-0.01%	1.74%
J.P. Morgan Emerging Markets Bond Index Global	-1.19	-4.61	4.74	4.18	7.79
Lipper Averages					
Emerging Market Hard Currency Debt Funds	-1.10	-5.69	4.77	2.17	6.86
International Income Funds	0.54	-1.79	2.96	0.93	3.85

Figure 15 Money Market Funds

Tax-Free[10]	Ticker symbol	7-day yield	7-day unsubsidized yield[10]	3 months	1 year	3 years	5 years	10 years or since inception[1]	Inception date	Expense ratio	Expense ratio as of date
California Tax-Free Money[◊]	PCTXX	1.01%	0.77%	0.24%	0.76%	0.36%	0.22%	0.13%	9/15/86	**1.17%†**	7/1/18
Maryland Tax-Free Money[◊]	TMDXX	1.30	1.04	0.32	1.00	0.44	0.27	0.15	3/30/01	**0.86**	7/1/18
New York Tax-Free Money[◊]	NYTXX	1.15	1.00	0.28	0.88	0.40	0.25	0.14	8/28/86	**1.04†**	2/28/18
Summit Municipal Money Market[◊]	TRSXX	1.30	1.30	0.31	1.00	0.51	0.31	0.18	10/29/93	**0.45**	10/31/17
Tax-Exempt Money[◊]	PTEXX	1.31	1.29	0.32	1.03	0.52	0.32	0.18	4/8/81	**0.54**	7/1/18
Taxable[10]											
Cash Reserves[◊‡11]	TSCXX	2.18%	2.16%	0.51%	1.65%	0.83%	0.50%	0.28%	10/29/93	**0.45%**	10/31/17
Government Money[‡12]	PRRXX	2.09	2.06	0.48	1.48	0.67	0.40	0.23	1/26/76	**0.44**	5/31/18
U.S. Treasury Money[‡]	PRTXX	2.11	2.09	0.48	1.48	0.66	0.40	0.21	6/28/82	**0.43**	5/31/18

[9] Formerly the T. Rowe Price Global Unconstrained Bond Fund.

[10] In an effort to maintain a zero or positive net yield for the fund, T. Rowe Price may voluntarily waive all or a portion of the management fee it is entitled to receive from the fund. This voluntary waiver would be in addition to any contractual expense ratio limitation in effect for the fund and may be amended or terminated at any time without prior notice. This fee waiver would have the effect of increasing the fund's 7-day yield. Please see the prospectus for more details.

[11] Formerly the T. Rowe Price Summit Cash Reserves Fund.

[12] Formerly the T. Rowe Price Prime Reserve Fund.

Money Market Funds:

◊Retail Funds: You could lose money by investing in the Fund. Although the Fund seeks to preserve the value of your investment at $1.00 per share, it cannot guarantee it will do so. Beginning October 14, 2016, the Fund may impose a fee upon the sale of your shares or may temporarily suspend your ability to sell shares if the Fund's liquidity falls below required minimums because of market conditions or other factors. An investment in the Fund is not insured or guaranteed by the Federal Deposit Insurance Corporation or any other government agency. The Fund's sponsor has no legal obligation to provide financial support to the Fund, and you should not expect that the sponsor will provide financial support to the Fund at any time.

‡Government Funds: You could lose money by investing in the Fund. Although the Fund seeks to preserve the value of your investment at $1.00 per share, it cannot guarantee it will do so. An investment in the Fund is not insured or guaranteed by the Federal Deposit Insurance Corporation or any other government agency. The Fund's sponsor has no legal obligation to provide financial support to the Fund, and you should not expect that the sponsor will provide financial support to the Fund at any time.

Figure 16 Asset Allocation Funds

Asset Allocation	Ticker symbol	3 months	1 year	3 years	5 years	10 years or since inception[1]	Inception date	Redemption fee	Redemption fee period	Expense ratio	Expense ratio as of date
Balanced	RPBAX	-8.06%	-4.92%	5.92%	4.85%	9.63%	12/31/39			**0.64%**	12/31/17
Global Allocation	RPGAX	-7.96	-6.87	5.08	3.80	4.58	5/28/13			**1.19†**	5/8/18
Multi-Strategy Total Return	TMSRX	-3.14	–	–	–	-4.11	2/23/18			**1.50**	2/23/18
Personal Strategy Balanced	TRPBX	-7.25	-4.50	6.19	4.82	10.01	7/29/94			**0.86**	5/31/18
Personal Strategy Growth	TRSGX	-9.84	-6.07	7.01	5.41	11.52	7/29/94			**0.88**	5/31/18
Personal Strategy Income	PRSIX	-4.74	-3.02	5.15	3.97	8.02	7/29/94			**0.78**	5/31/18
Retirement 2005	TRRFX	-4.59	-3.26	4.54	3.50	7.41	2/27/04			**0.54**	5/31/18
Retirement 2010	TRRAX	-5.27	-3.61	4.85	3.73	8.16	9/30/02			**0.54**	5/31/18
Retirement 2015	TRRGX	-6.17	-4.17	5.24	4.08	9.08	2/27/04			**0.57**	5/31/18
Retirement 2020	TRRBX	-7.36	-4.94	5.72	4.47	9.90	9/30/02			**0.61**	5/31/18
Retirement 2025	TRRHX	-8.38	-5.62	6.10	4.77	10.54	2/27/04			**0.64**	5/31/18
Retirement 2030	TRRCX	-9.39	-6.28	6.43	5.03	11.09	9/30/02			**0.67**	5/31/18
Retirement 2035	TRRJX	-10.19	-6.87	6.61	5.18	11.43	2/27/04			**0.70**	5/31/18
Retirement 2040	TRRDX	-10.85	-7.32	6.77	5.30	11.60	9/30/02			**0.72**	5/31/18
Retirement 2045	TRRKX	-11.22	-7.57	6.81	5.31	11.61	5/31/05			**0.72**	5/31/18
Retirement 2050	TRRMX	-11.24	-7.58	6.80	5.32	11.60	12/29/06			**0.72**	5/31/18
Retirement 2055	TRRNX	-11.26	-7.62	6.78	5.31	11.60	12/29/06			**0.72**	5/31/18
Retirement 2060	TRRLX	-11.25	-7.57	6.75	–	4.55	6/23/14			**0.72**	5/31/18
Retirement Balanced	TRRIX	-5.08	-3.30	4.35	3.22	6.74	9/30/02			**0.52**	5/31/18
Retirement Income 2020	TRLAX	-7.38	-4.99	–	–	0.96	5/25/17			**2.81**	12/31/17
Spectrum Growth	PRSGX	-13.23	-8.53	7.38	5.66	12.25	6/29/90			**0.78**	12/31/17
Spectrum Income	RPSIX	-1.50	-2.62	4.08	2.79	5.99	6/29/90			**0.65**	12/31/17
Spectrum International	PSILX	-12.16	-14.81	3.21	1.00	7.98	12/31/96	**2.0%**	**90 days**	**0.91**	12/31/17
Target 2005	TRARX	-4.29	-3.12	4.26	3.27	4.00	8/20/13			**1.19**	1/1/19
Target 2010	TRROX	-4.46	-3.14	4.40	3.37	4.16	8/20/13			**0.81**	1/1/19
Target 2015	TRRTX	-4.81	-3.34	4.57	3.50	4.44	8/20/13			**0.60**	1/1/19
Target 2020	TRRUX	-5.68	-3.88	4.87	3.77	4.89	8/20/13			**0.63**	1/1/19
Target 2025	TRRVX	-6.60	-4.48	5.24	4.09	5.38	8/20/13			**0.69**	1/1/19
Target 2030	TRRWX	-7.56	-5.22	5.66	4.45	5.90	8/20/13			**0.75**	1/1/19
Target 2035	RPGRX	-8.41	-5.84	5.98	4.76	6.33	8/20/13			**0.86**	1/1/19
Target 2040	TRHRX	-9.20	-6.42	6.27	4.94	6.65	8/20/13			**0.92**	1/1/19
Target 2045	RPTFX	-9.77	-6.72	6.48	5.09	6.89	8/20/13			**1.03**	1/1/19
Target 2050	TRFOX	-10.50	-7.18	6.61	5.19	7.07	8/20/13			**1.12**	1/1/19
Target 2055	TRFFX	-10.89	-7.38	6.75	5.28	7.19	8/20/13			**1.44**	1/1/19
Target 2060	TRTFX	-11.22	-7.60	6.74	–	4.50	6/23/14			**2.99**	1/1/19

Indexes included in this update track the following: S&P 500–500 large-company U.S. stocks; S&P MidCap 400–stocks of 400 mid-size U.S. companies; NASDAQ Composite (principal only)–U.S. stocks traded in the over-the-counter market; Russell 2000–stocks of 2,000 small U.S. companies; MSCI EAFE–stocks of about 1,000 companies in Europe, Australasia, and the Far East; MSCI Emerging Markets–more than 850 stocks traded in over 20 emerging markets; Bloomberg Barclays U.S. Aggregate Bond–investment-grade corporate and government bonds; Bloomberg Barclays Municipal Bond–tax-free investment-grade U.S. bonds; Credit Suisse High Yield–noninvestment-grade corporate U.S. bonds; Bloomberg Barclays Global Aggregate ex USD Bond–investment-grade government, corporate, agency, and mortgage-related bonds in markets outside the U.S.; J.P. Morgan Emerging Markets Bond–Global–U.S. dollar-denominated Brady Bonds, Eurobonds, traded loans, and local market debt instruments issued by sovereign and quasi-sovereign entities; Lipper averages–all funds in each investment objective category; and Lipper indexes–equally weighted indexes of typically the 30 largest mutual funds within their respective investment objective categories. It is not possible to invest directly in an index.

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