T. Rowe Price
REPORT
INSIGHTS ON INVESTING AND FINANCIAL TOPICS

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The Midyear Outlook: Growth With Volatility

More volatile market conditions in the second half of the year could produce potentially attractive buying opportunities for the long term.

Major themes

A broad economic expansion, strong earnings growth, and a moderate pace of monetary tightening appear to provide a generally favorable environment for global financial markets in the second half of 2018. However, historically high valuations across most asset classes and a range of economic and policy risks—including the threat of trade protectionism and the impact of U.S. dollar appreciation on emerging market debtors—create the potential for renewed volatility.

These are among the key observations offered by three T. Rowe Price investment professionals—Rob Sharps, the firm's head of investments and group chief investment officer (CIO); Mark Vaselkiv, CIO, fixed income; and Justin Thomson, CIO, equity—in a recent discussion of the midyear global outlook.

The three CIOs agree that the positive case for global equities and credit remains intact, although they also suggest that investors may want to take a less aggressive stance compared with the bullish enthusiasm seen in late 2017 and early 2018.

More volatile market conditions in the second half of the year could produce potentially attractive buying opportunities for long-term investors, Mr. Vaselkiv suggests, while greater return differences among sectors and companies may make it easier for portfolio managers to add value through active security selection.

The three CIOs say certain major themes appear likely to influence—perhaps decisively—global market performance in the second half, among them:

Economic growth

The synchronized global economic expansion that powered earnings growth in 2017 appeared to have plenty of steam coming into 2018. However, some indicators, such as global purchasing managers' indices (PMIs), are pointing to slowing momentum, especially in Europe and Japan. (See Figure 1 on page 2.)

- The growth outlook appears most robust in the United States, where confidence remains high and last year's tax cut package continues to put disposable income in the pockets of consumers and corporations. Deregulation efforts, including lifting some restrictions on the U.S. banking industry, also should support growth in the second half.

- The outlook for the European economies also is broadly positive, Mr. Thomson says, despite the recent softness in their PMIs and other sentiment indicators. One major exception: the United Kingdom, where Brexit uncertainties continue to weigh on business confidence and capital spending.

- Although corporate governance reforms are improving Japan's longer-term economic prospects, in the short

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run Japanese growth depends heavily on demand for the country's exports and thus the strength of global growth, Mr. Thomson notes.

- China has been largely successful in sustaining economic growth despite Beijing's efforts to restrain credit expansion and restructure older industries, although momentum could slow in 2018. Chinese growth is helping sustain expansion in other emerging markets.

The key question going forward, Mr. Sharps says, will be whether the global expansion—and with it, the global bull market in risk assets—has entered its late stages, a phase typically marked by inflationary pressures, rising interest rates, and deteriorating profit margins. While some signs, including low U.S. unemployment and Federal Reserve tightening, point in that direction, it would be a mistake to assume that, because the current expansion has been long (nine years and counting), it must be nearing its end.

"We've had a long recovery but a very slow recovery," Mr. Sharps says. "It may be that we're in a midcycle pause as central banks around the world recalibrate monetary policy for a more sustainable or self-sustaining economic expansion."

Earnings growth

U.S. earnings growth accelerated in the first quarter, with the companies in the S&P 500 Index seeing a 25% year-over-year rise in earnings per share (EPS). This is in part due to U.S. corporate tax cuts, though it still is an extraordinary achievement for an economy not coming out of recession.

While earnings momentum has slowed somewhat in Japan, Europe, and the emerging markets, underlying trends appear positive, the CIOs agree. (See Figure 2 on page 3.) Indeed, strong earnings growth played a major role in stabilizing global equity markets following outbreaks of volatility in February and March.

Simple mathematics suggests that the rate of U.S. earnings growth seen in the first quarter is unlikely to be matched—much less beat—over the remainder of 2018, Mr. Sharps says. But consensus estimates suggest that analysts do not expect earnings growth to slow dramatically in the second half, and they appear to anticipate earnings growth in the high single digits in 2019. If met, these forecasts would imply a reasonably constructive environment for equities, Mr. Sharps adds.

Europe saw strong earnings momentum in 2017 as well, with net revisions turning positive for the first time since the 2012 sovereign debt crisis. That performance also will be difficult to replicate this year, Mr. Thomson says, in part because so much of the global earnings recovery has been concentrated in the technology sector, which has a smaller weight in the major European indexes relative to the U.S. market.

Earnings growth in Asia also has been heavily concentrated in the technology sector, which has produced performance results even more concentrated than in the U.S. market, Mr. Thomson says. Earnings strength in Japan will largely depend on the global economic cycle, he adds.

High valuations

Most broad global asset classes appear expensive relative to their longer-term averages—averages that themselves have been pulled higher by the equity and bond price gains seen since the global financial crisis. (See Figure 3 on page 3.) For equity valuations, the first half of 2018 saw two offsetting trends, Mr. Sharps says:

- With global equity markets generally moving sideways despite strong earnings growth, price/earnings (P/E) multiples slipped from their late-2017 peaks.

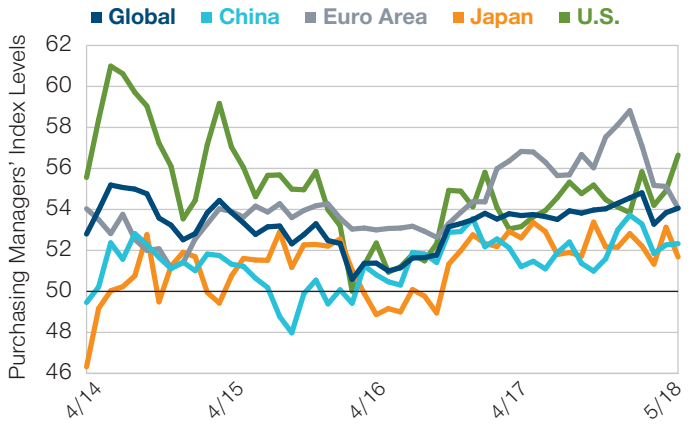
- On the other hand, higher U.S. interest rates and bond yields eroded the support that extremely low rates have provided for equity valuations since the financial crisis.

On balance, U.S. large-cap valuations—as measured by the S&P 500 Index—appeared moderately expensive as of the end of June 2018, Mr. Sharps notes. "A current-year P/E between 16 and 17 is certainly well off the peak, and probably reasonable by historical standards, but it's far from compelling," he says.

While core European and Japanese sovereign yields remain anchored at extremely low—and, in some cases, negative—levels by central bank accommodation, U.S. investment-grade and high yield valuations have improved in an absolute sense thanks to the rise in Treasury yields, Mr. Vaselkiv says.

Figure 1 Synchronized Global Recovery Continues

Purchasing Managers' Indices,* Average Monthly Levels



*Composite purchasing managers' indices (PMIs). Index levels above 50 indicate expansion. Sources: Haver Analytics [Markit] and FactSet Research Systems Inc.

For longer-term investors, absolute yield may be the more important valuation metric, Mr. Vaselkiv suggests. High yield has moved up, he says, "to about a 6.5% blended or aggregate yield. And I've noticed in the high yield market that when absolute valuations start to get to the 7% level, over a long investment period, it generally has led to pretty good outcomes."

But it's not clear how much useful information broad index valuations provide in a market environment marked by wide dispersion and—for equities, at least—relatively narrow leadership. According to Mr. Thomson, this is particularly true in Japan, where equities appear cheap overall compared with longer-term averages but the value universe includes many companies with relatively poor future prospects.

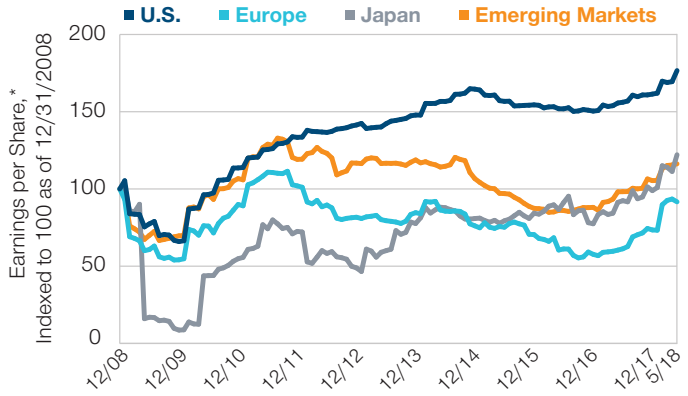
Headwinds

Strong U.S. growth, low unemployment, and expectations of future Fed rate hikes combined to push Treasury yields sharply higher in the first half of the year. Perhaps more significantly, the Treasury yield curve—the spread between shorter- and longer-term maturities—continued to flatten. (See Figure 4 on page 4.) The European Central Bank, meanwhile, was widely expected to begin "tapering" its quantitative easing programs later this year, which could put upward pressure on European sovereign yields.

Rising yields and flattening yield curves typically are headwinds for economic growth and equity returns, but the impact on U.S. equities in the second half should be limited, Mr. Sharps says: "Historically, markets have responded negatively to higher rates when the pace of increases is a surprise, but to the extent the 10-year Treasury is below 4% or 5%, I think the underlying earnings growth will trump what is happening with rates."

Figure 2 Earnings Momentum Peaking

Still, Growth Remains Strong



*Earnings per share calculated using the S&P 500 Index for U.S. equities. Other countries or regions represented by the MSCI Europe, Japan, and Emerging Markets indices. Source: FactSet Research Systems Inc. All rights reserved. **Additional disclosures on page 24.**

Emerging markets (EM) potentially could be more at risk. Much of this vulnerability, Mr. Thomson and Mr. Vaselkiv both say, stems from weakness in a number of EM currencies against the U.S. dollar, including the Turkish lira, Argentine peso, Brazilian real, and South African rand. "Typically when the [U.S.] dollar begins to appreciate, that's a pretty negative environment for emerging markets," Mr. Vaselkiv says.

A key risk that emerging markets face is the potential mismatch between the dollar liabilities and local currency revenues of both sovereign and corporate debtors—the same factor that laid many EM economies low during the debt crises of the 1990s.

While economic and balance sheet fundamentals in many EM countries have improved greatly since then and local currency debt issuance has expanded, the potential for financial contagion can't be dismissed. This is particularly so among countries that have made less progress in curbing chronic fiscal and current account deficits, Mr. Vaselkiv says.

There are developments worth monitoring that point to potentially higher inflation down the road (See article on page 5.), such as the tight U.S. labor market and rising capital expenditures, Mr. Sharps says. Oil and other commodity prices also bear watching, as these could be influenced not only by the strength of global demand but also by political factors such as the impact of U.S. sanctions on major oil producers Iran and Venezuela.

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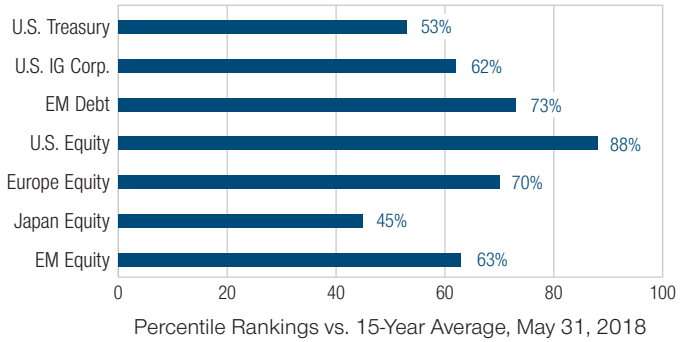
Figure 3 Most Asset Valuations Are High

Percentile Rankings Versus 15-Year Average



Indices used, from top to bottom, Bloomberg Barclays U.S. Investment Grade Corporate Bond, Bloomberg Barclays Emerging Markets USD Aggregate, S&P 500, MSCI Europe, MSCI Japan, MSCI Emerging Markets. U.S. Treasury valuation percentile based on 10-year benchmark government bond yields. U.S. IG Corp. and EM Debt valuation percentiles based on option-adjusted spread of the Bloomberg Barclays U.S. Investment Grade Corporate Bond Index and the Bloomberg Barclays EM USD Aggregate Bond Index. U.S., Europe, Japan, and EM equity valuations based on an equal-weighted average of next 12 months price-to-earnings, price-to-book, and price-to-cash flow ratios for the S&P 500, MSCI Europe, MSCI Japan, and MSCI EM indices. Source: FactSet Research Systems Inc. All rights reserved. **Additional disclosures on page 24.**

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For now, however, the U.S. and other developed debt and equity markets continue to benefit from a relatively benign inflation environment. This should allow the Fed to remain on a gradual policy course, avoiding the kind of sudden or large rate hikes that might cause the yield curve to invert—with short-term rates moving higher than long-term yields.

"Historically, a flattening or flat yield curve has not necessarily spelled imminent trouble for the economy or for financial assets," Mr. Sharps says. "But once the yield curve inverts, it's important to pay attention, because then the risks really do increase."

Populism

Markets largely welcomed major policy developments in 2017, including a major U.S. package of individual and corporate tax cuts, the Trump administration's deregulation efforts, and the election of a French president committed to pro-growth reforms. But 2018 has seen a revival of concerns about a turn toward populism—trade protectionism in particular.

Many of these worries center on the Trump administration, which has raised tariffs on steel, aluminum, and possibly auto imports; demanded large reductions in China's trade surplus with the United States; and pushed for concessions from Canada and Mexico in talks to revamp the North American Free Trade Agreement (NAFTA).

Adding to investor anxieties: continued lack of progress in working out a post-Brexit trade relationship between the UK and the EU, political disarray in Italy following the election of a populist coalition promising relief from fiscal austerity, and the refusal of U.S. policymakers to even consider cuts in entitlement spending despite a soaring federal budget deficit.

These issues have elevated the near-term risks of a major policy shock, Mr. Sharps says, contributing to the volatility seen in the first quarter. The threat of a U.S.-China trade war is especially unsettling, Mr. Vaselkiv adds, given that it would embroil the world's two biggest economies: "You have to recognize that all emerging countries economically revolve around China. So a meaningful conflict between the two largest economies in the world is a very serious risk."

While buoyant earnings helped global equity markets rebound from policy-related "risk off" episodes in the first half of the year, the U.S. bond market could be more vulnerable, Mr. Vaselkiv warns. Non-U.S. buyers, he says, have accounted for roughly half of the demand at recent Treasury auctions, but current interest rate differentials also make it possible for Chinese and Japanese investors to purchase German or French government bonds, hedge their currency exposure into U.S. dollars, and earn a combined return that in some cases is higher than the yields on comparable Treasuries.

"I think we could have some interesting dynamics going forward if the world starts to lose a little bit of confidence in our geopolitical situation, particularly given our trillion dollar deficits," Mr. Vaselkiv says.

Technology platforms

The technology sector continued to lead global equity markets in the first half of 2018, with much of that leadership from a relative handful of U.S. and Chinese mega-cap companies with dominant platforms in Internet search, social media, cloud computing, and streaming video. Revenue and earnings growth among these firms has been explosive, far outpacing the broad market.

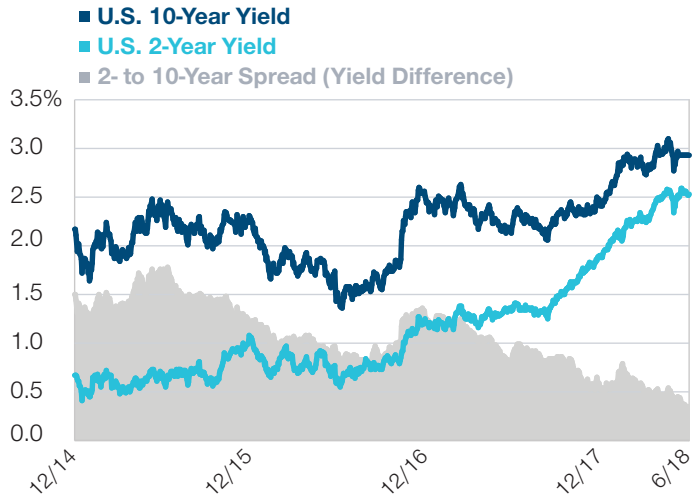
Commanding market positions have allowed these "tech titans" to leverage powerful economies of scale, producing impressive returns for investors but also drawing the attention of policymakers concerned about data privacy and political manipulation. These concerns flared in early 2018, leading some analysts to speculate that the platform giants might be due for a correction.

For now, however, the risks of a political or regulatory backlash are dwarfed by the growth potential of the major tech platforms, Mr. Sharps says. "Government intervention is a longer-term risk that we'll want to continue to monitor," he says. "But it certainly hasn't manifested itself in any kind of meaningful change to the trend of really powerful, fundamental strength." ■

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. Investing in technology stocks entails specific risks, including the potential for wide variations in performance and unusually wide price swings, both up and down. ***Past performance cannot guarantee future results.***

Figure 4 U.S. Treasury Yields Rose in Early 2018

Two- and 10-Year U.S. Treasury Yields*



*Yields are based on benchmark U.S. Treasury notes. Source: FactSet Research Systems Inc. All rights reserved.

U.S. ECONOMY

Inflation: The Dog That Hasn't Barked For A Long Time Remains Muzzled

An array of global forces has suppressed inflation and could continue to do so.

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

Nine years into the current economic expansion—despite seven years of extraordinary monetary stimulus from the Federal Reserve and unemployment now below 4%—inflation continues to linger stubbornly below the Fed's 2% objective.

This insensitivity of inflation to the business cycle is remarkable. But it's not new: For the last 25 years, spanning the 1990s' and 2000s' economic expansions and the current one, inflation has been the dog that didn't bark.

Perhaps the foremost reason for this prolonged period of low and stable inflation was the change in monetary regime initiated by then Federal Reserve Chairman Paul Volcker in 1979 and then solidified by his immediate successor, Alan Greenspan. This change prioritized price stability within the Fed's pursuit of a dual mandate that also includes full employment.

The Fed's low inflation focus has been mirrored by the adoption of inflation-taming policy frameworks by an increasing number of central banks around the world, in many cases using explicit inflation targets. These policies anchor inflation expectations, creating a feedback mechanism that reinforces the continuation of low inflation.

The increase in world trade also has dampened cyclical inflation impulses, particularly in tradeable goods sectors. Domestic producers' greater access to global supply chains reduces the cost of products assembled in the home market. And the shift of low-skill production to lower-cost locations has increased the availability of lower-priced, imported goods for all domestic consumers (though at the cost of reduced employment in certain industries).

Finally, there is the impact of technological advance on "quality adjustments" made to government-reported price indexes, which attempt to estimate the price of a given set of product characteristics.

So, for example, the Labor Department's annual estimates of the value of quality improvements in new model year cars and trucks—such as emissions controls, safety improvements, and changes in levels of equipment—have averaged roughly one-third of the annual increases in manufacturers' suggested retail prices. That portion of the increases is then cut out of monthly inflation calculations.

Overheating?

Still, notwithstanding the array of forces aligned to continue suppressing inflation, perhaps the U.S. economy could be on the verge of an inflationary overheating, fueled by the application of fiscal stimulus—tax cuts and spending increases—at a time of full employment.

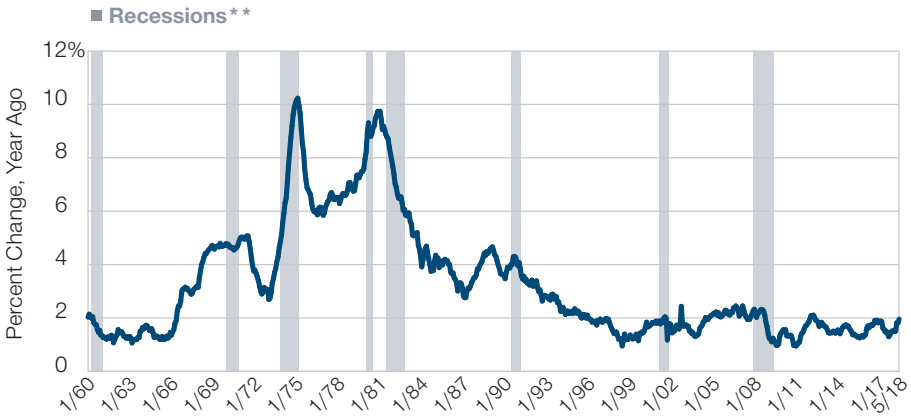
After all, a similar situation in the 1960s lifted core PCE inflation (personal consumption expenditures, excluding food and energy) from 1.3% in 1965 to 3.2% in 1967 and 4.6% in 1968.

But we forecast only a gradual pickup in core PCE inflation, from 1.7% currently to 2.2% a year from now, as the factors that have recently weakened the growth-inflation connection persist.

Beyond that horizon, the Fed has expressed a willingness to allow only a modest overshoot of its 2% medium-term rate objective, such as the one that we expect. So we are confident it will not sanction a repeat of the late-1960s' inflation breakout and would increase the tempo of interest rate hikes if it looked like the economy were on that course. ■

Figure 1 When Might Inflation Take Off Again?

PCE Price Index* Excluding Food and Energy



*Personal consumption expenditures; source: Bureau of Economic Analysis. **Recession periods; source: National Bureau for Economic Research.

EQUITIES

Value Investing: Is It Dead Or Poised For A Revival? If So, When?

Global value stocks' recent underperformance is unprecedented in magnitude and duration.

Value investors recently have endured one of the longest, most severe droughts of underperformance relative to growth investing. This shortfall has spanned market capitalization and geography—engulfing small to large companies throughout developed and emerging markets around the globe.

Value stocks historically have outperformed growth stocks over very long periods of time. The relative performance of the two styles tends to be somewhat cyclical, but value stocks' underperformance gap in recent years has been extreme. (See Figures 1 and 2.)

In the United States, value stocks' stretch of underperformance is the longest since 1935, according to Ned Davis Research. And globally, its underperformance is unprecedented in recent decades, says Sebastien Mallet, manager of the Institutional Global Value Equity Fund.

Value investors focus on companies that appear to be undervalued by various measures—such as price to earnings, sales, or book value—and companies that are temporarily out of favor but may recover. Growth investors generally focus on pricier companies with strong cash flow and above-average earnings growth, such as leading technology companies.

Growth tailwinds

The growth style's dominance since the global financial crisis a decade ago is partly attributable to the prolonged sluggish economic environment in developed markets that has been accompanied by persistently low interest rates and inflation, says Farris Shuggi, manager of the QM U.S. Value Equity Fund.

"Historically, such environments have benefited growth stocks, with investors preferring to allocate capital to firms that they expect to generate organic revenue and earnings growth independent of the broader economic trends," he says. "Low interest rates also enhance the valuation of growth firms."

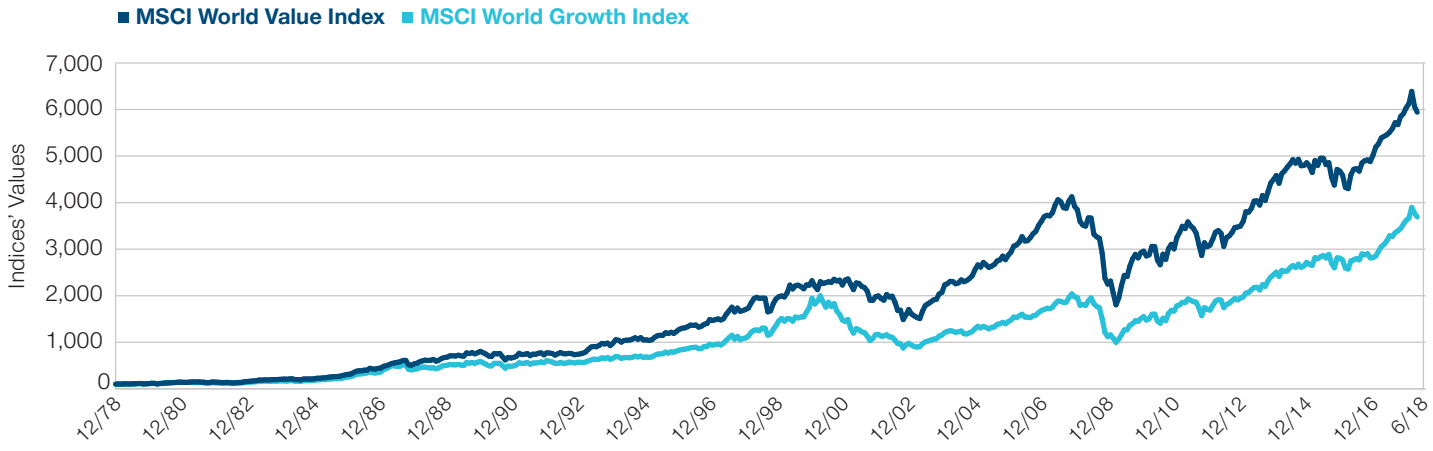
The recent growth performance has been particularly propelled by a narrow group of technology titans—such as the so-called FANG stocks (Facebook, Amazon, Netflix, and Google). The technology sector has significantly led market performance over the past five-year period ended June 30, 2018. It dominates the Russell 1000 Growth Index of larger companies, accounting for about 41% of the index capitalization.

"These amazing innovative growth companies have left carnage in their wake, and not an insignificant bunch of the companies getting smoked are in the value index," says David Wagner, manager of the Small-Cap Value Fund. "Many of the consumer companies that Amazon is disrupting, for instance, are in the value index."

Meanwhile, the two largest sectors in the Russell 1000 Value Index are financials and health care, accounting for 37% of its capitalization at the end of June 2018. The low-rate environment has undermined many financial companies, and energy (another large value sector) was the worst-performing market sector over

Figure 1 Over the Long Term Globally, Value Stocks Have Outperformed Growth Stocks

Performance Indexed to 100, From December 31, 1978, to June 30, 2018



Sources: MSCI and T. Rowe Price. **Additional disclosures on page 24. Past performance cannot guarantee future results.**

the past decade to the end of June of this year—due to the steep decline, until recently, in oil prices and global oversupply.

Mark Finn, manager of the Value Fund, says value has tended to outperform in periods following recessions because value stocks tend to reflect more cyclical industries. "As this cycle has worn on, the natural tendency of investors is to emphasize quality, so they shun highly cyclical companies and those with secular problems in favor of those showing consistent stable growth in industries that are not under assault," he says.

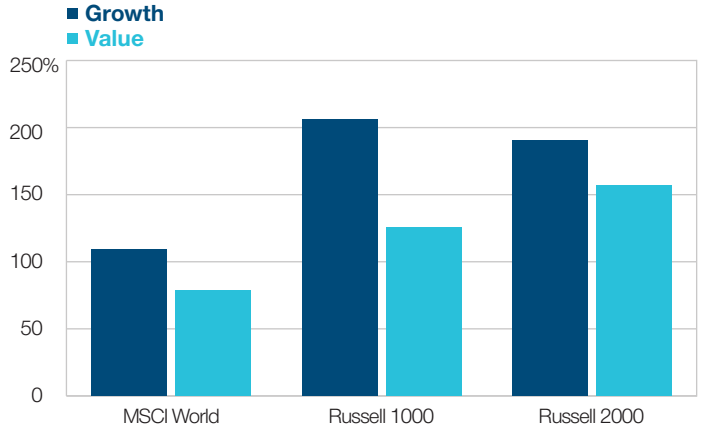
"At the same time, there are clearly opportunities in value when an industry hits a cyclical trough, like energy did, or when interest rates bottom, creating a unique opportunity in financials, or when there are structural changes in an industry, such as consolidation in the airline industry. In such situations, value can perform very well regardless of where we are in the economic cycle."

But not surprisingly, the strong growth outperformance has attracted significant investment, particularly into passive growth-oriented U.S. equity strategies. However, Mr. Shuggi says investors flocking to passive indexes may be exposed to risks that they don't really appreciate, given their increasing concentration on a relatively small number of large growth stocks, particularly in the technology sector.

He notes that as of June 30, 2018, the 10 largest stocks in the Russell 1000 Growth Index accounted for 34% of the total index market capitalization compared with 20% four years earlier. The top 10 stocks in the Russell 1000 Value Index, by contrast, represented about 21% of that benchmark's total market cap compared with 25% four years earlier. Overall, the Russell 1000 Index has become more growth dominated than at any time since the peak of the dot-com era in 2000, he says.

Figure 2 Value Stocks' Recent Underperformance

Cumulative Return, 10 Years to June 30, 2018



Source: T. Rowe Price. **See additional disclosures on page 24. Past performance cannot guarantee future results.**

Value reversal?

If interest rates continue to rise, that could make growth stocks relatively less attractive because future earnings and cash flow are discounted at current rates, T. Rowe Price portfolio managers say. Rising rates also could benefit more value-oriented financial stocks because banks could earn more on loans than they pay for deposits.

Moreover, if rising rates reflect more robust economic growth, that could favor the more cyclical value sectors. Historically, however, an economic revival has not consistently signaled a value revival, says Mr. Mallet. "That can play a part," he says, "but a more consistent influence on when style regimes change are endogenous factors—namely market dynamics and valuations."

Indeed, investors have tended to pivot to value when the valuation gap between the styles has reached extremes and when concerns have risen that the growth leaders could not sustain their momentum. "Usually, growth just becomes too expensive and the fundamentals begin to peter out," Mr. Wagner says. "But I don't think we're there yet."

Mr. Wagner says it's not unusual for such reversals to catch investors by surprise, saying "sometimes those reversals in growth rates can be abrupt and you see these unexpected and rapid changes."

T. Rowe Price managers suggest that investors maintain a balanced approach—a posture the firm's Asset Allocation Committee adopted this year after favoring growth in recent years.

"It's unclear whether value or growth will be the better performer over the next year or two as we get late in the economic cycle," Mr. Finn says. "However, extreme periods of underperformance historically have been followed by periods of outperformance a high percentage of the time.

"One of the things we really strive to do is protect against the downside, so we make sure the companies we own reflect reasonable valuations.

"If there is a meaningful contraction in the market multiple, a value-oriented portfolio should hold up pretty well relative to the overall market."

Mr. Finn also encourages investors "not to mistakenly conflate the lagging of value indexes with the performance of certain active value managers. These companies typically have problems, but a disciplined value manager who can identify the issues and whether they are being addressed effectively can potentially generate attractive returns and complement a growth strategy." ■

Funds mentioned in this article did not own stock in Facebook, Amazon, Netflix, or Alphabet (Google's parent). All stocks are subject to market risk, including possible loss of principal. Value stocks' potential for price appreciation may be lower than that of growth stocks, and there is the possibility that a stock judged to be undervalued is actually appropriately priced.

INTERVIEW

Commodity Equities: Depressed But Still Offering Opportunities

Oil prices have risen but the long-term outlook is lower because of an overall global oversupply, manager believes.

T. Rowe Price has invested in natural resource equities since 1969, when it launched the New Era Fund. Shawn Driscoll joined the firm in 2006 and has served as the fund's portfolio manager since September 2013. In this interview, he explains why he believes the commodity down cycle that started in 2011 may last several more years, notwithstanding recent inflation concerns and the rally in energy and other commodity prices since the second half of 2017.

Q. Why should investors consider a natural resources strategy for part of their portfolio?

A. First, there always are opportunities to invest in quality companies benefiting from broader commodity trends, even in a depressed era for commodities. Investing in natural resources has historically provided an effective hedge against inflation—and also against deflation for that matter.

Natural resource equity performance also has tended to run somewhat counter to overall equity performance, so the sector can provide diversification and help offset weak performance in overall global equities. In addition, commodities can provide currency diversification because they have a negative correlation with the dollar. When the dollar has strengthened, commodities have tended to really struggle. But when the dollar has weakened, commodities have tended to do extraordinarily well.

Even when natural resources lag the overall market, we believe attractive performance can still be achieved. At the moment, we don't expect the energy sector to outperform broader equity markets for a sustained period, but there have been periods recently when we've seen energy prices and stocks increase in value due to a number of catalysts.

Q. For oil, what are these catalysts?

A. The recent rise in oil prices reflects strong global demand, production limits by the Organization of the Petroleum Exporting Countries (OPEC), political instability in Venezuela and the Middle East, and weather-related supply disruptions in the United States.

Prices also were boosted by the U.S. withdrawal from the Iran nuclear agreement, but that should be a short-term development. Iran's oil exports may drop by less than 500,000 barrels a day. That's only about two months of incremental U.S. production. We had much bigger supply disruptions in the 1980s and 1990s from Iran and Russia, which did not change the oil bear market at all during those decades. So, fundamentally, the Iran deal doesn't change our longer-term bearish outlook one iota.

While demand has been very strong recently, we've been in an overall global oversupply market for some time and remain so, driven by the surge in U.S. shale oil production and productivity gains. U.S. exploration and drilling have increased dramatically since mid-2016, and oil prices are above the level needed to encourage drilling new wells.

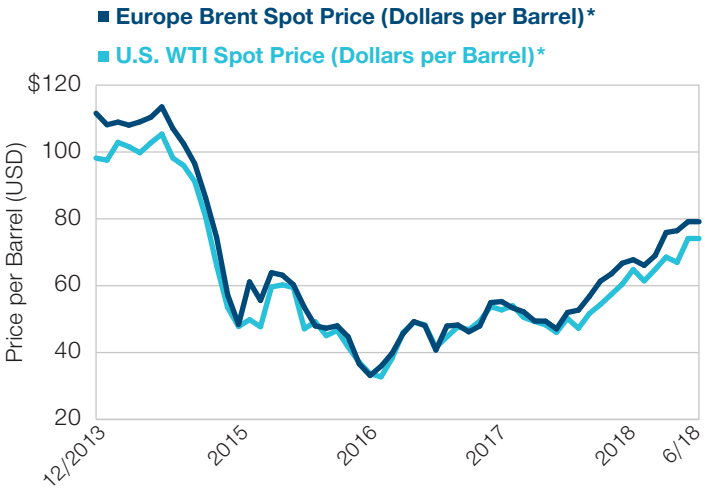
Q. So what is your long-term outlook for oil prices?

A. Some market participants expect a return to even higher oil prices, but we expect that prices for U.S. crude, or West Texas Intermediate, will average from $40 to $50 per barrel over the long term. That ultimately depends on the degree to which technological innovation in shale continues to improve productivity and compress drilling break-even costs. A lot of capital and technological innovation have been brought to bear in energy production, so the gains in productivity keep deflating the cost of oil production. We don't see that ending soon. And when you look at real oil prices over the past century, prices above $40 per barrel [in 2014 dollars] are considered unusual.

We also believe that estimates for U.S. production are too low. There are more than 7,000 drilled and uncompleted wells that are waiting to bring production online once temporary service bottlenecks have been resolved. Productivity continues to increase, and we expect the cost of production to continue

Figure 1 Oil Prices Rebounding After Steep Decline

U.S. and Global Prices, End of 2013 to June 30, 2018



*West Texas Intermediate (WTI) reflects the U.S. price for oil, and Brent crude spot price reflects the global oil price. Sources: FactSet Research Systems Inc. and T. Rowe Price. **Past performance cannot guarantee future results.**

falling. While OPEC remains committed to managing global supply via production limits, the longer oil prices remain at recent levels, the more incentive it provides to increase supply—particularly from North American shale.

When oil prices are above the incentive price to produce, it is very easy to saturate the market. Supply comes on, demand decelerates, and the next thing you know, you are at $40 per barrel. It would not surprise me if that happens in 2019. That's likely the future of oil.

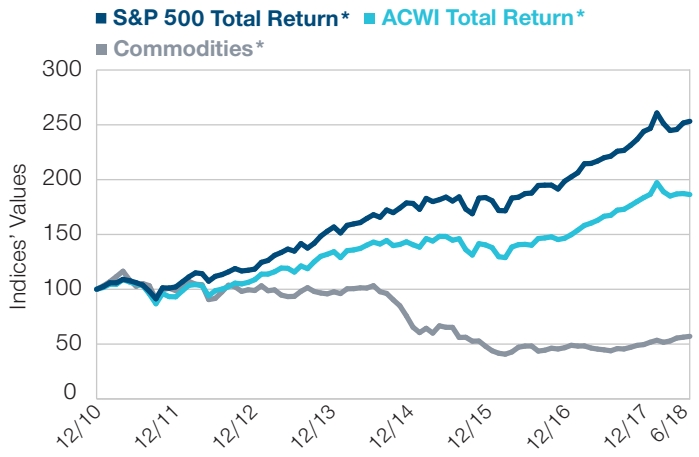
In fact, the United States now rivals Saudi Arabia and Russia as a leader in total global oil/liquids production. Our research shows that U.S. shale exploration and drilling costs are already down more than 30% from their peak. So we may be in a chronic oversupply condition for years.

Q. So far in this commodity cycle, an estimated 300 public and private energy companies in North America have filed for bankruptcy. Do you expect to see more?

A. We're probably not out of the woods, but near term it's hard to push companies into bankruptcy with oil at over $60 to $70 per barrel. A lot of balance sheets have been cleaned up, and some of the companies that went bankrupt are back with clean balance sheets. But we expect prices will go a lot lower, resulting in more bankruptcies. There is so much hidden leverage in the oil business that a company can build up debt very quickly.

Figure 2 Post-Supercycle Underpeformance

Return Indexed to 100, December 31, 2010–June 30, 2018



*Indices used are the S&P 500, MSCI All Country World (ACWI), and S&P Goldman Sachs Commodity. Source: T. Rowe Price. **Additional disclosures on page 24.**

Q. Beyond just oil, other commodity stocks have lagged the broader markets in the past five years as commodity prices collapsed. Energy also significantly lagged the broader market in the first quarter of 2018, but led in the second quarter. What is your longer-term commodities outlook?

A. Commodity cycles have historically lasted from 15 to 20 years, and the shortest down cycle was the 13-year period in the 1920s preceding the Great Depression. Within those periods, you can have short-term trading rallies spurred by cyclical distortions. But that doesn't change the longer-term fundamental outlook.

We believe that the commodity "supercycle"—a major up cycle—that started in 2000 ended in 2011, and we are still in the initial years of a secular down cycle, driven by a long-term imbalance between global supply and demand. Although opportunities in natural resources narrow when commodity prices trend lower and balance sheets are pressured, we are still able to find opportunities.

Q. So, where do you see these opportunities?

A. Overall, we have a modestly defensive posture with a focus on long-term growth and high quality through healthy balance sheets and low costs. Although our opportunity set has narrowed, we still find opportunities in select areas.

These areas include a wide range of companies: major integrated oil producers with strong financial and operating leverage; refiners poised for healthy margins as crude oil inventories grow and product inventories remain stable; commodity-related companies benefiting from low input costs and high-end market demand, including the specialty chemical and packaging industries; and regulated utilities that can maintain durable growth in a low-rate environment, particularly those delivering cheap natural gas.

They also include: companies with limited financial leverage; some utilities, chemicals, and metals industries with exposure to electric vehicles; and energy exploration and production companies with strong balance sheets that can reduce costs and maintain growth. The latter group, particularly, includes North American shale producers with operations in the Permian Basin in Texas.

The near-term environment presents challenges, but we believe the market will reward our disciplined and consistent investment approach over time. ■

Diversification cannot assure a profit or protect against loss in a declining market. The fund may underperform when economic growth is slowing and the level of inflation is low. Because of the cyclical nature of natural resource companies, their stock prices and rates of earnings growth may follow an irregular path. Natural disasters, declining currencies, market illiquidity, or political instability in commodity-rich nations could also have a negative impact on portfolio holdings.

MUNICIPAL BONDS

Muni Market Offers High Quality Amid Shrinking Supply

But there's stress from the unfunded pension liabilities of some tax-exempt bond issuers.

BY **HUGH MCGUIRK**, HEAD OF THE T. ROWE PRICE MUNICIPAL BOND TEAM

Although such troubled debt issuers as Puerto Rico and Illinois generate a disproportionate amount of headlines in the municipal bond market, we believe tax-exempt bonds remain a high-quality sector that offers attractive tax-equivalent yields.

However, investors should be aware of the stress that some issuers are facing from unfunded pension liabilities. And in the shorter term, tax reform has changed some of the supply and demand dynamics of the municipal bond market, though we expect technical factors to support muni results relative to taxable bonds.

Most states and municipalities have been fiscally conservative since the global financial crisis 10 years ago. Issuers generally have financed only critical projects and have increased spending at a much slower pace than before the crisis, and many have taken advantage of historically low interest rates to refinance existing debt.

As a result, the muni market is primarily investment grade, with more than two-thirds of its bonds having the two highest ratings, AAA or AA. Municipal bankruptcies have been rare historically, despite the attention generated by Detroit's bankruptcy proceedings in 2013 and Puerto Rico's decision to file for bankruptcy protection in 2017.

Moody's Investors Service studied bonds it rated over the period from 1970 to 2016 and found that the 10-year cumulative default rate for all rated municipal credits was 0.14%. In contrast, the cumulative default rate for all rated corporate issuers was 11.58% over the same time frame. (See Figure 1.)

At the same time, while state tax revenues have recovered in aggregate since the financial crisis, it's worth noting that fiscal conditions in the U.S. are uneven. Such states as Minnesota and North Dakota have experienced strong revenue increases, but 16 states had not returned to their previous revenue peaks by the fourth quarter of 2017 after adjusting for inflation, according to a study by the Pew Center on the States.

Pension liabilities

We are particularly concerned about the growing unfunded pension liabilities that some muni issuers face. Total unfunded public pension liabilities in the United States have grown by almost 20% per year over the past 10 years (See Figure 2.), and this pace will likely accelerate during the next recession. Although pension plans have benefited from a nine-year equity bull market, many jurisdictions continue to suffer from investment losses incurred during the financial crisis, insufficient plan contributions, and unrealistic return projections.

Some muni debt issuers have taken steps to control unsustainable legacy costs, but others appear unwilling or unable to address them.

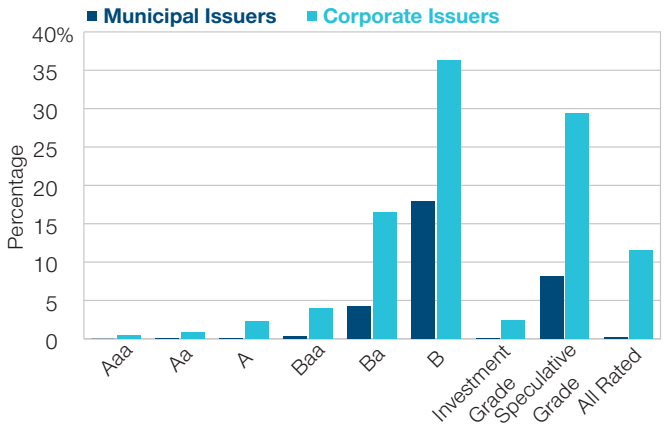
The situation in Illinois, which has the lowest credit rating of any state in the U.S., is notable. The state's legislature ended a two-year budget impasse in July 2017 but failed to solve many of its fiscal problems. Its unfunded pension obligation is valued at more than $130 billion, and contributions consistently fall below the level necessary to pay down this liability. The state must devote a growing portion of its annual budget to pension expenses, but reforming the state's pension plan to reduce its unfunded liability is made more difficult by state constitutional protections for pension benefits.

General obligation (GO) bonds, backed by an issuer's full faith and taxing power, traditionally have been considered the safest segment of the muni market. However, as pension stress continues to build, investors are likely to demand higher compensation to invest in states and cities that fail to address growing liabilities. Indeed, credit spreads—the yield premiums that investors pay for riskier debt—for bonds in Illinois and some other states with fiscal challenges have already widened.

Out of concern for these shortfalls, we have a preference for single-project revenue bonds. These securities, backed by

Figure 1 Municipal Bonds' Cumulative Default Rates

10-Year Average, 1970–2016, vs. Corporate Bonds



Source: Moody's Corporation.

specific revenue-generating assets, are relatively well insulated from pension funding concerns.

Moreover, the entities that issue revenue debt are less susceptible to the political dysfunction that can sometimes affect state and local governments. Credit spreads for revenue sectors, such as airports and hospitals, have tightened in recent years as the market has begun to recognize their relative advantages versus GOs.

While pension issues will play out over time, munis—like most fixed income sectors—will likely face headwinds from rising interest rates in the coming months. Tax-exempt bonds could perform well on a relative basis, though, as a result of favorable supply and demand factors.

Tax reform

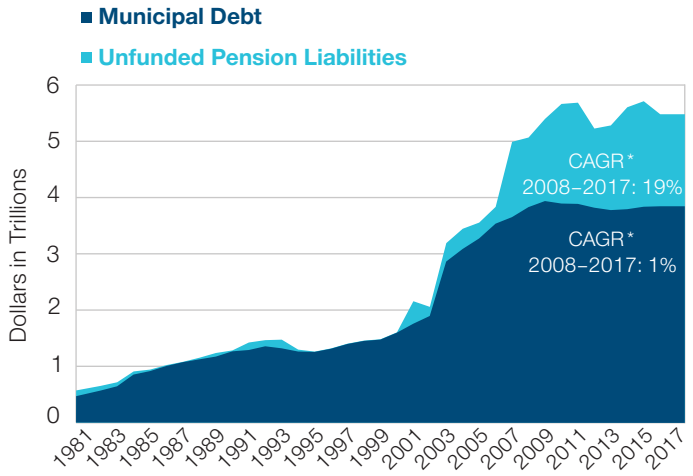
The tax reform legislation passed at the end of 2017 cut the highest tax bracket (including the net investment income tax) from 43.4% to 40.8%, but we expect favorable tax-equivalent yields to continue to support demand for munis.

As of June 30, a 30-year AAA muni bond was yielding 2.94%, and for an investor in the highest tax bracket this would equate to a 4.97% yield in the taxable market after accounting for federal taxes. In the current low-rate environment, obtaining that level of yield from a taxable bond investment would likely require taking on substantial credit risk.

We are still waiting to see how some other tax law changes affect demand for munis. The limits on the amount of state taxes that can be deducted could increase demand from such higher tax states as California and New York because some taxpayers may be aiming to lower their taxable income using munis. At the same time, lower corporate tax rates have reduced the attractiveness of owning munis for banks and insurers and could lead to selling by these institutions.

Figure 2 Unfunded Pension Liabilities Growing Rapidly

These Liabilities Were About $1.6 Trillion on December 31, 2017



*CAGR refers to compound annual growth rate. Source: Securities Industry and Financial Markets Association.

> **While pension issues will play out over time, munis—like most fixed income sectors—will likely face headwinds from rising interest rates in the coming months. Tax-exempt bonds could perform well on a relative basis, though, as a result of favorable supply and demand factors.**

Meanwhile, the impact of tax reform on the supply situation in the muni market has been substantial. Issuance in the first six months of 2018 dropped almost 20% from the same period last year and was well below historical averages.

Many states and municipalities accelerated a large amount of planned 2018 issuance into late 2017 amid concerns that the new tax law would no longer allow the tax-exempt issuance of private activity bonds, which can be used to fund such projects as hospitals and airports, as well as advance refundings (which allow issuers to refinance existing debt with new bonds). Ultimately, private activity issuers retained their ability to issue tax-exempt debt, but the new tax law eliminated advance refundings, a change that we expect to reduce muni market supply by 10% to 20%.

As a result, we expect the supply of bonds available in the muni market to shrink in 2018 as the amount of old bonds maturing exceeds the issuance of new securities. This should support muni performance in the near term and leaves tax-exempt bonds well positioned compared with U.S. Treasuries, which are expected to see increased issuance as the U.S. government takes on more debt. ■

Municipal bond yields and share prices will vary with interest rate changes. If interest rates rise significantly from current levels, bond fund total returns will decline and may even turn negative in the short term. Some income from tax-free bonds may be subject to state and local taxes and the federal alternative minimum tax.

NEW FUND

Market Wary? There's A New Way To Diversify And Put Cash To Work

The new Multi-Strategy Total Return Fund offers a diversified blend of alternative investments.

Stefan Hubrich

Rick de los Reyes

Potential solution

Given the relatively high valuations of both stocks and bonds, a common problem for many investors these days is how to diversify the risks of the equity and fixed income markets in a way independent of the directions of these markets.

The new T. Rowe Price Multi-Strategy Total Return Fund, launched in February, is a potential solution. It uses a range of distinct component strategies with low correlations to each other to pursue not only the benefits of diversification but also to potentially lower the overall level of portfolio risk, though capital preservation is not assured.

Over the long term, according to the new fund's prospectus, it targets a 5% return (before fees and expenses) above its cash benchmark, the BofA Merrill Lynch U.S. 3-Month Treasury Bill Index—a level of potential return similar to a blended stock-bond fund.

Co-managers Stefan Hubrich and Rick de los Reyes aim to do this by aggregating various sources of potential returns that have tended to perform independently of the moves of the broader equity and fixed income markets.

The fund may be attractive for investors who want to lower the volatility of their portfolios by building up their cash positions but who are dissatisfied with the current relatively low returns of cash instruments, such as Treasury bills or money market funds.

"If you're an investor who dislikes stocks and bonds enough to have chosen to move more money into cash—not because you need to pay a bill soon, but because you're not happy with the stock and bond markets' current risk/reward profile—this fund is designed to be a potentially better investment in terms of lowering the volatility of your portfolio without settling for the low returns of cash," Mr. Hubrich says.

While this combination of alternative strategies can serve as a long-term diversifier in a portfolio even when stocks and bonds are fairly valued, "now may be a particularly good time to consider this fund," adds Mr. de los Reyes:

"People are worried about stock valuations. They're also worried about interest rates being low and rising, potentially causing losses for bond market investors. So where do they put their money? One answer is in alternative strategies, where they can potentially get returns similar to a blended fund of equities and bonds with a focus on global exposure and lower volatility."

Capabilities and experience

The new fund builds on T. Rowe Price's extensive capabilities and experience in portfolio construction, trading, and risk management. It also leverages the firm's world-class global research platform of more than 500 investment professionals.

Each of the fund's six components is internally managed as an independent strategy by a dedicated team. (See Figure 1 on page 13.) Capital allocations among these strategies reflect an emphasis on regularly assessing and balancing risks, rather than simply maximizing returns—with the goal of maintaining diversification even as market conditions change. The component strategies are:

- **Macro and absolute return:** A flexible, "best ideas" portfolio that uses all of the firm's global research capabilities across equity, fixed income, and multi-asset to identify both macro and company-specific investment ideas.
- **Fixed income absolute return:** An absolute return-oriented income portfolio that seeks to generate consistent returns over those of cash.
- **Equity research long/short:*** A fundamental research-driven global large-cap equity market-neutral** strategy, driven by the research and views of the firm's equity analysts globally.
- **Quantitative equity long/short:** A diversified small- and mid-cap U.S. equity market-neutral strategy, driven by quantitative security selection.
- **Volatility relative value:** This strategy seeks to capture a relative value relationship between implied (market expectations) and realized (market results) volatility using the options market.
- **Style premia:** This focuses on return sources at the asset class or country level through long and short positions in equities, rates, and developed market currencies. It provides country-level exposure to such systematic factors as value, carry, and momentum, which can be fundamental in nature or behaviorally driven.***

This type of fund is commonly referred to as an absolute return fund and is not dissimilar to what is offered by some hedge funds in that it aims to be market neutral. But the Multi-Strategy Total Return Fund offers the lower costs, greater liquidity, and easy accessibility of a mutual fund.

Apart from the fixed income absolute return strategy, which has holdings identical to the firm's Global Dynamic Bond Fund, five of the components are not separately offered by T. Rowe Price at this time. But each of the six components and the fund's overall portfolio construction all are firmly grounded in the ongoing work being done by firm's longstanding and expanding global research platform.

"We're using existing capabilities," Mr. Hubrich says, "and we've just repackaged them in different ways to put more emphasis on hedging and risk management. The result is a diversified alternative portfolio that can augment a traditional portfolio of stocks, bonds, and cash." ■

**Long/short equity is an investment strategy that takes long positions in individual equity securities or derivatives that are expected to appreciate and short positions in those that are expected to decline. Long/short equity may have a directional long or short bias and is not necessarily managed to be market neutral; however, in this fund, it is managed to be market neutral.*

***Market neutral refers to a type of long/short strategy that sizes its long and short positions to minimize or eliminate exposure to broad market moves. These strategies can be particularly valuable diversifiers alongside portfolios dominated by market-dominated risks. Hedge funds commonly take a market-neutral position because they are focused on absolute versus relative returns.*

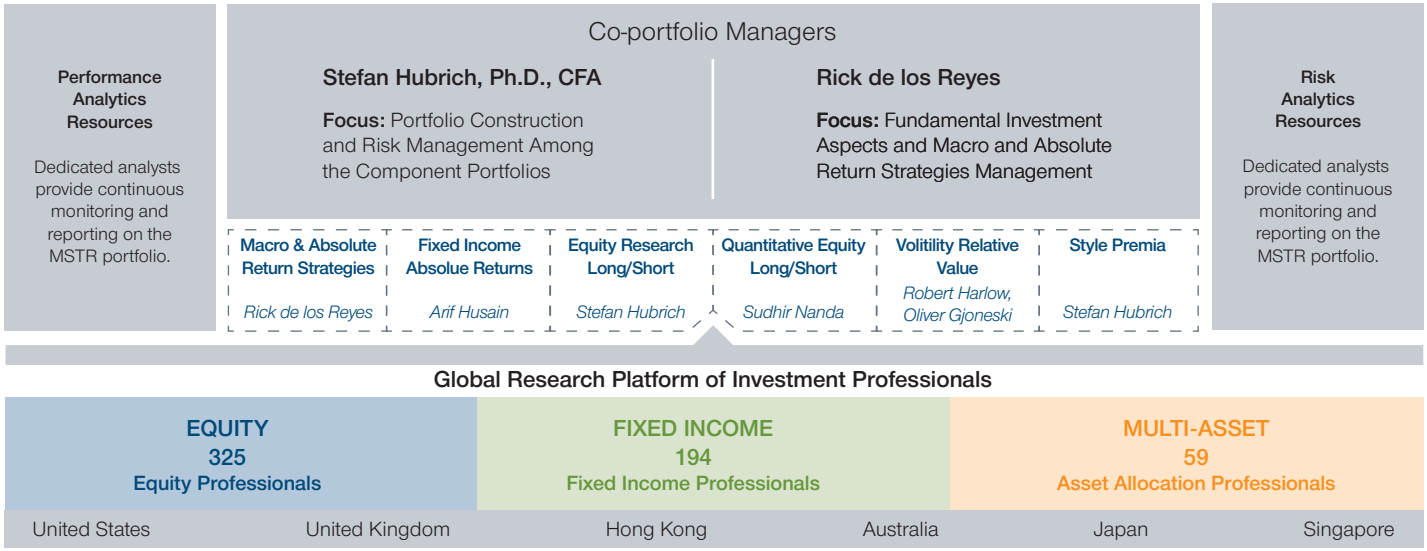
****Value aims to take advantage of the tendency of cheap assets to outperform relatively expensive ones. Carry refers to buying higher-yielding assets and selling lower-yielding assets. Momentum aims to take advantage of the tendency for an asset's relative performance to continue in the near future.*

All investments are subject to market risk, including the possible loss of principal. There is risk that the fund's investments will correlate with stocks and bonds to a greater degree than anticipated and that the risk models used to construct the portfolio may not achieve the desired results. The fund may underperform during up markets and be negatively affected in down markets. Diversification cannot assure a profit or protect against loss in a declining market.

International investments can be riskier than U.S. investments due to the effects of currency exchange rates; differences in market structure and liquidity; and specific country, regional, and economic developments. These risks are generally greater for emerging markets. Fixed income securities are subject to interest rate, inflation, and credit and default risk. As interest rates rise, bond prices usually fall, and vice versa. Derivatives may be more volatile than other types of investments because they can be more sensitive to changes in market or economic conditions; risks include currency, leverage, liquidity, index, pricing, and counterparty. Short sales are speculative transactions with potentially unlimited losses; use of leverage can magnify the effect of losses. All funds are subject to ongoing management fees and expenses.

Figure 1 Multi-Strategy Total Return Fund Investment Resources

As of June 30, 2018



RETIREMENT PLANNING

Into The Great Unknown: How Much Will Health Care Cost In Retirement?

Retirees should project their health-care costs beyond basic Medicare, though the complexity can be daunting.

BY **ROGER A. YOUNG, CFP®**,
SENIOR FINANCIAL PLANNER

Preretirees often are urged to engage in financial planning for their retirement, and a good first step is to get a firm handle on projected living expenses.

The trouble is, for many, calculating one of the biggest expenses they may face—their health-care costs—can be something of a wild card. At best, a range of likely costs can only be estimated.

Big medical cost unknowns, of course, stem from unpredictable changes in health and health-care insurance over potentially decades of retirement. As a result, out-of-pocket medical expenses—those not covered by insurance, as well as long-term care expenses—can vary widely among retirees.

Although the complexity can be daunting, understanding health insurance and medical expenses can help preretirees make financial plans with greater confidence.

Costs

Projecting medical costs in retirement starts with Medicare costs, for which eligibility starts at age 65. Potential costs are generally as follows:

- Medicare Part A, for hospital expenses. Free for most.
- Medicare Part B, medical insurance. Premiums vary with income.
- Medicare Part D, for drug expenses. Premiums vary with location and income.
- Medicare Supplemental Insurance (private Medigap policies), for some expenses not covered by Medicare. Premiums vary widely by plan type and other factors.
- Out-of-pocket expenses not covered by any insurance.
- Long-term care expenses.

Even for those in good health, total expenses largely vary as a result of the income-related differences in Medicare Part B premiums. Those with higher incomes—in 2018, individuals with annual incomes above $85,000—pay higher premiums. (See Figure 1.) While this affects less than 5% of Medicare enrollees,* it can be an important consideration.

Premiums for Medicare Part D, covering drug expenses, also can vary by location as well as income. The estimated national average annual premium is $650,** and income-related adjustments can be up to $898 per year. Even with Part D coverage, there typically are additional out-of-pocket expenses, such as copayments and coinsurance.

While 80% of Medicare participants do not opt for Medigap policies,*** those with the means to purchase them should certainly consider doing so. As the name suggests, these policies fill gaps in Medicare coverage. Annual Medigap premiums average about $2,400 a year,**** though they differ by plan type, location, and other factors.

Out-of-pocket expenses in retirement also can vary widely. Counterintuitively, people with additional private insurance, such as a Medigap policy, tend to spend a little more out of pocket than those relying on Medicare alone—perhaps because their health-care needs are greater. Median annual out-of-pocket payments for those age 65 and older (excluding long-term care) were $741 in 2014, but almost 20% of people spent at least $2,000.*****

(Note that the full range of options for health-care insurance in retirement is not addressed here, such as Medicare Advantage plans, Medicaid, employer-based retiree coverage, or the many exceptions to general rules around Medicare.)

Estimated total

Totaling the cost of coverage and expenses above, the bottom line is that many retirees could easily end up spending between

Figure 1 Annual Standard Medicare Part B Premiums, 2018[1]
Based on Modified Adjusted Gross Income (MAGI) in 2016

Individual MAGI	Married Filing Jointly MAGI	Annual Part B Premium (per Person)
$85,000 or Less	$170,000 or Less	$1,608
Above $85,000 Up to $107,000	Above $170,000 Up to $214,000	$2,250
Above $107,000 Up to $133,500	Above $214,000 Up to $267,000	$3,215
Above $133,500 Up to $160,000	Above $267,000 Up to $320,000	$4,180
Above $160,000	Above $320,000	$5,143

[1]These rates apply to many people, but rates can be lower for those in the lowest income range whose premiums are deducted from Social Security, due to a cap based on cost-of-living adjustments. The average annual premium in that case is $1,308. Source: Medicare.gov.

$5,500 and $11,000 a year in 2018 dollars on their health care. (See Figure 2.) For a couple, that could be from about $11,000 to about $22,000 a year.

(Medicare Advantage plans, not included in this discussion, combine Medicare Part B, Medigap, and sometimes Medicare Part D expenses and often can be cheaper.)

Remember that these are rough estimates with a wide range of possibilities. In preparing for retirement, individuals should consider many factors—among them, where they live, their overall health, their family medical history, their prescription drug requirements, and medical specialists needed.

Other estimates of retirement medical expenses, from sources other than T. Rowe Price, generally are in line with these estimated expenses, although they, too, can differ widely depending on the assumptions employed in their calculations.

Even before considering the potential for wide variances, the magnitude of estimated medical expenses in retirement often comes as a surprise to people after they stop working. Preretirees may find it's easier to focus on their housing, food, and transportation expenses more readily, even though it's possible that their health-care expenses may exceed one or more of those costs.

In any case, getting a clearer picture, however generalized, of potential health-care costs can be a big step forward in planning for a financially successful retirement—as it may lead preretirees to save more to cover health-care costs.

Accounts to invest that higher level of savings include individual retirement accounts (IRAs), Roth IRAs, workplace savings plans such as 401(k)s, and, particularly, health savings accounts (HSAs). Available to individuals enrolled in high-deductible health plans, HSAs have been increasingly popular due to their tax benefits.

Figure 2 Potential Annual Health-Care Costs in Retirement[1]

Per Person in 2018 Dollars, Excluding Long-Term Care

	Lower Earners, Median OOP	Middle of Five Income Ranges, Median OOP	Highest Earners, Top-Quintile OOP
Medicare Parts B and D Premiums	$2,250	$4,250	$6,700
+Out of Pocket (OOP)	$750	$750	$2,000
+Medigap Premium (Estimated Median)	$2,400	$2,400	$2,400
=Total, Excluding Long-Term Care	$5,400	$7,400	$11,100

[1]These are rough estimates with a wide range of possibilities as determined by a variety of factors.

As each of these options is subject to separate sets of tax, distribution, and estate rules, finding the right mix of savings vehicles requires planning as well.

Long-term care

All this is even before taking into account potential long-term care expenses, which have been excluded from the analysis outlined in Figure 2.

Long-term care can range across in-home assistance, assisted living environments, and full nursing home care. In general, most of these costs are not covered by Medicare, and Medicaid only comes into play after most of a person's resources are exhausted.

Some may never need long-term care. However, some may require multiple years of extensive and costly nursing care, which is a major financial risk.

Purchasing long-term care insurance is a possible way to shift this potential expense to an insurer, and there is a segment of relatively affluent retirees who theoretically could benefit from that. People at the low end of wealth typically can't justify or afford the expense, and high-net-worth individuals may be able to successfully self-insure—leaving people in the middle as those most likely to consider buying long-term care insurance.

At the same time, long-term care insurance premiums have risen sharply, and many insurers have retreated from the business. So caution is in order before purchasing this insurance.

Whether preretirees choose to manage all these financial risks through insurance, an investment portfolio, or some combination, it's important for them to make sure they're armed with knowledge of the health-care expense landscape. ■

**Social Security Administration, January 2017. **Jester Financial Technologies. ***Henry J. Kaiser Family Foundation, September 2016. ****Jester Financial Technologies. *****U.S. Agency for Healthcare Research and Quality, 2014.*

LAST WORD

"Adulting" Can Be More Challenging Without In-Depth Financial Education

And even with financial schooling, many young adults still say they feel unprepared for responsibilities.

Financial education can be a gift that keeps on giving—if it's adequate—T. Rowe Price's 10th annual Parents, Kids & Money Survey found.

This year's survey, which polled both parents of 8 to 14 year olds, and 1,000 young adults,* found that those who received some financial education in school are more likely to have good saving habits than those who did not receive any financial education in school.

"'Adulting' may be a bigger challenge for those who didn't receive any financial education at school or home as kids because they are less likely to have a budget, an emergency fund, and retirement savings," says Stuart Ritter, CFP®, a T. Rowe Price senior financial planner and father of three.

Mr. Ritter says that prior such surveys have found that most parents worry that they're not doing enough to prepare their kids to be financially competent by the time they reach adulthood. The solution, he says, is for "schools and parents to work together to help kids understand money matters."

Still, he says, financial education is often happening too late and with too narrow a focus. While of course some education is better than none, only 30% of young adults who had financial education report that they specifically learned about retirement saving.

Falling short

More details on the survey's findings:

- 88% of young adults who received financial education say they occasionally or frequently use it.
- Financial education in school is associated with better financial habits as an adult. Young adults who received it are more likely to have a budget (81% vs. 72%), to have an emergency fund (55% vs. 38%), and to have a retirement account (48% vs. 30%).
- But among young adults who received financial education in school, more say their financial habits have been influenced more by their parents than by school courses (34% vs. 8%).
- Overall, 64% of young adults report they were surprised by how little they knew about managing money when they started dealing with real-world finances. And even among those who took a financial education class, 53% say they didn't feel prepared for the financial responsibilities of adulthood.
- Financial education classes tend to only cover the basics, young adults say, such as banking (69%), simple budgeting (62%), credit and financing (60%), and interest (52%).
- Only 30% of young adults say these classes taught them about retirement savings.

"We know that many parents have some reluctance to discuss money matters with their kids," Mr. Ritter says. "There's an opportunity for parents and educators to have money conversations sooner and more consistently and to broaden that dialogue to include longer-term goals." ■

**The 10th annual T. Rowe Price Parents, Kids & Money Survey, conducted by Research Now, aimed to understand the basic financial knowledge, attitudes, and behaviors of both parents of kids ages 8 to 14 and young adults ages 18 to 24. The survey was fielded from January 16, 2018, through January 23, 2018, with a sample size of 1,013 parents and 1,000 young adults ages 18 to 24. The margin of error is +/- 3.1 percentage points. All statistical testing among subgroups (e.g., those who had financial education vs. those who did not) is conducted at a 95% confidence level. Reporting includes only findings that are statistically significant at this level.*

Figure 1 Financial Education Is Often Too Little, Too Late

53%

Of young adults who took financial education still feel unprepared for the financial responsibilities of adulthood.

78%

Of young adults who received financial education had it in the 12th grade or later.

30%

Of young adults who had courses dedicated to financial education reported learning about retirement savings.

Source: T. Rowe Price's 10th Annual Parents, Kids & Money Survey, January 16, 2018, through January 23, 2018.

U.S. Stocks Rise, Supported by Favorable Earnings and Economic Data

June 30, 2018

KEY POINTS

- U.S. equities were periodically volatile due to global trade tensions.
- The U.S. imposed tariffs on various imports from major trading partners, many of which retaliated or threatened to do so.
- The Federal Reserve raised rates in June, as expected, and projected two more rate increases this year.

EQUITY REVIEW

Domestic small-caps outperform; emerging equity markets struggle

Wilshire 5000 sector performance was mixed. Energy stocks outperformed as U.S. oil prices approached four-year highs. Consumer discretionary, real estate, and information technology shares also did well. Industrials and business services stocks fell as actual and threatened tariffs and a stronger dollar weighed on large exporters. Financials and consumer staples stocks also declined.

Stocks in developed non-U.S. markets underperformed U.S. shares amid weaker currencies versus the greenback. Asian markets were mixed, with Japanese shares falling 3% as the country's eight-quarter growth streak ended earlier this year. UK stocks rose 3%, but political upheaval in Italy and Spain weighed on other European bourses.

Emerging equity markets significantly underperformed amid broad currency weakness and as trade tensions between the U.S. and various trading partners threatened to hurt global growth. In dollar terms, Asian markets fell broadly. Emerging European markets declined across the board, with Turkish shares tumbling more than 25%. In Latin America, Brazilian shares fell more than 26%, in part, because a truckers' strike crippled commerce.

Figure 1 U.S. and International Stock Market Performance

Total Returns for Periods Ended June 30, 2018

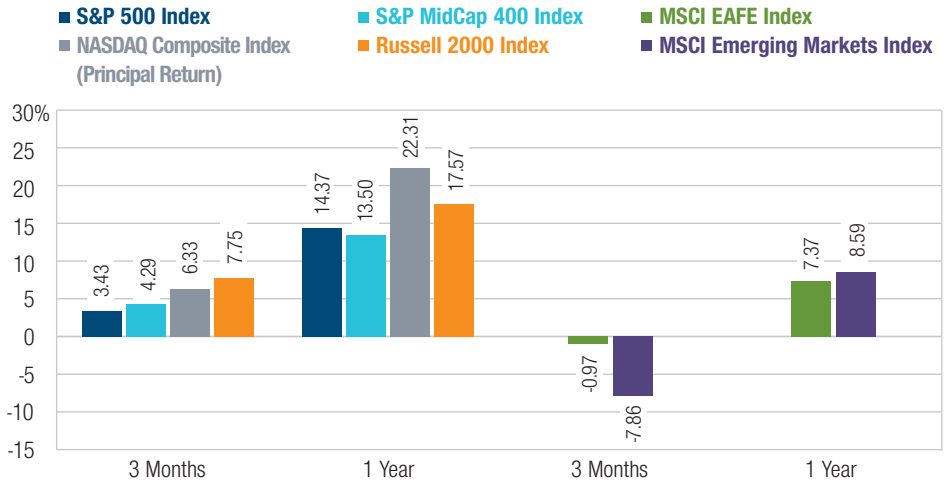
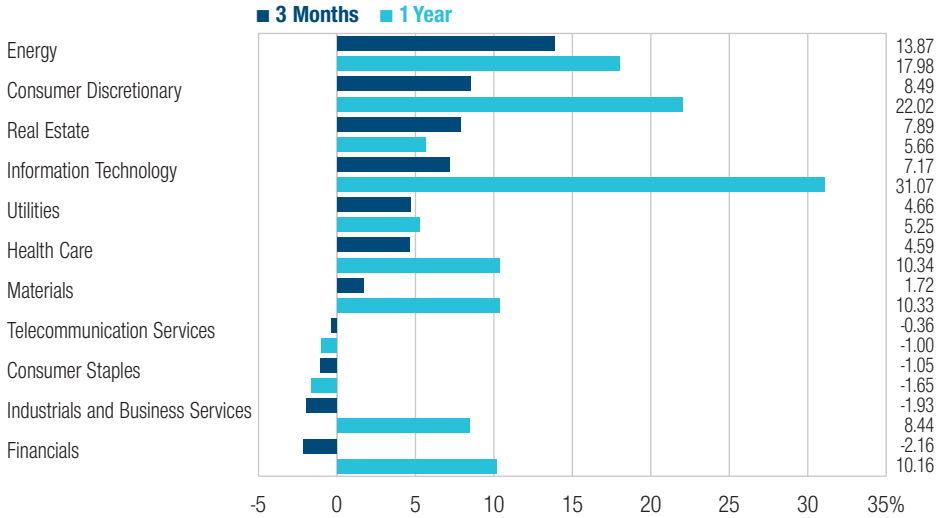


Figure 2 Performance of Wilshire 5000 Series

Total Returns for Periods Ended June 30, 2018



Ranked by highest to lowest quarterly returns.

FIXED INCOME REVIEW

U.S. bond returns were mixed; non-U.S. bonds fared poorly amid weaker currencies

In the Treasury market, shorter-term yields increased, but longer-term yields rose to a lesser extent. Investment-grade corporate bonds declined amid heavy supply. Mortgage- and asset-backed securities edged higher. Municipal securities outperformed taxable bonds, helped by limited issuance and strong demand. High yield bonds, which have less interest rate sensitivity than high-quality issues, outperformed.

In the eurozone, where the euro fell more than 5% versus the dollar, German bond yields declined, but Italian bond yields surged as the formation of a populist government in late May raised fears about increased government spending. In the UK, weak growth and easing inflation pressures led to reduced expectations for central bank rate increases in the months ahead. The pound fell almost 6%. Japanese interest rates were little changed; the yen slipped 4%.

Emerging markets bonds fared poorly, as general currency weakness prompted various central banks to raise short-term rates in an attempt to defend their currencies. Also, rising long-term rates in several countries hurt local bond market performance. Bonds denominated in local currencies performed much worse than dollar-denominated debt.

Figure 3 U.S. and International Bond Market Performance

Total Returns for Periods Ended June 30, 2018

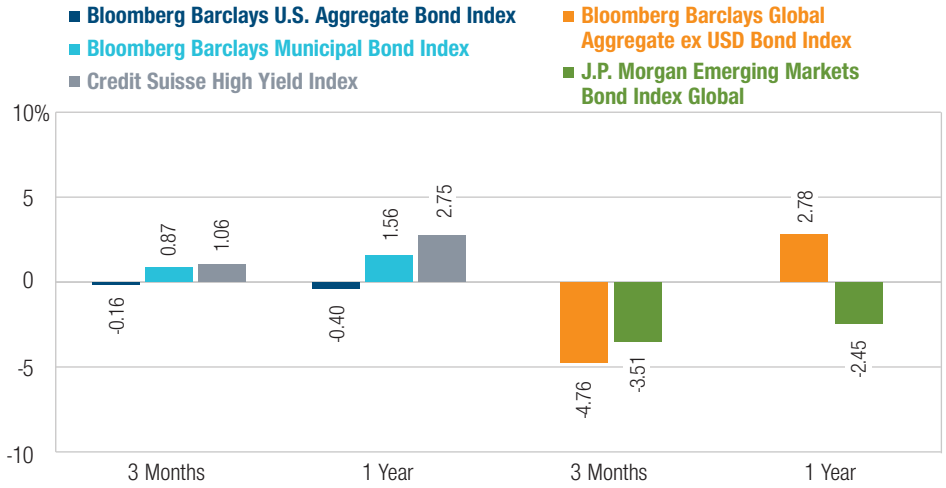
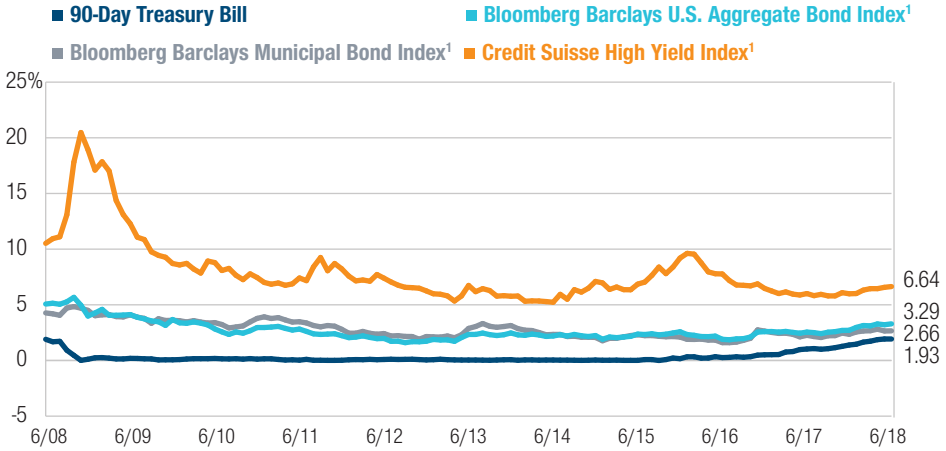


Figure 4 Trends in Interest Rates

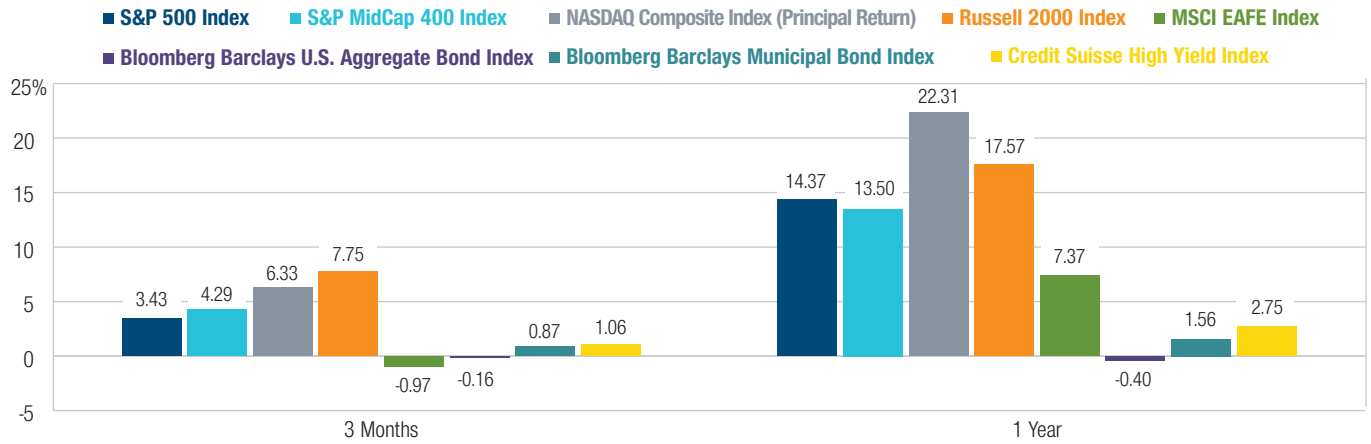
As of June 30, 2018



[1]Yield-to-worst

Figure 5 Stock and Bond Market Performance

Total Returns for Periods Ended June 30, 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	5.71%	27.84%	17.16%	18.76%	13.02%	6/30/93			**0.70%**	12/31/17
Capital Appreciation[2]	PRWCX	2.11	8.38	9.18	10.97	9.65	6/30/86			**0.71**	12/31/17
Capital Opportunity	PRCOX	3.58	15.09	12.47	13.75	10.17	11/30/94			**0.71**	12/31/17
Communications & Technology[3]	PRMTX	5.23	21.13	17.88	17.83	15.66	10/13/93			**0.78**	12/31/17
Diversified Mid-Cap Growth	PRDMX	3.02	16.93	10.82	13.92	10.47	12/31/03			**0.84**	12/31/17
Dividend Growth	PRDGX	2.38	10.82	10.98	12.31	9.76	12/30/92			**0.64**	12/31/17
Equity Income	PRFDX	1.79	9.51	9.36	9.48	8.42	10/31/85			**0.65**	12/31/17
Equity Index 500	PREIX	3.39	14.15	11.66	13.14	9.92	3/30/90	**0.5%**	**90 days**	**0.22**	12/31/17
Extended Equity Market Index	PEXMX	6.07	16.41	10.18	12.53	10.74	1/30/98	**0.5**	**90 days**	**0.35**	12/31/17
Financial Services	PRISX	0.95	13.25	10.06	12.61	10.23	9/30/96			**0.85**	12/31/17
Growth & Income	PRGIX	2.41	10.82	11.00	12.90	9.48	12/21/82			**0.66**	12/31/17
Growth Stock	PRGFX	5.87	22.92	15.52	17.62	12.21	4/11/50			**0.67**	12/31/17
Health Sciences	PRHSX	6.31	15.32	5.11	18.52	17.19	12/29/95			**0.77**	12/31/17
Mid-Cap Growth[2]	RPMGX	0.91	14.37	11.23	14.88	12.03	6/30/92			**0.76**	12/31/17
Mid-Cap Value[2]	TRMCX	3.97	11.85	10.34	12.18	10.80	6/28/96			**0.79**	12/31/17
New America Growth	PRWAX	5.70	23.68	15.52	17.48	12.43	9/30/85			**0.79**	12/31/17
New Era	PRNEX	6.13	14.91	5.62	3.80	-1.74	1/20/69			**0.69**	12/31/17
New Horizons[2]	PRNHX	8.25	28.35	16.49	17.56	16.07	6/3/60			**0.78**	12/31/17
QM U.S. Small-Cap Growth Equity	PRDSX	5.54	18.76	11.06	14.60	12.67	6/30/97	**1.0**	**90 days**	**0.79**	12/31/17
QM U.S. Small & Mid-Cap Core Equity	TQSMX	3.79	13.54	—	—	18.98	2/26/16	**1.0**	**90 days**	**1.61†**	12/31/17
QM U.S. Value Equity	TQMVX	0.15	9.57	—	—	15.86	2/26/16			**2.46†**	12/31/17
Real Assets	PRAFX	4.39	9.08	5.82	4.74	3.75	7/28/10	**2.0**	**90 days**	**0.82**	12/31/17
Real Estate	TRREX	7.56	4.01	6.78	8.12	7.78	10/31/97	**1.0**	**90 days**	**0.73**	12/31/17
Science & Technology	PRSCX	5.65	28.06	21.71	21.79	14.30	9/30/87			**0.80**	12/31/17
Small-Cap Stock[2]	OTCFX	6.65	18.20	11.73	12.82	12.99	6/1/56			**0.89**	12/31/17
Small-Cap Value	PRSVX	6.01	14.10	13.08	11.51	10.25	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		4.86	21.95	12.95	15.32	10.57					
Returns after taxes on distributions		—	21.08	12.62	14.76	10.28					
Returns after taxes on distributions and sale of fund shares		—	13.52	10.09	12.23	8.70					
Total Equity Market Index	POMIX	3.71	14.18	11.43	13.09	10.15	1/30/98	**0.5**	**90 days**	**0.30**	12/31/17
U.S. Large-Cap Core	TRULX	2.36	10.72	11.03	13.14	14.61	6/26/09			**0.79†**	12/31/17
Value	TRVLX	-0.05	7.19	7.82	10.91	9.53	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	3.43%	14.37%	11.93%	13.42%	10.17%
S&P MidCap 400 Index	4.29	13.50	10.89	12.69	10.78
NASDAQ Composite Index (Principal Return)	6.33	22.31	14.62	17.15	12.60
Russell 2000 Index	7.75	17.57	10.96	12.46	10.60
Lipper Indexes					
Large-Cap Core Funds	3.09	13.07	10.87	12.10	9.02
Equity Income Funds	1.85	8.64	8.84	9.99	8.27
Small-Cap Core Funds	6.01	15.45	10.75	11.75	10.05

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	-8.05%	9.72%	0.29%	5.47%	-1.13%	9/4/07	**2.0%**	**90 days**	**1.54%**	10/31/17
Asia Opportunities	TRAOX	-2.47	12.66	10.11	–	10.77	5/21/14	**2.0**	**90 days**	**1.72†**	10/31/17
Emerging Europe	TREMX	-12.34	6.33	6.01	-3.02	-6.20	8/31/00	**2.0**	**90 days**	**1.63**	10/31/17
Emerging Markets Stock	PRMSX	-8.65	11.54	8.72	7.18	2.36	3/31/95	**2.0**	**90 days**	**1.23**	10/31/17
Emerging Markets Value Stock	PRIJX	-9.15	7.32	–	–	12.73	9/14/15	**2.0**	**90 days**	**2.35†**	10/31/17
European Stock	PRESX	-1.07	4.71	1.75	5.69	4.22	2/28/90	**2.0**	**90 days**	**0.96**	10/31/17
Global Consumer	PGLOX	2.08	10.01	–	–	12.08	6/27/16			**3.15**	12/31/17
Global Growth Stock	RPGEX	1.75	17.67	11.57	12.85	16.30	10/27/08	**2.0**	**90 days**	**1.10†**	10/31/17
Global Industrials	RPGIX	-2.83	7.49	8.33	–	6.82	10/24/13			**2.12†**	12/31/17
Global Real Estate	TRGRX	3.10	4.51	4.25	5.52	11.39	10/27/08	**2.0**	**90 days**	**1.08†**	12/31/17
Global Stock	PRGSX	3.06	20.59	15.22	16.48	7.09	12/29/95	**2.0**	**90 days**	**0.84**	10/31/17
Global Technology[2]	PRGTX	2.10	22.52	23.24	26.77	19.32	9/29/00			**0.89**	12/31/17
International Concentrated Equity	PRCNX	-2.85	0.58	5.19	–	3.07	8/22/14	**2.0**	**90 days**	**2.35†**	10/31/17
International Discovery[2]	PRIDX	-0.36	18.21	12.46	13.04	8.64	12/30/88	**2.0**	**90 days**	**1.19**	10/31/17
International Equity Index	PIEQX	-2.30	6.29	5.07	6.37	2.91	11/30/00	**2.0**	**90 days**	**0.45**	10/31/17
International Stock	PRITX	-2.40	6.26	5.78	7.67	4.23	5/9/80	**2.0**	**90 days**	**0.82**	10/31/17
International Value Equity[5]	TRIGX	-4.15	0.85	1.44	4.55	2.25	12/21/98	**2.0**	**90 days**	**0.83**	10/31/17
Japan	PRJPX	-1.08	18.72	14.41	11.98	5.97	12/30/91	**2.0**	**90 days**	**0.98**	10/31/17
Latin America	PRLAX	-20.04	-4.03	3.25	-1.83	-3.65	12/29/93	**2.0**	**90 days**	**1.31**	10/31/17
New Asia	PRASX	-4.15	9.94	7.91	8.12	8.55	9/28/90	**2.0**	**90 days**	**0.93**	10/31/17
Overseas Stock	TROSX	-1.60	7.79	5.39	7.12	3.88	12/29/06	**2.0**	**90 days**	**0.83**	10/31/17
QM Global Equity	TQGEX	-0.32	9.52	–	–	12.36	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	-0.97%	7.37%	5.41%	6.93%	3.33%
Lipper Averages					
Emerging Markets Funds	-8.85	6.10	4.68	4.12	2.02
International Large-Cap Core Funds	-2.32	6.04	3.51	5.43	2.59
International Large-Cap Growth Funds	-1.75	7.41	5.08	6.34	3.32
International Small/Mid-Cap Growth Funds	-2.06	12.45	8.30	9.47	6.16

[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	0.86%	1.78%	3.09%	4.15%	4.67%	9/15/86			**0.54%**	2/28/18
Georgia Tax-Free Bond	GTFBX	0.64	1.36	2.44	3.52	4.12	3/31/93			**0.59**	2/28/18
Intermediate Tax-Free High Yield	PRIHX	0.89	2.68	3.36	–	3.46	7/24/14	**2.0%**	**90 days**	**1.15†**	2/28/18
Maryland Short-Term Tax-Free Bond	PRMDX	0.47	0.03	0.51	0.64	1.12	1/29/93			**0.63**	2/28/18
Maryland Tax-Free Bond	MDXBX	0.69	1.62	2.82	3.58	4.40	3/31/87			**0.47**	2/28/18
New Jersey Tax-Free Bond	NJTFX	0.96	2.16	3.09	3.79	4.33	4/30/91			**0.57**	2/28/18
New York Tax-Free Bond	PRNYX	0.75	1.31	2.80	3.73	4.20	8/28/86			**0.54**	2/28/18
Summit Municipal Income	PRINX	0.77	2.14	3.17	4.14	4.84	10/29/93			**0.50**	10/31/17
Summit Municipal Intermediate	PRSMX	0.61	0.65	2.17	2.88	3.83	10/29/93			**0.50**	10/31/17
Tax-Free High Yield	PRFHX	1.00	3.36	4.22	5.19	5.44	3/1/85	**2.0**	**90 days**	**0.71**	2/28/18
Tax-Free Income	PRTAX	0.79	1.90	2.78	3.72	4.44	10/26/76			**0.53**	2/28/18
Tax-Free Short-Intermediate	PRFSX	0.53	-0.06	0.88	1.14	2.26	12/23/83			**0.51**	2/28/18
Virginia Tax-Free Bond	PRVAX	0.69	1.72	2.81	3.69	4.30	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	-1.02%	-1.32%	2.52%	3.44%	5.29%	10/31/95			**0.60%**	5/31/17
Credit Opportunities	PRCPX	0.58	2.47	4.10	–	2.00	4/29/14	**2.0%**	**90 days**	**1.50†**	5/31/17
Floating Rate	PRFRX	0.32	3.12	3.45	3.47	3.72	7/29/11	**2.0**	**90 days**	**0.77†**	5/31/17
GNMA[7]	PRGMX	0.22	-0.23	0.96	1.71	3.22	11/26/85			**0.59**	5/31/17
High Yield[2]	PRHYX	0.07	1.60	4.40	5.01	7.34	12/31/84	**2.0**	**90 days**	**0.74**	5/31/17
Inflation Protected Bond	PRIPX	0.76	2.10	1.52	1.32	2.61	10/31/02			**0.58†**	5/31/17
Limited Duration Inflation Focused Bond	TRBFX	0.51	1.13	0.74	0.41	1.35	9/29/06			**0.50†**	5/31/17
New Income	PRCIX	-0.34	-0.42	1.69	2.26	3.93	8/31/73			**0.55**	5/31/17
Short-Term Bond	PRWBX	0.32	0.40	0.99	1.00	2.01	3/2/84			**0.46**	5/31/17
Total Return	PTTFX	0.01	0.94	–	–	2.23	11/15/16			**1.72†**	5/31/17
Ultra Short-Term Bond	TRBUX	0.59	1.75	1.52	1.15	1.02	12/3/12			**0.44†**	5/31/17
U.S. Bond Enhanced Index	PBDIX	-0.04	-0.38	1.79	2.29	3.76	11/30/00	**0.5**	**90 days**	**0.30**	10/31/17
U.S. High Yield[8]	TUHYX	0.33	2.70	–	–	2.87	5/19/17	**2.0**	**90 days**	**4.68†**	5/31/17
U.S. Treasury Intermediate[7]	PRTIX	-0.08	-1.65	0.41	0.97	3.05	9/29/89			**0.52**	5/31/17
U.S. Treasury Long-Term[7]	PRULX	0.41	-0.48	3.06	3.85	5.60	9/29/89			**0.51**	5/31/17

Figure 12 Benchmarks

Bond	3 months	1 year	3 years	5 years	10 years
Bloomberg Barclays U.S. Aggregate Bond Index	-0.16%	-0.40%	1.72%	2.27%	3.72%
Bloomberg Barclays Municipal Bond Index	0.87	1.56	2.85	3.53	4.43
Credit Suisse High Yield Index	1.06	2.75	5.47	5.45	7.76
Lipper Averages					
Short Investment Grade Debt Funds	0.29	0.58	1.12	1.16	2.04
Core Bond Funds	-0.25	-0.52	1.60	2.14	3.67
GNMA Funds	0.12	-0.56	0.55	1.40	3.10
High Yield Funds	0.51	2.01	4.10	4.32	6.51
Short Municipal Debt Funds	0.48	0.69	0.72	0.71	1.32
Intermediate Municipal Debt Funds	0.77	1.07	2.10	2.59	3.44
General & Insured Municipal Debt Funds	0.90	1.93	2.86	3.56	4.16

[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	-0.94%	-0.38%	1.36%	—	1.84%	1/22/15			**0.63%**	12/31/17
Emerging Markets Bond	PREMX	-5.66	-4.15	4.98	4.05%	5.94	12/30/94	**2.0%**	**90 days**	**0.92†**	12/31/17
Emerging Markets Corporate Bond	TRECX	-2.31	-0.36	4.09	4.21	4.64	5/24/12	**2.0**	**90 days**	**1.44†**	12/31/17
Emerging Markets Local Currency Bond	PRELX	-11.56	-3.30	1.78	-1.59	-1.22	5/26/11	**2.0**	**90 days**	**0.99†**	12/31/17
Global High Income Bond	RPIHX	-0.83	1.79	5.31	—	6.08	1/22/15	**2.0**	**90 days**	**1.13**	12/31/17
Global Multi-Sector Bond	PRSNX	-1.28	1.06	3.70	3.64	6.46	12/15/08			**0.81†**	5/31/17
International Bond	RPIBX	-6.05	1.62	3.00	0.75	1.65	9/10/86	**2.0**	**90 days**	**0.67**	12/31/17
International Bond (USD Hedged)	TNIBX	-1.09	—	—	—	1.26	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	-4.76%	2.78%	3.23%	0.88%	1.76%
J.P. Morgan Emerging Markets Bond Index Global	-3.51	-2.45	4.33	4.42	6.50
Lipper Averages					
Emerging Market Hard Currency Debt Funds	-5.29	-2.20	3.47	2.47	5.56
International Income Funds	-3.84	0.69	2.19	1.57	3.40

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	0.73%	0.36%	0.19%	0.52%	0.23%	0.14%	0.16%	9/15/86	**1.17%†**	7/1/18
Maryland Tax-Free Money◊	TMDXX	1.03	0.67	0.25	0.68	0.26	0.16	0.19	3/30/01	**0.86**	7/1/18
New York Tax-Free Money◊	NYTXX	0.94	0.61	0.22	0.58	0.25	0.15	0.18	8/28/86	**1.04†**	2/28/18
Summit Municipal Money Market◊	TRSXX	1.05	1.05	0.25	0.71	0.32	0.20	0.22	10/29/93	**0.45**	10/31/17
Tax-Exempt Money◊	PTEXX	1.07	0.93	0.26	0.76	0.33	0.20	0.21	4/8/81	**0.54**	7/1/18
Taxable[10]											
Cash Reserves◊‡[11]	TSCXX	1.73%	1.73%	0.40%	1.14%	0.51%	0.31%	0.31%	10/29/93	**0.45%**	10/31/17
Government Money‡*	PRRXX	1.50	1.50	0.34	0.95	0.37	0.23	0.25	1/26/76	**0.44**	5/31/17
U.S. Treasury Money‡	PRTXX	1.53	1.53	0.35	0.95	0.37	0.23	0.17	6/28/82	**0.42**	5/31/17

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

*Formerly the T. Rowe Price Prime Reserve 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.

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.*

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

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	0.95%	8.55%	7.28%	8.70%	7.34%	12/31/39			**0.64%**	12/31/17
Global Allocation	RPGAX	-0.24	6.93	6.32	7.45	6.52	5/28/13			**1.19†**	5/8/18
Multi-Strategy Total Return	TMSRX	-1.39	–	–	–	-1.00	2/23/18			**1.50**	2/23/18
Personal Strategy Balanced	TRPBX	0.50	8.54	7.35	8.54	7.61	7/29/94			**0.87**	5/31/17
Personal Strategy Growth	TRSGX	0.88	11.28	8.79	10.36	8.30	7/29/94			**0.88**	5/31/17
Personal Strategy Income	PRSIX	0.05	5.84	5.72	6.50	6.41	7/29/94			**0.75**	5/31/17
Retirement 2005	TRRFX	0.15	4.34	4.85	5.61	5.63	2/27/04			**0.58**	5/31/17
Retirement 2010	TRRAX	0.22	4.94	5.27	6.20	5.92	9/30/02			**0.57**	5/31/17
Retirement 2015	TRRGX	0.40	5.88	5.88	7.10	6.47	2/27/04			**0.59**	5/31/17
Retirement 2020	TRRBX	0.44	7.02	6.64	8.06	6.98	9/30/02			**0.63**	5/31/17
Retirement 2025	TRRHX	0.57	8.04	7.27	8.89	7.38	2/27/04			**0.67**	5/31/17
Retirement 2030	TRRCX	0.73	8.99	7.88	9.61	7.76	9/30/02			**0.69**	5/31/17
Retirement 2035	TRRJX	0.84	9.75	8.29	10.14	8.02	2/27/04			**0.72**	5/31/17
Retirement 2040	TRRDX	0.88	10.37	8.62	10.52	8.26	9/30/02			**0.74**	5/31/17
Retirement 2045	TRRKX	0.97	10.67	8.81	10.64	8.32	5/31/05			**0.74**	5/31/17
Retirement 2050	TRRMX	0.90	10.64	8.82	10.63	8.31	12/29/06			**0.74**	5/31/17
Retirement 2055	TRRNX	0.96	10.62	8.79	10.63	8.30	12/29/06			**0.74**	5/31/17
Retirement 2060	TRRLX	0.99	10.70	8.81	–	7.59	6/23/14			**0.74**	5/31/17
Retirement Balanced	TRRIX	0.35	4.78	4.79	5.33	5.37	9/30/02			**0.56**	5/31/17
Retirement Income 2020	TRLAX	0.46	6.86	–	–	6.54	5/25/17			**2.81**	12/31/17
Spectrum Growth	PRSGX	1.42	13.18	10.16	11.77	8.86	6/29/90			**0.78**	12/31/17
Spectrum Income	RPSIX	-1.30	1.05	3.64	3.70	5.18	6/29/90			**0.65**	12/31/17
Spectrum International	PSILX	-3.20	6.77	5.07	6.87	4.22	12/31/96	**2.0%**	**90 days**	**0.91**	12/31/17
Target 2005	TRARX	0.00	3.94	4.57	–	5.03	8/20/13			**1.35**	5/31/17
Target 2010	TRROX	0.09	4.26	4.71	–	5.24	8/20/13			**0.92**	5/31/17
Target 2015	TRRTX	0.09	4.58	4.93	–	5.62	8/20/13			**0.67**	5/31/17
Target 2020	TRRUX	0.33	5.53	5.47	–	6.31	8/20/13			**0.69**	5/31/17
Target 2025	TRRVX	0.33	6.28	6.02	–	7.03	8/20/13			**0.77**	5/31/17
Target 2030	TRRWX	0.48	7.22	6.71	–	7.82	8/20/13			**0.83**	5/31/17
Target 2035	RPGRX	0.55	7.97	7.24	–	8.48	8/20/13			**0.98**	5/31/17
Target 2040	TRHRX	0.61	8.81	7.75	–	9.01	8/20/13			**1.06**	5/31/17
Target 2045	RPTFX	0.68	9.38	8.09	–	9.40	8/20/13			**1.23**	5/31/17
Target 2050	TRFOX	0.81	9.95	8.41	–	9.75	8/20/13			**1.55**	5/31/17
Target 2055	TRFFX	0.89	10.48	8.66	–	9.98	8/20/13			**2.17**	5/31/17
Target 2060	TRTFX	0.95	10.64	8.73	–	7.53	6/23/14			**5.40**	5/31/17

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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