T. Rowe Price
REPORT
INSIGHTS ON INVESTING AND FINANCIAL TOPICS

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Despite Geopolitical Risks, Emerging Asia Forges On

Its stock markets have been leading the world this year, and T. Rowe Price portfolio managers say developing Asia's outlook is bright.

Unexpected rebound

Following President Trump's election last November, emerging markets in Asia faced an ominous outlook.

The region already was burdened by years of disappointing earnings growth and revived fears of a collapse in China's economy and currency. Now its markets were confronted with potentially protectionist U.S. trade policies, a strengthening dollar that sunk many Asian currencies to multiyear lows, and the U.S. Federal Reserve's commitment to raising interest rates—developments that could impede Asian economic growth and capital investment.

After a sell-off toward the end of 2016, however, emerging Asian markets unexpectedly rebounded.

Through September of this year, the MSCI All Country Asia ex Japan Index rose 31% (in U.S. dollars), reaching the highest level in almost two years. Such major markets as China, India, Taiwan, and South Korea gained more than 20%—though the recovery has been tempered by the recent rise in tensions with North Korea.

These markets have generally been buoyed by several developments: more stable economies in the region, especially China's; low global interest rates; a more gradual approach by the Fed than expected; relatively attractive stock valuations; a recently weakening dollar; and government reforms in several countries that are gaining traction. Also, a damaging protectionist U.S. trade policy seems less likely.

Most of all, managers say improving earnings and cash flows—along with a pickup in global trade that has helped exporters—have been key catalysts for the revival. Indeed, improving fundamentals are outweighing significant geopolitical risks.

Profits

"You're seeing profit margins stabilizing or improving and topline revenues continuing to grow," says Eric Moffett, manager of the Asia Opportunities Fund. "Many Asian companies initiated massive investment programs in the 2000s, but the money was poorly invested.

"Today, companies have finally adjusted to the slower growth environment we've seen in Asia since 2011," he adds. "Companies in the region, and particularly in China, have found capex [capital expenditures] discipline. Free cash flow in the region is absolutely booming, leaving more cash to deleverage, to pay down debt, or to share with shareholders via dividends or buying back shares.

"This is partly why investors, particularly foreign investors, have gone from being extremely bearish on the region to becoming more optimistic and why the markets have done well."

Anh Lu, manager of the New Asia Fund, also notes that even with the recent gains, "valuations in Asia as a whole relative to

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the rest of the world are still more attractive. And real interest rates in Asia, while not high, are not as low as most other markets, so that provides a little cushion. Economic growth has slowed from what it was historically, but it's still better than in other parts of the world."

Of course, the heightened tensions over North Korea's nuclear missile threat have recently cast a dark shadow over these positive developments. So far, as of the end of September, markets more or less have taken that threat in stride after a modest setback in August—though volatility has risen.

China stabilizing

A significant factor in the emerging Asia rebound: Fears of a collapse in China's economy and currency have receded over the past year as both have stabilized with more government stimulus.

"Domestic demand in the mainland has stayed resilient, and many sectors and companies are expanding strongly," Mr. Moffett says. "Sentiment in the country both by investors and companies has improved remarkably."

Chris Kushlis, a fixed income sovereign analyst for Asia, says "the risks of a Chinese crisis have notably subsided and the economy has improved on the back of significant policy support. Foreign exchange reserves are once again slowly rising as efforts to stem capital outflows have been largely successful.

"As long as China's central bank can ensure ongoing liquidity and is not constrained by significant capital outflows, then the risk of a financial crisis in China is modest, in our view."

Ms. Lu adds: "China has a very deep market now, so even if macro conditions moderate, there are enough good companies to invest in that we can always find potential moneymaking ideas in China."

Moreover, the opportunity set for U.S. investors has expanded with China's volatile domestic A-share market, dominated by individual Chinese investors, recently opening to foreign investment. MSCI will add A-shares to its main emerging market index next summer.

"Some of the bigger blue chip companies in that market are actually very high quality," Mr. Moffett says. "Interestingly, they are not that expensive because local retail investors find the companies that just slowly grind and grow every year boring. We think some can be great companies over the long term."

At the same time, investors remain concerned about China's dependence on government spending to sustain growth and its rising debt, which has pushed its debt-to-gross domestic product ratio to record levels recently.

Mr. Kushlis says that, while growth of leverage in the corporate sector has slowed, he remains concerned about those risks and off-balance sheet borrowings by local governments.

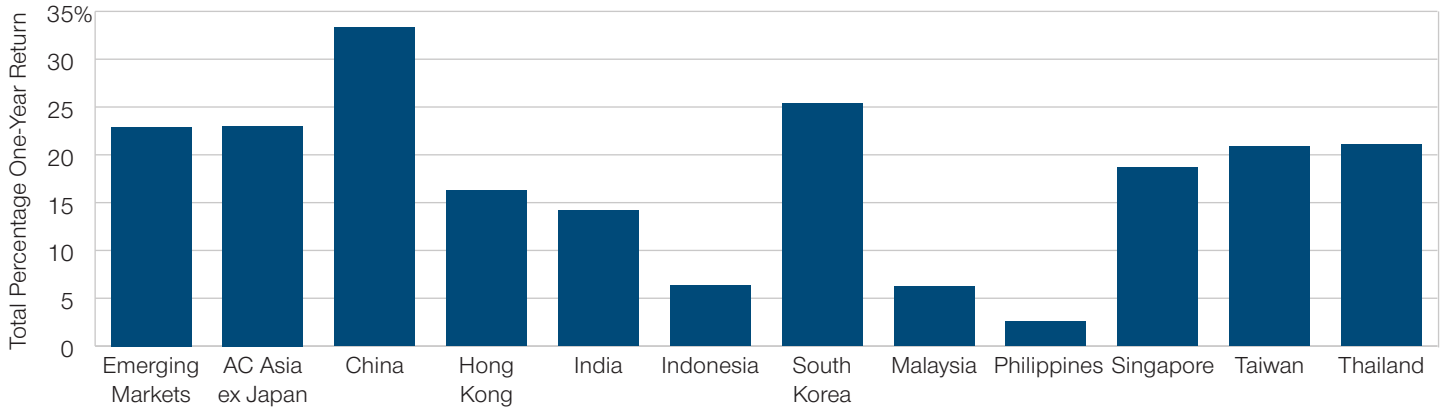
Longer term, Mr. Kushlis worries that "China's failure to deal more decisively with its financial and leverage risks and its continued reliance on infrastructure stimulus are eroding growth potential. We expect China to continue to maintain a high level of debt, muddling through over the coming years, with growth slowly declining over an extended period."

India reforming

India's market surge this year has been driven by strong corporate earnings and optimism about structural reform. The Indian economy seems to have weathered the government's unexpected

Figure 1 Most Asia Ex-Japan Equity Markets Have Provided Strong Returns Over the Past Year

Percentage Gains From Sept. 30, 2016, Through Sept. 30, 2017



MSCI indexes used: Emerging Markets, AC Asia ex Japan, China, Hong Kong, India, Indonesia, South Korea, Malaysia, Philippines, Singapore, Taiwan, and Thailand.
Additional disclosures on page 24. Past performance cannot guarantee future results.

demonetization measure last November in which large-denomination bank notes were withdrawn and replaced to ensure the integrity of the country's monetary system.

The most recent elections in India and progress on the long-overdue nationwide goods and services tax (GST) legislation also boosted confidence that Prime Minister Narendra Modi will advance his reform agenda, which focuses on corruption, housing, ease of doing business, improving governance of banks, and containing inflation.

> **Long term, we're just very struck by how strong the potential is for the region to grow, and it's not over-owned by investors. So there is a lot of opportunity for Asia ahead.**

"In India all the stars are aligned now," Mr. Moffett says. "You have a strong leader pushing through really big reforms in the economy, most recently the GST; low commodity prices, a boon for a country that's an importer of oil and other resources; very favorable demographics; and an economy that in many ways is uncorrelated with the rest of Asia."

Ms. Lu agrees that India's "government is moving in the right direction, but progress has been slow. What we need to see in India is for the capex cycle to pick up. Most of it is supported by government spending. We're not really seeing private capital being put to work."

While the outlook for India overall remains positive, stock valuations have become more challenging. "It's hard to say that we can find value easily," Ms. Lu says, "but we believe the companies we hold will continue to deliver expected earnings."

South Korea resilient

So far, South Korea's stock market and economic recovery, boosted by improving earnings and exports, has remained on track despite the escalating North Korean threat, along with the country's domestic political turmoil.

That turmoil has included the impeachment of President Park Geun-hye, the indictment of the heir to one of the country's largest conglomerates, and a standoff with China—its largest trading partner—over the deployment of a U.S.-built anti-missile defense system.

T. Rowe Price managers say the North Korean military threat is difficult to handicap, but some are generally taking a more cautious stance toward South Korean equities and bonds.

However, they are encouraged by new President Moon Jae-in's focus on and the progress made in South Korean corporate governance.

"A lot of the biggest companies that historically have not done a good job of allocating capital and sharing cash with shareholders are becoming much more shareholder friendly," Mr. Moffett says. "Over recent years, many of the largest conglomerates have seen a generational change in leadership."

That progress could continue, Ms. Lu says, because there is still a lot of excess cash on corporate balance sheets. Moreover, as Mr. Moffett notes, "by some measures, [South] Korea is the cheapest market in the world today."

Risks

Aside from the continuing concerns about North Korea, the firm's managers agree that the policy outlook for China poses a major risk for the region and beyond.

Chinese President Xi Jinping is expected to solidify his power at the party congress this fall and possibly pursue tougher reforms to reduce leverage in the economy and overcapacity.

"This is a chance for China to really address its structural problems," Ms. Lu says. "Global investors will be watching to see in what direction policy veers. That's the biggest risk and opportunity over the next year."

Mr. Moffett says early signs suggest that the reform pace is not going to slow and could quicken next year, dampening growth.

Longer term, Mr. Kushlis believes a faster-than-expected downturn, an unintended credit crunch resulting from a crackdown on financial risk, and a revival in capital outflows remain key risks for China and the broader region.

Other risks in Asia include: a still-possible move toward protectionism in U.S. trade policy, a faster-than-expected pace of Fed tightening, the overall pace and scale of global growth, a sharp reacceleration of the Chinese economy, any retrenchment on reform efforts, and an unexpected strengthening of the dollar.

Although volatility is expected to increase in the coming months, managers remain optimistic for the region in the intermediate and longer term, citing the upturn in earnings and return on capital, relatively attractive valuations, improving corporate governance and government reforms, economies that are handily outpacing the developed world, and favorable demographics.

Also, China no longer is considered to be on the precipice of a financial crisis, though more structural reforms are needed for a successful transition to lower, but higher-quality, growth.

"Long term, we're just very struck by how strong the potential is for the region to grow," Mr. Moffett says, "and it's not over-owned by investors. So there is a lot of opportunity for Asia ahead." ■

The risks of international investing are heightened for securities of issuers in emerging market countries. Emerging market countries tend to have economic structures that are less diverse and less mature and political systems that are less stable than those of developed countries.

SMALL-CAP STOCKS

Declining Number Of Traded U.S. Equities Impacts Small-Caps

Result: a structural deterioration in the quality of firms in small-cap indices.

BY **FRANK ALONSO**, MANAGER OF THE T. ROWE PRICE SMALL-CAP STOCK FUND

KEY POINTS

- **The steady decline in the number of publicly traded U.S. companies has created challenges, particularly for small-cap stock investors.**
- **Small-cap stock indices have experienced a structural deterioration in quality, reflected in the number of companies with negative earnings and lower returns on equity and invested capital.**
- **The sluggish pace of initial public offerings in recent years has failed to offset the loss of attractive smaller companies in the public market.**
- **The reduction in quality and liquidity of companies included in the small-cap indexes amid relatively high valuations poses significant risks for passive investors.**
- **T. Rowe Price small-cap equity managers take a disciplined approach to identifying opportunities within the diminishing number of reasonably priced quality companies.**

The stock market's impressive gains in recent years have masked a less encouraging trend: The number of public companies has been cut by more than half over the past two decades. This incredibly shrinking stock market poses challenges for investors, particularly those investing in small-cap stocks.

The number of public companies in the Wilshire 5000 Total Market Index—widely regarded as the best single tally of the U.S. equity market—has fallen from a peak of 7,562 in July 1998 to just 3,465 as of June 2017. The Wilshire 5000 has not included 5,000 stocks since the end of 2005.

Not only are fewer public companies issuing shares, the total number of shares traded on the market has declined. Record-low interest rates and slow economic growth have encouraged companies to buy back their own shares, further reducing the availability of equity shares that remain public.

The shrinking opportunity set also can be traced to several other trends: increased mergers and acquisitions (M&A) activity and private-equity deals, increased regulation, the rise of shareholder activism, a significant decline in recent years in the number of companies going public, and a number of corporate failures.

The low cost of capital and paucity of economic growth also have motivated M&A deals. Aided by low interest rates, larger companies have been buying out smaller ones at hefty premiums in an effort to meet growth targets. Strategic buyers are not the only buyers; private-equity funds have ample capital to deploy as well.

Motivation also exists on the sellers' side. An increased regulatory burden and the compliance costs stemming from the Sarbanes-Oxley Act of 2002 have dampened the desire to go—or remain—public. The ongoing cost of being a publicly held company—including legal, compliance, and technology expenses—can approach $10 million. That would be a rather daunting hurdle for a company with $300 million in revenue, for example, and perhaps only $25 million to $30 million in profits.

The rise of activism by hedge funds and other investors putting pressure on management to achieve better results is encouraging some public companies to sell out to private investors and discouraging private companies from going public. Corporate leaders don't want to subject themselves to such scrutiny, especially when they can often obtain money to expand elsewhere.

IPO decline

As more public companies are acquired, there has been a dearth of new initial public offerings (IPOs) to replace them. IPO activity has fallen by more than half since peaking in the late 1990s and has seen a steady decline in recent years.

This decline in IPO activity has been partially fueled by a surge in venture capital investment in recent years, which has enabled startups to expand and attain access to capital while avoiding the scrutiny and transparency of the public market. By the time some firms go public, they already have grown beyond the reach of small-cap managers.

Reflecting these developments, the median age of companies executing an IPO has increased from 7.8 years during the period from 1976 through 1996 to 10.7 years in the 1997–2016 period, a 37% increase, according to Credit Suisse. Meanwhile, as of August 2017, there were 120 U.S.-based so-called unicorns—venture-backed startups valued at more than $1 billion—compared with 40 in 2013, according to PitchBook, a company that tracks global venture capital, private-equity, and merger and acquisitions activity.

Falling quality

The shrinking equity market has had a disproportionate impact on the small-cap Russell 2000 Index. While the index is rebalanced annually in June to include 2,000 names, the companies added to the index in recent years have tended to be smaller, more illiquid, and of lower quality than the firms they replaced.

The index includes older names that have been there for years, as well as some that have fallen out of the mid- and large-cap universes. This has masked a steady increase in lower-quality firms populating the bottom tier of the Russell 2000 companies.

As illustrated in Figure 1, about one-third of the companies in the index have not earned money in the past 12 months, a level normally only seen in recessions. Companies with negative earnings are more likely to struggle to generate the cash needed to maintain solvency internally and may need to raise capital by increasing leverage or issuing additional stock to fund their operations.

Meanwhile, debt levels, as measured by debt-to-equity ratios, have risen over the past decade. Returns on equity and invested capital of the companies in the Russell 2000 today also are dramatically lower than they were 20 years ago.

While active portfolio managers may look more skeptically at the lower-quality members of the index, passive products such as exchange-traded funds and index funds have been the natural buyers of their shares, aided by the flood of money into passive products. This has helped drive up the shares of mediocre companies as much as, and sometimes even more than, those of their stronger competitors, posing significant risk for passive investors.

That risk is magnified by relatively high valuations for small-cap stocks. At the end of July 2017, the forward price/earnings ratio on the Russell 2000 Index stood at 25.2x, well above the historical average. In the next sustained market downturn, passive products seeking to sell to fund outflows may have trouble finding buyers for the lower-quality, less liquid stocks in the rush to the exits.

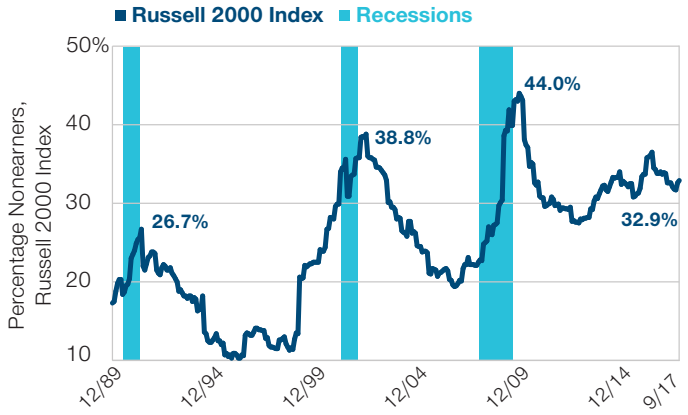
Finding quality

Of course, this shrinkage in number and overall quality of the small-caps amid higher valuations also poses challenges for active investors who are trying to separate the wheat from the chaff and not overpay for it.

In this environment, small-cap equity managers have remained disciplined in their approach to identifying reasonably priced, quality companies with strong management teams that generate above-average, persistent free cash flow.

Figure 1 Growing Prevalence of Small-Cap Nonearners

Russell 2000 Index Companies With Available Data



Source: Strategas Research Partners. **Additional disclosures on page 24.**

> **While active portfolio managers may look more skeptically at the lower-quality members of the index, passive products such as exchange-traded funds and index funds have been the natural buyers of their shares, aided by the flood of money into passive products.**

We remain confident that our focus on higher-quality small-caps may provide some downside protection in a potential downturn and that our fundamental and patient approach may prove rewarding over time.

In the core-oriented portfolio of the Small-Cap Stock Fund, we continue to apply a contrarian investment philosophy while remaining style agnostic, investing in both growth and value stocks.

By focusing on the magnitude and durability of a company's growth trajectory, we may find growth stocks that appear expensive today but look more reasonable considering the outlook in three to five years. In value situations, we typically seek companies facing challenges that we view as transitory. By taking a longer view, we can invest in quality companies when short-term issues cause their stock prices to dip and reap the rewards if those issues are resolved.

While investing in small-cap stocks has become more challenging, we are fortunate to benefit from a broad and deep team of equity research analysts—and the firm's experience from investing in smaller companies that has spanned almost six decades—to ferret out the most attractive opportunities in a shrinking market. ■

Small companies tend to have less experienced management, unpredictable earnings growth, and limited product lines, which can cause their share prices to fluctuate more than those of larger firms.

BREXIT UPDATE

For UK, Negative Impact Of EU Divorce Delayed But Likely Not Avoided

Meanwhile, investors in the UK have been surprised by how well the economy has done.

BY **QUENTIN FITZSIMMONS**, FIXED INCOME PORTFOLIO MANAGER

KEY POINTS

- **Investors who were underweight investments in the United Kingdom immediately following last summer's referendum have been surprised by how well the UK economy has held up since the vote. However, we believe the negative economic impact of Brexit has been delayed rather than avoided.**
- **Our base case is that, barring a major political change of course in the UK during the next year or so, a "hard-ish" Brexit is the most likely outcome.**
- **A prolonged period of economic uncertainty is likely to follow the UK's exit from the European Union.**

More than a year has passed since the British electorate voted to leave the European Union (EU), but we are hardly any closer to understanding how the separation will be managed or what will follow.

Although formal Brexit discussions between the British government and Brussels have finally begun, there is a very long way to go before an agreement over the terms of the UK's departure is likely to be reached—if there is an agreement at all. While the politics remain complicated, the likely economic impact of Brexit can be estimated with more confidence—and as investors, this is ultimately what matters most.

In our view, the UK faces a very challenging few years as the country deals with its departure from the EU.

Investors who adopted an underweight position on the UK immediately following last summer's referendum have been surprised by how well the UK economy has held up since the vote. However, we believe the economic impact of Brexit has been delayed rather than avoided and will probably begin to be felt later this year.

Our concern is that with the Bank of England (BoE) having reached the end of credible easing and with a move to higher interest rates now more likely, the fiscally constrained government will have limited ability to protect the economy.

"Hard-ish" Brexit

The result of June's UK general election has complicated matters.

Prime Minister Theresa May called the election in order to strengthen the ruling Conservative Party's majority in parliament and ease the way for any new Brexit-related legislation; her failure to deliver this was both a shock and a major setback for the government.

As the head of a minority government, Mrs. May is considerably weaker than she was before the election, making her task of negotiating with the EU and passing any subsequent legislation at home much more difficult.

There are signs of this already as Mrs. May's cabinet is reportedly divided between those who favor a post-Brexit "transition deal" with the EU to ensure a smoother path to the UK's ultimate departure and those who continue to support a quick "hard Brexit."

Our base case is that, barring a major political change of course in the UK during the next year or so (which is possible given the vulnerability of the government), a "hard-ish" Brexit is still the most likely outcome, meaning the country falls upon World Trade Organization (WTO) terms soon after March 2019, if not immediately.

This would have major repercussions. The UK already is a member of the WTO but operates through the EU. Negotiating new schedules would be complicated, so the UK would likely choose, instead, to simply keep them exactly as they are currently under the EU's common external tariff. However, this might be seen as politically embarrassing given that the supposed reason for leaving the EU in the first place was to take back control.

Our concern is that with the Bank of England (BoE) having reached the end of credible easing and a move to higher interest rates now more likely, the fiscally constrained government will have limited ability to protect the economy.

More problematic is that if the UK were to leave the EU but keep the common external tariff in place, a company moving components between the UK and the EU would incur charges every time it crossed a border.

In addition, the EU's existing "tariff-rate quotas," which allow a certain amount of particular goods to enter at a cheaper rate, would need to be individually reviewed to determine how each

quota would be divided between the EU and the UK. Negotiations to iron out these complications are likely to be highly contentious, making the process of reestablishing the UK as an independent WTO member very complex and time-consuming.

Economic reality

It is almost certain that the UK's economy will suffer a slowdown if it falls suddenly upon WTO terms in March 2019. What is less clear is how severe that slowdown will be and how long it will last.

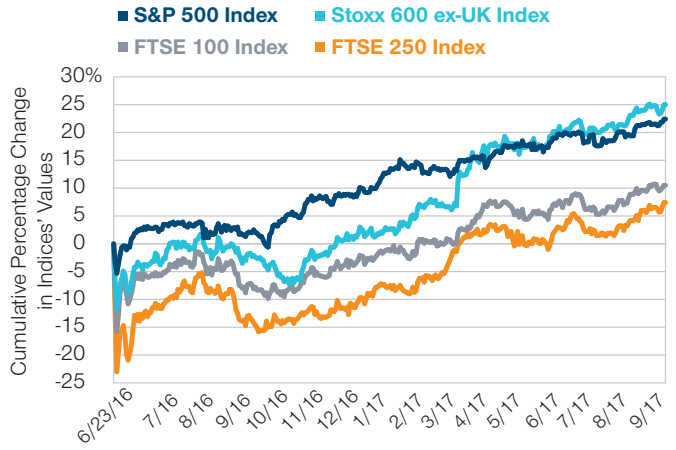
Given the complications associated with rejoining the WTO as an independent member, however, it is reasonable to assume that a prolonged period of economic uncertainty would follow the UK's exit from the EU, possibly exacerbated by a wider global economic slowdown.

Indeed, there is evidence that the economic effects of Brexit are already being felt:

- Net investment is now virtually negligible in terms of its contribution to the UK's gross domestic product.
- Households, which account for 66% of the UK economy, are also squeezed. Wage growth is tracking around 2.1% while inflation is around 2.9%, so there is a negative disposable income dynamic at work.
- This fall in disposable income has been registered in weaker retail sales and profit warnings from major UK chains.

Figure 1 UK Stocks Have Lagged After the Brexit Vote

In U.S.$ Terms, UK Stocks Versus U.S., European Stocks



Indices' cumulative returns are in U.S. dollar terms. Indices used: S&P 500 Index, Stoxx 600 ex-UK Index (of large-, mid-, and small-cap European stocks), FTSE 100 Index (of the 100 largest companies listed on the London Stock Exchange), and FTSE 250 Index (of the next 250 largest London-listed stocks after the FTSE 100). **Additional disclosures on page 24.**
Source: T. Rowe Price.

Declining consumption and investment will put enormous pressure on the public sector. UK sovereign bond yields plummeted following the Brexit vote but have risen again since the autumn. Yields are likely to rise further, while the British pound could weaken significantly.

Bank of England

In the event of a sharp economic slowdown, what tools would the UK have at its disposal to stimulate growth? In line with many other central banks, the BoE is edging toward tightening measures, meaning that rate cuts or further quantitative easing are highly unlikely.

> **It is difficult to predict with confidence the likely direction of talks between the UK and the EU over Brexit—media reports tell a different story every day.**

Given this, the next viable option would be to explore fiscal measures, such as arranging for the BoE to underwrite government debt. In other words, the government could fund such major infrastructure programs as the High Speed 2 rail link by issuing zero coupon bonds directly to the central bank, which would pay for them with newly printed money.

The BoE likely would promise never to sell the bonds or withdraw the money it created from circulation, and there is a strong possibility that this monetization would never be repaid.

This would be "helicopter money" in all but name—and it could become reality in the UK if the economic aftershocks of Brexit are severe enough. But helicopter money carries its own risks, including uncontrolled inflation, political instability, and the erosion of central bank independence. Therefore, it likely would only be used as a last resort.

Caution

It is difficult to predict with confidence the likely direction of talks between the UK and the EU over Brexit—media reports tell a different story every day. What can be predicted with more confidence is that the UK economy will take a hit when the country leaves the EU, especially if this coincides with a global economic slowdown.

A transitional deal may ease the pain for businesses, but as things stand it seems more likely that the UK leaves the EU with either a deal that provides it with significantly reduced access to the single market or, in the worst-case scenario, no deal at all. ■

International investing involves risks, including market, political, and currency risks.

MULTI-ASSET INVESTING

Finding Solutions To Reach Investing Goals With Multi-Asset Funds

Portfolio construction balances potential returns relative to risk tolerance.

AN INTERVIEW WITH **SEBASTIEN PAGE**, HEAD OF GLOBAL MULTI-ASSET AT T. ROWE PRICE

Sebastien Page is head of Global Multi-Asset at T. Rowe Price, overseeing a team of investment managers, analysts, and researchers dedicated to a broad set of multi-asset portfolios. He is a member of the firm's Asset Allocation Committee, which is responsible for tactical investment decisions across asset allocation portfolios. He also is a member of T. Rowe Price Group's Management Committee. Prior to joining the firm in 2015, Mr. Page was an executive vice president at PIMCO, where he led a team focused on research and development of multi-asset solutions. In this interview, he discusses the importance and role of the asset allocation process.

Q. What is asset allocation?

A. Broadly defined, it's the process of investing across multiple asset classes—stocks, bonds, and alternatives. The process typically is done from the top down, meaning it's focused on portfolio construction, on how you put the pieces together. Multi-asset investing also includes alpha generation [potential gains above benchmarks] through security selection across asset classes—for example, looking for relative value between the stock and a bond issued by the same company. Diversification, of course, is central to the process.

At T. Rowe Price, asset allocation essentially involves three sets of capabilities. First is long-term strategic portfolio design: constructing a portfolio that potentially gives you the highest expected return for the exposure to loss that you are willing to bear. Next is tactical asset allocation, which looks at the relative valuations of various asset classes over a 6- to 18-month horizon, their momentum, and various macro and market factors to make adjustments around the strategic design—aiming to add value over time.

The third component is security selection: We allocate to actively managed strategies because we believe our portfolio managers in equities and fixed income can deliver alpha over time, and we're increasingly developing strategies that select securities across asset classes and actively look for relative value across all markets globally.

Q. Multi-asset strategies now hold more than a quarter of the assets managed by T. Rowe Price. Why have investors been increasingly seeking these vehicles for their retirement, college, and other long-term savings?

A. They're seeking solutions to the problem of investing throughout their life cycles, and multi-asset funds offer a professionally managed solution to building a diversified portfolio. More and more, even individual investors are thinking in terms of their future liabilities—for example, the need to generate a certain level of retirement income or to fund college expenses. Those are future liabilities that drive how investors should allocate their assets to various investments over time.

There's no passive way of doing that. Investors have to make a choice. So, increasingly, they are outsourcing these asset allocation problems to managers who offer such convenient vehicles as the T. Rowe Price target date funds or college savings plans.

Q. With all the available offerings, how do investors decide on which multi-asset fund is best for them?

A. Investors and their advisers should look for investment firms that offer a breadth of investments and that have demonstrated that they have a repeatable process. You want a stable investment model that's not placing concentrated bets and that's done well over a long time horizon.

Then investors should ask themselves what their goals are and what their risk tolerance is. For individual retirement account investors who want advice on this, we recently launched the T. Rowe Price® ActivePlus Portfolios,* which use simple online questions to recommend model portfolios.

Q. How do target date funds address the behavioral challenges of investing?

A. The behavioral aspects of target date funds are very important. We believe they reduce implementation risks for investors.

For one thing, target date investors tend to be buy and hold investors. They do not overreact to market events, and that's been shown to be beneficial. So, in a sense, these funds may help investors avoid making some common mistakes, such as selling right after market declines. Moreover, these funds are well diversified, and they reduce equity exposure as investors

This section of the Price Report focuses on multi-asset investing—including additional articles on pages 10–15 about:

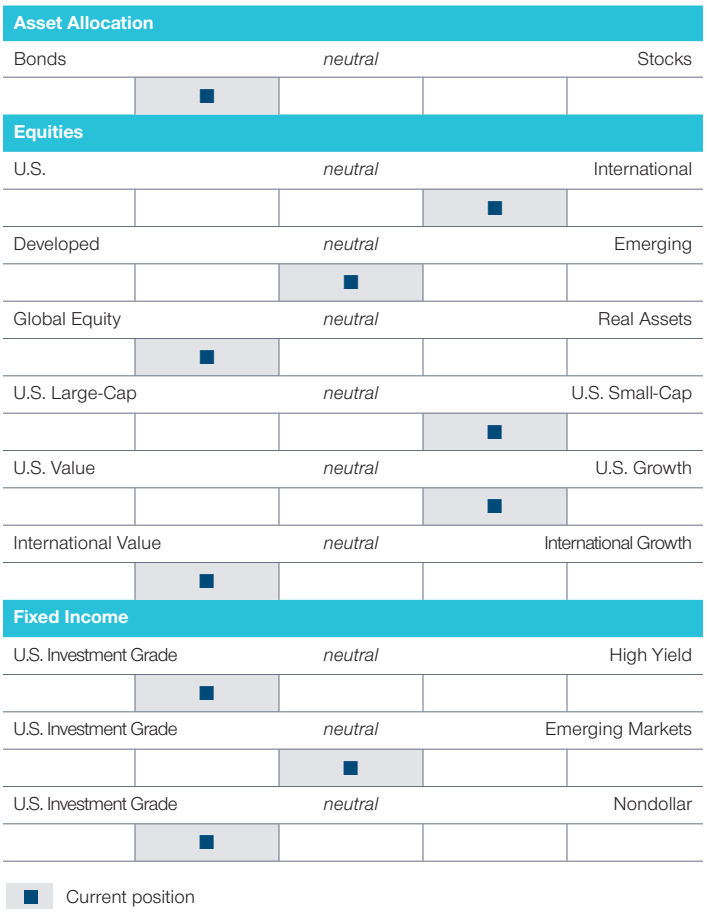
- **Dynamic fixed income allocations**
- **Less volatility via hedged international bonds**
- **Real assets and TIPS to counter inflation**
- **The new Retirement Income 2020 Fund**
- **Appropriate portfolio return expectations**

age along a glide path, so they reduce market risks for older investors who likely have become more worried about that.

It's worth noting that, while we often talk about market risks, there's also the tremendous risk of investors choosing to be too conservative in their asset allocations and being underinvested in equities—resulting in the risk of not meeting their goals, such as a sustainable stream of income in retirement. So the target date funds' glide paths, while reducing risk, also keep investors invested for the potential growth that equities can provide. It's all about balance.

Figure 1 Asset Allocation Tactical Positions

As of Sept. 30, 2017



IMPORTANT INFORMATION These represent the views of the T. Rowe Price Asset Allocation Committee only and are subject to change without notice; these views may not reflect the opinion of all T. Rowe Price portfolio managers. This material is provided for informational purposes only and is not intended to be investment advice or a recommendation to take any particular investment action. The views contained herein are as of 9/30/17 and may have changed since then. They are informed by a subjective assessment of the relative attractiveness of asset classes and subclasses over a 6- to 18-month horizon. The approach is largely qualitative and valuation based, with attention to a broad scope of potential risks and potential return scenarios. There are inherent risks associated with investing in the stock market, including possible loss of principal, and investors must be willing to accept them.

Q. In terms of tactical adjustments to multi-asset portfolios' strategic designs, this year the firm decided to generally underweight stocks versus bonds for the first time since 2000. Why?

A. We make tactical adjustments because it pays over the long term to overweight asset classes that are fundamentally cheap and underweight those that are expensive. These small adjustments can be very important over time for returns.

We are underweighting stocks right now. But that doesn't mean we are positioned for an immediate recession. We still very much believe in the role of stocks in the long run, and there are a number of global factors that are supportive of stocks right now. Also, this is a short-term tactical underweight. For a portfolio that has a neutral weight of 60% in stocks, it's now at 58%.

The basic problem is that markets are priced for perfection. Valuations of stocks and bonds are high across the board, particularly U.S. stocks. So there's fragility in markets, leaving them with little cushion if there's a negative geopolitical event or if central banks tighten monetary conditions too fast. Bonds may be overvalued as well in many cases but simply have less downside.

Q. Over the years, the firm has continued to add new multi-asset funds and new assets and combinations to its multi-asset funds [see articles on page 14 on the new Retirement Income 2020 Fund and on page 10 on dynamic fixed income changes]. Why does the firm's approach change?

A. Market conditions evolve over time, and so does the opportunity set. The science and practice of multi-asset investing continues to evolve. Our research evolves, and new strategies are developed. I should emphasize that these are not big, sudden changes but incremental changes, because we are starting from a very strong foundation in portfolio construction. We have in-depth research capabilities, and we aim to innovate thoughtfully—always with a focus on the ultimate outcome for clients. ■

**The T. Rowe Price® ActivePlus Portfolios is a discretionary investment management program provided by T. Rowe Price Advisory Services, Inc., a registered investment adviser affiliated with T. Rowe Price Investment Services, Inc. More information is available at troweprice.com/activeplusportfolios.*

The principal value of the Retirement Funds and Target Date Funds (collectively, the "target date funds") is not guaranteed at any time, including at or after the target date, which is the approximate year an investor plans to retire (assumed to be age 65) and likely stop making new investments in the fund. If an investor plans to retire significantly earlier or later than age 65, the funds may not be an appropriate investment even if the investor is retiring on or near the target date. The target date funds are not designed for a lump-sum redemption at the target date and do not guarantee a particular level of income.

Diversification cannot assure a profit or protect against loss in a declining market.

BOND ALLOCATIONS

Fixed Income Changes In Target Date Portfolios Improve Diversification

Dynamic fixed income sector allocations can better complement equity exposure in portfolios.

BY **WYATT LEE**, CO-MANAGER, RETIREMENT AND TARGET FUNDS

To serve the goals of retirement investors, target date portfolios must strike an appropriate risk/reward balance over lengthy time horizons.

However, capital market trends can alter asset class relationships and open up new diversification possibilities. Thus, portfolio designs need to be reviewed periodically.

T. Rowe Price recently completed an in-depth analysis of the fixed income allocations in its target date portfolios—its series of Retirement Funds and Target Funds—with the goal of identifying potential opportunities to reduce overall portfolio risk and enhance risk-adjusted returns across the retirement glide path.

This research explored three key investment themes:

- The growth of global bond markets continues to create potentially attractive diversification opportunities for U.S. investors.
- Dynamic fixed income sector allocations can strengthen diversification by better complementing equity exposure within the overall portfolio.
- A broader fixed income opportunity set can expand the field for skilled active managers to add value.

As a result, the firm is making several changes to the fixed income allocations within T. Rowe Price's target date strategies. These include:

- Complementing core U.S. investment-grade exposure with a non-U.S. dollar bond strategy hedged against currency fluctuations (see article on page 11 on this fund) and a nontraditional global bond strategy that seeks consistent returns across the interest rate cycle.
- Adding floating rate bank loans and long-duration Treasuries as diversifying elements within the fixed income allocation, which already includes high yield and emerging markets bonds.
- Adopting a dynamic diversification approach that offsets equity volatility with long-term Treasuries in the early stages of the glide path but increases exposure to credit sectors as equity levels decline.

Dynamic allocations

Historically, different fixed income sectors have tended to perform differently, due to their varied relationships to each other, to movements in interest rates, and to stock market conditions. This means that different sectors can play varying roles within a target date strategy depending on the level of equity exposure, which gradually declines as portfolios move along their glide paths.

By varying the sector weights within the fixed income allocation, the goal is to take advantage of each sector's distinctive performance pattern to improve diversification for the total portfolio.

Like previous modifications to the firm's target date portfolios, the latest enhancements are the product of a rigorous research process featuring intensive portfolio modeling work. The new design reflects the best judgments of a collaborative team, which includes T. Rowe Price target date managers, multi-asset specialists, and quantitative analysts, as well as the managers of the key underlying fixed income strategies.

Historically, different fixed income sectors have tended to perform differently, due to their varied relationships to each other, to movements in interest rates, and to stock market conditions. This means that different sectors can play varying roles within a target date strategy depending on the level of equity exposure...

The changes will be phased in over an extended period beginning in the fourth quarter of 2017.

And the firm will continue to evaluate its target date portfolios with the aim of advancing the long-term retirement objectives of target date investors effectively and efficiently. ■

The principal value of the Retirement Funds and Target Funds (collectively, the "target date funds") is not guaranteed at any time, including at or after the target date, which is the approximate year an investor plans to retire (assumed to be age 65) and likely stop making new investments in the fund. If an investor plans to retire significantly earlier or later than age 65, the funds may not be an appropriate investment even if the investor is retiring on or near the target date. The target date funds are not designed for a lump-sum redemption at the target date and do not guarantee a particular level of income.

Diversification cannot assure a profit or protect against loss in a declining market.

NEW FUND

International Bonds, Hedged To USD, Can Lower Portfolio Volatility

Hedged fund's investments are similar to those in the non-hedged International Bond Fund.

T. Rowe Price has launched the International Bond Fund (USD Hedged), the company's first such fund of its kind, to allow investors to participate in the potential benefits of diversifying into international bonds without incurring the higher volatility usually associated with foreign currency exposure.

The new fund plays a role in the dynamic fixed income changes that will be phased into the firm's target date strategies. As a result of these changes, the mix of fixed income allocations within target date funds alters as their equity exposure declines with investors' age (see article on page 10).

The underlying investments of the hedged fund are almost identical to those in the existing International Bond Fund, says Ken Orchard, who co-manages both funds with Arif Husain, head of international fixed income at T. Rowe Price.

Both funds focus on high-quality, investment-grade bonds, predominantly investing in non-U.S. sovereign, corporate, and securitized bonds. These holdings can be augmented by emerging market debt, high yield bonds, and other securities. (The non-hedged fund limits below investment-grade exposure to 20% of the fund, while the hedged fund allows up to 25% such exposure.)

The two funds are managed similarly as well, using the same monthly market forecasts, analyses of potentially attractive opportunities, and process of portfolio risk/return construction. For the new fund, most of the nondollar currency exposure will be hedged back to U.S. dollars mainly by using what are called forward currency exchange contracts, Mr. Orchard says.

As shown in Figure 1, non-U.S. bonds hedged to U.S. dollars have delivered similar returns to non-hedged international bonds but with notably lower volatility.

In particular, the hedged fund provides an investment option during periods in which the U.S. dollar is strong or appreciating relative to foreign currencies. Holding non-hedged international bonds during these periods would tend to reduce returns as a result of the dollar appreciation. Conversely, when the dollar is falling in value, non-hedged international bonds would tend to be beneficial.

In the wake of President Trump's election last fall, the dollar quickly appreciated. But this year, it has been depreciating.

Mr. Orchard advises investors not to invest in the fund as a result of constantly checking currency movements. "The primary benefit of the hedged fund is a reduction in volatility," he says, along with international bonds' diversification gains.

"Whether hedged or not, non-U.S. bonds can provide investors with diversification away from the U.S. business and credit cycles, monetary policies, and interest rates," Mr. Orchard says. "The rest of the world tends to move in different cycles from the United States. For example, the Federal Reserve is one of the few central banks raising interest rates." ■

This fund is subject to the risks of international investing, including political risk and geographic risk, and the risks of fixed income investing, including credit risk and interest rate risk. The fund's attempts at hedging may not be successful and could cause the fund to lose money or fail to get the benefit of a gain on a hedged position.

Figure 1 The Benefits of Hedging International Bonds to U.S. Dollars

Hedging Has Provided Lower Risk Along With Greater Diversification

Sector	Annualized Return	Annualized Volatility	Correlation to Equities
U.S. Large-Cap Equities	10.77%	14.26%	1.00
U.S. Bonds	6.14	3.61	0.10
Non-U.S. Bonds (Unhedged)	6.04	8.31	0.16
Non-U.S. Bonds (Hedged)	6.03	2.87	0.08

Based on monthly data from 1/31/90 to 9/30/17. Indices used: S&P 500 Index, Bloomberg Barclays U.S. Aggregate Bond Index, Bloomberg Barclays Global Aggregate Ex USD Bond Index (Unhedged), and Bloomberg Barclays Global Aggregate Ex USD Bond Index (Hedged). Sources: Bloomberg Barclays and Standard & Poor's; data analysis by T. Rowe Price. **Additional disclosures on page 24. Past performance cannot guarantee future results.**

INFLATION PROTECTION

Adding Real Assets And TIPS To Portfolios To Hedge Against Inflation

Traditional stock and bond allocations have not been effective in combating inflation.

BY **STEVE BARTOLINI**, PORTFOLIO MANAGER, INFLATION PROTECTED BOND AND LIMITED DURATION INFLATION FOCUSED BOND FUNDS

KEY POINTS

- **Research indicates that allocations to real assets and TIPS can dampen portfolio volatility during inflationary periods.**
- **Shorter-maturity TIPS had the greatest correlation with inflation of the asset classes studied.**
- **Real assets outperformed the broader stock market during high-inflation periods.**
- **The firm's multi-asset team uses real assets and TIPS to lessen the risk of unexpected inflation in its diversified portfolios.**

Although recent inflation measures have been low, investors should remember that even moderate rates of inflation can substantially reduce a portfolio's purchasing power over longer periods and unexpected inflation can be particularly damaging to a portfolio.

The challenge in addressing inflation risk is that traditional stock and bond allocations typically have done a poor job of hedging against unexpected inflation and historically have demonstrated relatively weak real returns in periods of high inflation.

T. Rowe Price research indicates that adding allocations of Treasury inflation protected securities (TIPS) and real assets—including natural resource equities and real estate investment trusts (REITs)—to multi-asset portfolios can improve overall portfolio performance by dampening the volatility of both nominal (before inflation) and real (after inflation) returns during inflationary periods.

Inflation types

To analyze the degree of inflation protection that various asset classes have provided historically, the firm examined how closely returns on those asset classes have correlated with inflation over rolling one-month and three-year periods. (The three-year period was chosen because it is roughly the length of time—from peak to trough or from trough to peak—in a typical inflation cycle.)

This analysis found that shorter-term TIPS, which mature in five years or less, have had the highest positive correlations to inflation over both one-month and three-year time frames, indicating that their returns typically have moved in the same direction as inflation at the same time. In other words, nominal returns on TIPS have tended to be higher when inflation is higher.

Longer-term TIPS are positively correlated with inflation but to a lesser extent than their shorter-term counterparts.

The research also found that TIPS have had a high correlation to unexpected inflation—defined as inflation that deviates markedly from the prevailing trend—and thus provided solid protection against the damage it can do to longer-term investment returns.

This is in contrast to returns on conventional bonds, which have been negatively correlated with inflation over one-month and three-year time periods and thus have generally failed to protect purchasing power in inflationary periods.

(The relationships between inflation and nominal returns on these and other asset classes are shown in Figure 1.)

Real assets showed greater value as protection against inflation over three-year periods but had weaker correlations over monthly time frames. Additionally, real assets tended to have lower correlations with broader equity market returns over longer time periods, indicating their potential to reduce volatility in a diversified portfolio.

> **T. Rowe Price has a long history of addressing the risks that inflation can pose to investment portfolios. The firm's founder, Thomas Rowe Price, Jr., was a pioneer in the field.**

This effect was most notable in the metals sector, which had a negative correlation with the broader equity market over three-year periods.

Over one-month periods, by contrast, returns on real assets equities have tended to show relatively high positive correlations with the broader equity market—a reflection of their short-term sensitivity to general market risk.

Inflation drivers

In addition to looking at how various asset sectors have held up over different time periods, we also examined how investments have performed in different inflation environments.

The 1970s, for example, saw higher commodity prices and rapid increases in wages and consumer prices. The 1980s, on the other hand, saw decelerating consumer inflation, slow wage growth, and minimal gains or even deflation in commodity prices.

This research showed all real assets equity sectors outperformed both the S&P 500 Index and the consumer price index during the high-inflation periods. But these sectors also demonstrated varying relative strengths in different inflation environments.

Global REITs, for example, posted their highest returns in periods of high broad-based inflation, while energy and materials equities performed somewhat better during periods of high commodity inflation.

TIPS are designed to offset one particular type of inflation—U.S. consumer inflation—and may be less effective in environments where rapid commodity inflation is the primary concern.

Finally, we examined the impact that real assets and TIPS would have had on reducing volatility in a portfolio that was modified from a traditional mix of 60% U.S. large-cap equity/40% U.S. fixed income.

Figure 1 Correlations* to Inflation

Average of Rolling Periods, Sept. 30, 1976–Dec. 31, 2016

Sector	One Month	Three Years
Metals and Mining	0.05	0.44
Energy and Materials	0.07	0.33
U.S. Real Estate Investment Trusts	0.00	0.39
U.S. Stocks	-0.03	0.06
Shorter-Term Treasury Inflation Protected Securities (TIPS)	0.27	0.60
Longer-Term TIPS	0.11	0.23
U.S. Bonds	-0.11	-0.05

*Correlations are measured on a scale that runs from -1 to +1, with positive results indicating that returns and the inflation rate have tended to move in the same direction at the same time, while negative results indicate that returns have tended to move in the opposite direction from the inflation rate. Indices used: Metals and mining: 3/01–12/16, MSCI All Country World (ACW) Metals & Mining Index 83.33%, MSCI ACW gold and precious metals subindustry group 16.67%. Energy and materials: 3/01–12/16, MSCI ACW Energy Sector Index 65%, MSCI ACW Materials Sector Index 35%. Prior to 2001, metals and mining and energy and materials data reflect baskets of S&P and MSCI subsectors. U.S. REITs: 9/76–12/77, NAREIT U.S. Real Estate-Equity REIT Index and 1/78–12/16, Wilshire U.S. Real Estate Securities Index; U.S. stocks: S&P 500 Index; U.S. bonds: Bloomberg Barclays U.S. Aggregate Bond Index. Because TIPS did not exist prior to 1997—and shorter-term TIPS data are not available prior to 2002—T. Rowe Price analysts created a proxy return series for earlier years based on the post-inflation yields on conventional Treasuries of comparable maturity during the pre-1997 time periods. This return series then served as the basis for measuring TIPS characteristics such as nominal and real volatility and correlations. **Additional disclosures on page 24.**
Source: Morningstar, Inc.; analysis by T. Rowe Price.

Looking at annualized volatility on these portfolios over rolling one-month, three-month, one-year, and three-year periods, the research showed that adding either TIPS or real assets equities to the equity/fixed income portfolio lowered volatility for all holding periods, although the effect was more pronounced over longer periods. Adding both asset classes reduced portfolio volatility even more.

Investors should be aware, though, that there are trade-offs involved with investing in assets that protect against inflation. For example, real assets have underperformed traditional equities in recent years as a result of an oversupply of energy and other commodities along with tepid global economic growth.

Trade-offs also apply to short- versus longer-term TIPS. The potential benefit of a higher correlation with inflation that short-term TIPS have provided usually has come at the price of accepting lower yields than for longer-term TIPS.

Because TIPS and real assets have different properties, they generally should be used as part of a long-term strategy that also includes assets that can outperform in a low inflation environment and that have higher long-term return potential.

T. Rowe Price approach

T. Rowe Price has a long history of addressing the risks that inflation can pose to investment portfolios. The firm's founder, Thomas Rowe Price, Jr., was a pioneer in the field. He designed a model inflation portfolio in 1966—featuring gold, other commodities such as forest products and oil, and real estate—to prepare for the era of higher inflation that he saw approaching and launched the New Era Fund in 1969.

This forward-looking approach continues to the present. The firm offers investment strategies that invest specifically in real assets and in short-term TIPS, and the firm's multi-asset team incorporates those strategies in diversified portfolios designed to help investors save for retirement as well as pay for college expenses. By including these assets, we seek to provide a buffer against unexpected inflation risk, thus potentially reducing volatility without sacrificing overall expected return.

For multi-asset funds, the fixed income portion of this inflation protection strategy is invested in the Limited Duration Inflation Focused Bond Fund. Short-term TIPS are more positively correlated with changes in inflation than long-term TIPS, primarily because of their shorter duration. Higher interest rates often accompany higher inflation, and a shorter-duration profile—relative to strategies benchmarked to the full TIPS index—should provide more protection against a rising rate environment. ■

Diversification cannot assure a profit or protect against loss in a declining market. Real assets have underperformed traditional equities recently as a result of an oversupply of energy and other commodities and would be subject to market risk, including possible loss of principal. TIPS are subject to interest rate risk. Deflationary conditions could cause price volatility.

RETIREMENT INCOME

Retirement Funds' Lineup Expands To Ease Withdrawals

Retirement Income 2020 Fund automatically provides investors with a monthly income stream.

In a first for T. Rowe Price, the firm has launched a new fund designed to provide an income stream in retirement. The Retirement Income 2020 Fund couples the well-known overall investment design of the firm's Retirement Funds' lineup with a managed distribution feature.

The new managed payout fund is intended to appeal to well-prepared investors who do not want to invest in a guaranteed income product, such as an annuity, but want assistance in generating income.

It complements and extends the existing Retirement Funds. Indeed, its overall asset allocation and underlying investments mirror the existing Retirement 2020 Fund.

The key difference from the existing fund is that the Retirement Income 2020 Fund provides payouts using what's called an "endowment" method, each year providing 12 monthly distributions. Together, these total 5% of the fund's average monthly balance—based on the fund's net asset value—for the preceding five years.

"This is a fund for investors who are moving from the relative simplicity of saving for retirement to the relative complexity of needing to withdraw money," says Jerome Clark, co-manager of the Retirement Funds.

"It's not a silver bullet—just one possible solution for distribution. It gives retirees a ballpark idea of what level of income they might be able to expect as they enter retirement."

Payouts

The annual 5% payout amount will be calculated as of September 30 each year. Until the income fund has five full years of performance history, the historical performance of the Retirement 2020 Fund will be used in the calculation. If the payout fund is in an individual retirement account (IRA), the distributions will be transferred to a separate IRA, from which withdrawals are made.

The amount of the annual payout is not guaranteed. There may be years in which the payout rate is lower or higher than 5% of current account balances. However, the endowment model—commonly used by charities to sustain their assets—should tend to smooth out volatility in the annual payout.

Because a constant payout rate is used—it doesn't rise with inflation, as does the well-known 4%-plus-inflation withdrawal guideline—the potential sustainability of the account is higher than with the 4%-plus-inflation withdrawal plan.

The trade-off is that, by using a 5% payout rate rather than 4% plus inflation, the income fund may provide a higher level of income earlier in retirement. Later, however, the retirement income stream may not have kept pace with inflation.

At the same time, notes Jim Tzitzouris, director of multi-asset research, the 5% endowment model—by responding to market ups and downs—is more dynamic. "It's more conservative when markets are down and you need to be more conservative," he says. "And when things have gone well, it automatically gives you more." ■

> **This is a fund for investors who have moved from the relative simplicity of saving for retirement to the relative complexity of needing to withdraw money.**

There is no guarantee that the fund will provide adequate income at and through your retirement and no guarantee that the fund will provide a fixed or stable level of cash distributions at any time or over any particular period of time. Investment losses or investor withdrawals will reduce the fund account's assets and may reduce the amount of future distributions. Some distributions may be considered returns of capital. The principal value of the fund is not guaranteed at any time, including at or after the target date, which is the approximate year an investor plans to retire (assumed to be age 65) and likely stop making new investments in the fund. If an investor plans to retire significantly earlier or later than age 65, the fund may not be an appropriate investment. The fund's allocations among a broad range of underlying T. Rowe Price stock and bond funds will change over time. The fund's risks will directly correspond to the risks of the underlying funds in which it invests. You can lose money by investing in the fund.

RETURN EXPECTATIONS

Portfolio Returns Lower For Post-2000 Investing Generation

Based on market experiences, parents may have higher expectations than their children.

What's a reasonable expectation for your portfolio's returns?

In the 1980s, investors in a hypothetical balanced portfolio of 60% U.S. stocks and 40% U.S. bonds received a 16% average annual return. In the 1990s, they reaped a 14% average annual return.

But since 2000—with two recessions, persistently low bond yields, and relatively low U.S. economic growth—investors have not done as well. The same portfolio produced a 2% average annual return in the period 2000–2010 and a 9% average annual return in 2010–2016.

Thus, two generations—those who started investing in 1980 and those who began in 2000—have had very different experiences, sometimes leading to differing market expectations.

A parent who invested $10,000 in this portfolio in 1980 saw his investment quadruple in the first decade and reach $380,000 by the end of 2016—a 10% average annual return over 36 years.

But his child, who invested $10,000 in 2000, saw only a 25% increase in the first decade, with his portfolio reaching just $23,000 by the end of 2016—only a 5% average annual return over 16 years.

One result: Older investors may have more optimism about potential returns than their childeren, says Darrell Riley, portfolio strategist for T. Rowe Price's multi-asset team.

"They had positive market experiences in the 1980s and 1990s and then lived through bear markets and recoveries, so it's not uncommon for older investors to have higher return expectations," he says.

Firm's assumptions

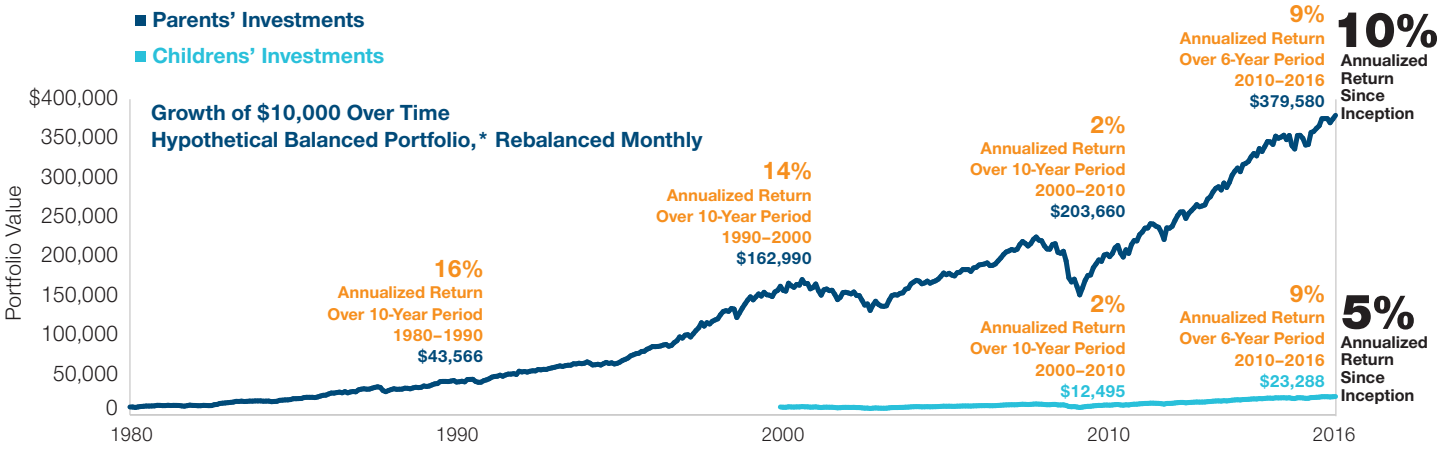
In the current environment, with low growth and high stock and bond valuations, it's important that investors right size their return expectations, says Judith Ward, CFP®, a T. Rowe Price senior financial planner.

T. Rowe Price's financial planners use portfolio return assumptions of 7% preretirement and 6% postretirement, based on the overall concept of lowering equity exposure as investors age (per the glide path used by the firm's target date funds). The firm's return assumptions were lowered in 2011 from 8% preretirement and 7% postretirement.

"It's been difficult for young people who began investing in the 2000s, but they have seen stocks doing well again since 2010," Ms. Ward says. "So what this really illustrates is the need for long-term thinking about investing." ■

Figure 1 Their Parents' Past Has Not Been a Prologue for the Next Generation of Investors

Impact of Lower Overall U.S. Stock and Bond Market Returns Since 2000



Parents	30 years old	40	50	60	66
Child	0 years old	10	20	30	36

Past performance cannot guarantee future results. *Portfolio is 60% equities (S&P 500 Index) and 40% bonds (Bloomberg Barclays U.S. Aggregate Bond Index), rebalanced monthly. It is not possible to invest directly in an index. Returns do not consider taxes, fees, or account type. Sources: Standard & Poor's and Bloomberg Barclays. **Additional disclosures on page 24.**

LAST WORD

Record Wealth Transfer Underway, Triggering Changes For Philanthropy

The new generation of donors seeks more engaged vehicles for their charitable giving.

BY **JOHN BROTHERS**, PRESIDENT, T. ROWE PRICE PROGRAM FOR CHARITABLE GIVING℠

The greatest wealth transfer in history is underway, $59 trillion from more than 90 million U.S. estates between 2007 and 2061.* Heirs are expected to receive $36 trillion overall.

This has big implications for charitable giving. Research by the Charities Aid Foundation indicates that younger donors have high expectations for knowing about the charities they support.**

In line with that, experts on philanthropy say that today's heirs are less wedded to institutional giving and more likely to seek new, more engaged, often hands-on vehicles for donations.

As a result, there is a growing need for families to educate themselves on effective giving. Some parents start a family foundation as a way of sharing at least some of the responsibility for deciding on donations with their heirs—and as a way of coming together as a family on philanthropic priorities.

The Program

T. Rowe Price's Program for Charitable Giving (PCG) aims to assist families as they take these critical steps. The firm created the national, donor-advised fund in 2000 to provide an efficient and effective means for individuals and corporations to initiate, grow, and distribute charitable gifts.

Donor-advised funds (DAFs) allow donors to make charitable contributions to the funds, receive immediate tax benefits, and make recommendations on charitable grants from the funds at any time. There also is the potential for growth in the funds invested with DAFs that have not yet been granted to charities.

versus 2015, contributions to the T. Rowe Price PCG grew by 29%.

PCG participants often cite its user-friendly website, highly personalized service, flexible tax advantages, wide range of investment options, and low annual fees, all of which allow them to more easily link their financial resources with their charitable passions. ■

> **...there is a growing need for families to educate themselves on effective giving.**

The PCG's assets under management totaled $258.9 million as of June 30, 2017. In fiscal year 2016, PCG distributed almost 11,300 grants to approximately 5,700 charitable organizations.

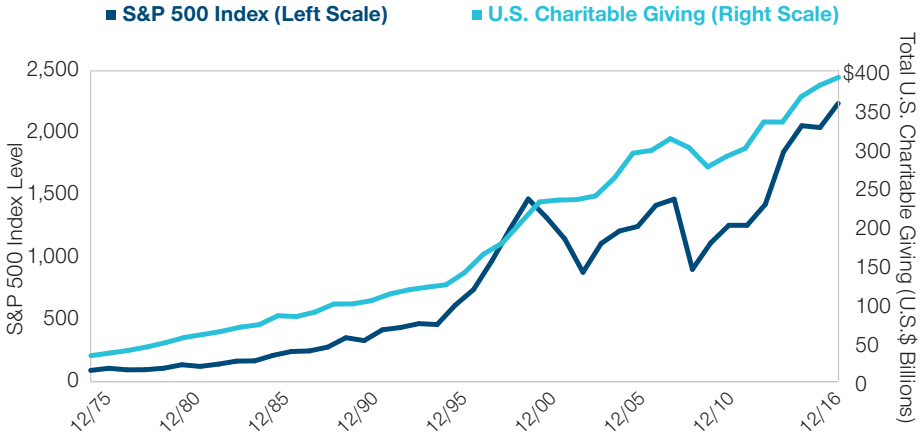
According to *Forbes* magazine, 2016 was the sixth straight year of double-digit growth in the number of DAFs, the total dollars donors put in them, total charitable assets accumulated, and dollars granted by donors. In 2016

**2014 study by the Center on Wealth and Philanthropy at Boston College.*

***Growing Up Giving, Charities Aid Foundation, 2013. The Program for Charitable Giving℠ is an independent nonprofit corporation and donor-advised fund founded by T. Rowe Price to assist individuals with planning and managing their charitable giving. T. Rowe Price has contracted with various companies to provide operational recordkeeping and investment management services.*

Figure 1 Growth of Charitable Giving in Line With S&P 500 Growth

In Billions of U.S.$, Inflation Adjusted to 2016$



Sources: © 2017 Giving USA Foundation™ and T. Rowe Price.

U.S. Stocks Propelled by Earnings, Economic Data, Tax Reform Hopes

September 30, 2017

KEY POINTS

- **Most major U.S. equity indexes reached new highs in September, despite North Korea tensions**
- **Debt ceiling pushed back three months; tax reform proposals take shape; Fed to start shrinking balance sheet in October**
- **Technology shares continue to climb; energy shares rally with oil in September**

EQUITY REVIEW

Emerging markets outperform; U.S. led by small-cap and growth stocks

Most Wilshire 5000 sectors produced good returns. Information technology shares performed best. Energy stocks also did well for the quarter, thanks to a rally in September, as oil prices climbed amid increasing demand. Consumer staples stocks fell slightly; real estate and consumer discretionary shares lagged the broad market.

Major European markets rose, lifted in part by the economic recovery. Shares in oil producer Norway fared best. UK shares returned just over 5% in dollar terms, as the pound strengthened amid expectations that the Bank of England would soon raise short-term interest rates. In Asia, Japanese shares returned slightly more than 4%.

Emerging markets equities outperformed developed markets, helped by solid global economic growth and strengthening in some non-U.S. currencies. Several Latin American markets surged, led by Brazil's 23% gain. In emerging Europe, Russian stocks rose 18%, helped by a stronger ruble, rising oil prices, and a pickup in economic growth. Asian markets were mostly positive.

Figure 1 U.S. and International Stock Market Performance

Total Returns for Periods Ended September 30, 2017

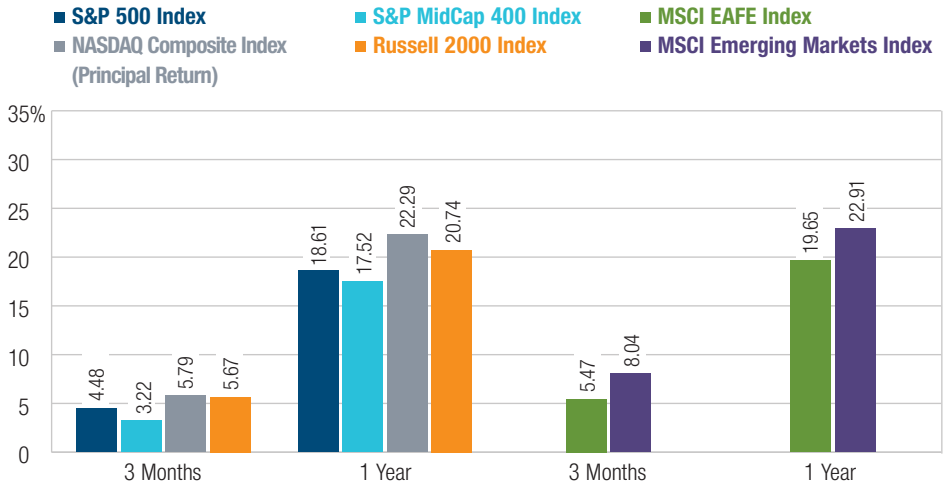
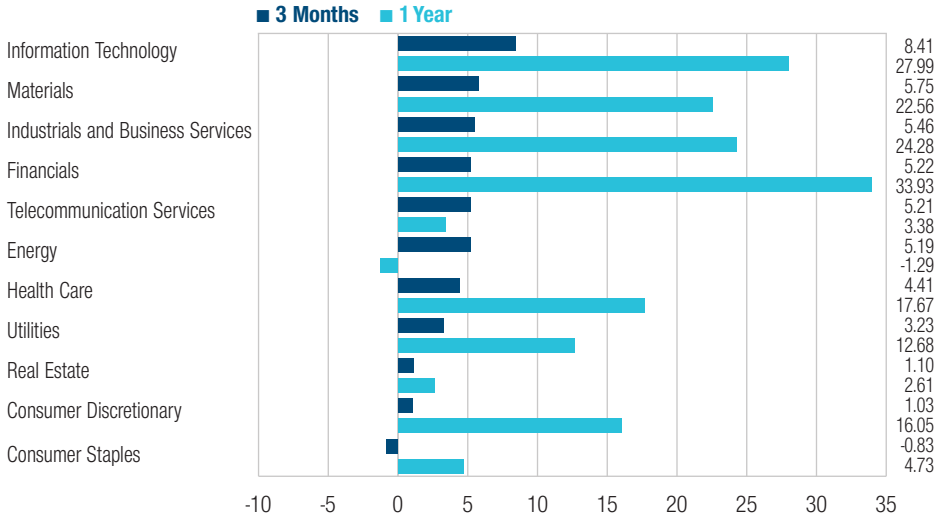


Figure 2 Performance of Wilshire 5000 Series

Total Returns for Periods Ended September 30, 2017



Ranked by highest to lowest quarterly returns.

FIXED INCOME REVIEW

Non-U.S. bonds outperform domestic issues, helped by weaker U.S. dollar

U.S. bonds produced modest positive returns. Treasury bond yields rebounded from early September lows as President Trump and Congress agreed to fund the federal government and push back the debt ceiling for three months.

In the investment-grade universe, longer-term Treasury and corporate bonds performed best. Municipal bonds outperformed taxable securities. High yield issues outpaced higher-quality debt, helped by rising oil prices in September.

UK bond yields spiked late in the quarter as the Bank of England cautioned that "some withdrawal of monetary stimulus" was likely in the next few months. German bond yields declined for much of the quarter but rose in September. The Bank of Japan, which aims to keep 10-year government bond yields near 0%, offered in early July to purchase an unlimited amount of bonds to keep yields from rising.

Emerging markets bonds produced good returns, helped by solid or improving economic growth and falling interest rates in some countries. Local currency bonds fared better than dollar-denominated issues.

Figure 3 U.S. and International Bond Market Performance

Total Returns for Periods Ended September 30, 2017

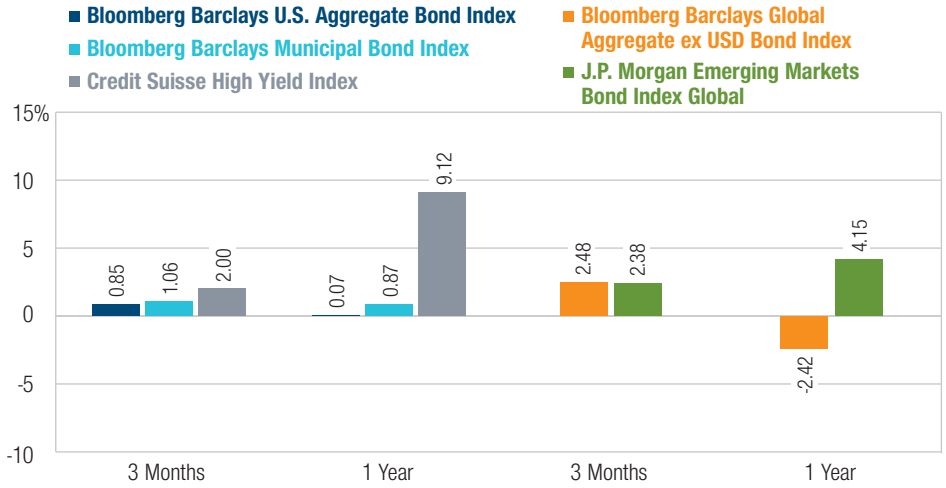
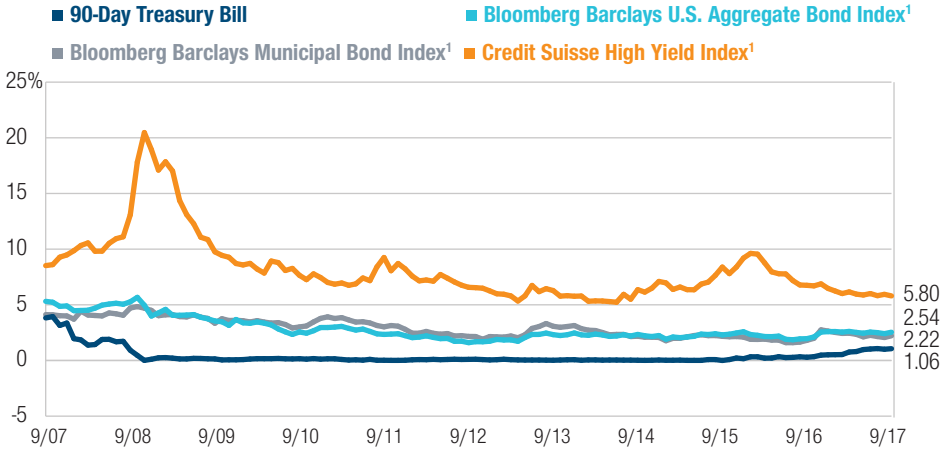


Figure 4 Trends in Interest Rates

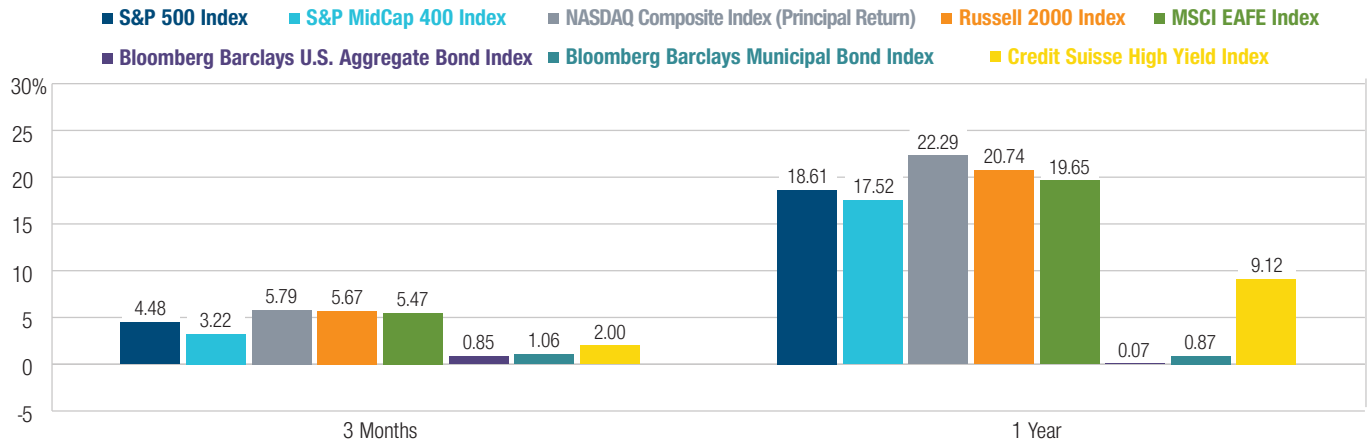
As of September 30, 2017



[1]Yield-to-worst

Figure 5 Stock and Bond Market Performance

Total Returns for Periods Ended September 30, 2017



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	6.92%	27.15%	14.31%	17.05%	9.57%	6/30/93			**0.72%**	12/31/16
Capital Appreciation[2]	PRWCX	2.66	12.23	10.25	12.34	8.51	6/30/86			**0.70**	12/31/16
Capital Opportunity	PRCOX	4.55	19.68	11.35	14.32	7.52	11/30/94			**0.70**	12/31/16
Diversified Mid-Cap Growth	PRDMX	4.46	19.02	11.35	14.47	8.41	12/31/03			**0.87**	12/31/16
Dividend Growth	PRDGX	3.04	15.24	11.09	13.67	7.67	12/30/92			**0.64**	12/31/16
Equity Income	PRFDX	4.37	18.25	8.11	11.76	6.01	10/31/85			**0.66**	12/31/16
Equity Index 500	PREIX	4.43	18.31	10.54	13.93	7.19	3/30/90	**0.5%**	**90 days**	**0.23†**	8/1/17
Extended Equity Market Index	PEXMX	5.01	19.35	10.47	14.24	8.32	1/30/98	**0.5%**	**90 days**	**0.35**	12/31/16
Financial Services	PRISX	4.85	30.82	12.17	15.73	5.36	9/30/96			**0.93**	12/31/16
Growth & Income	PRGIX	2.44	14.92	10.74	13.90	7.25	12/21/82			**0.67**	12/31/16
Growth Stock	PRGFX	5.44	26.10	13.90	16.26	9.16	4/11/50			**0.68**	12/31/16
Health Sciences	PRHSX	5.28	19.82	12.34	19.96	15.50	12/29/95			**0.77**	12/31/16
Media & Telecommunications	PRMTX	5.70	22.62	15.41	16.92	11.89	10/13/93			**0.79**	12/31/16
Mid-Cap Growth[2]	RPMGX	4.31	20.13	13.73	16.35	10.11	6/30/92			**0.77**	12/31/16
Mid-Cap Value[2]	TRMCX	2.97	13.78	9.72	13.68	8.49	6/28/96			**0.80**	12/31/16
New America Growth	PRWAX	4.63	25.34	13.10	16.07	9.85	9/30/85			**0.80**	12/31/16
New Era	PRNEX	6.24	6.59	-2.84	2.35	-0.59	1/20/69			**0.67**	12/31/16
New Horizons[2]	PRNHX	6.66	24.71	14.83	17.31	12.08	6/3/60			**0.79**	12/31/16
QM U.S. Small-Cap Growth Equity	PRDSX	4.17	19.65	11.93	15.36	10.36	6/30/97	**1.0%**	**90 days**	**0.81**	12/31/16
QM U.S. Small & Mid-Cap Core Equity	TQSMX	4.04	17.91	—	—	22.19	2/26/16	**1.0%**	**90 days**	**2.61†**	12/31/16
QM U.S. Value Equity	TQMVX	4.03	17.82	—	—	20.15	2/26/16			**3.63†**	12/31/16
Real Assets	PRAFX	3.78	3.45	1.39	2.05	3.43	7/28/10	**2.0%**	**90 days**	**0.84**	12/31/16
Real Estate	TRREX	0.89	-0.76	8.66	8.83	5.28	10/31/97	**1.0%**	**90 days**	**0.74**	12/31/16
Science & Technology	PRSCX	6.86	23.93	17.37	20.61	10.76	9/30/87			**0.83**	12/31/16
Small-Cap Stock[2]	OTCFX	5.19	19.70	11.78	13.88	9.81	6/1/56			**0.90**	12/31/16
Small-Cap Value	PRSVX	5.90	23.70	12.97	13.36	8.57	6/30/88	**1.0%**	**90 days**	**0.93**	12/31/16
Tax-Efficient Equity[3]	PREFX						12/29/00	**1.0%**	**365 days**	**0.83**	2/28/17
Returns before taxes		5.11	20.96	12.01	14.48	8.07					
Returns after taxes on distributions		—	20.89	11.58	14.08	7.87					
Returns after taxes on distributions and sale of fund shares		—	11.90	9.30	11.58	6.55					
Total Equity Market Index	POMIX	4.34	18.48	10.59	14.12	7.50	1/30/98	**0.5%**	**90 days**	**0.30**	12/31/16
U.S. Large-Cap Core	TRULX	2.44	14.74	11.44	14.41	14.95	6/26/09			**0.81†**	12/31/16
Value	TRVLX	3.34	17.06	8.58	14.36	7.22	9/30/94			**0.82**	12/31/16

†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] 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	4.48%	18.61%	10.81%	14.22%	7.44%
S&P MidCap 400 Index	3.22	17.52	11.18	14.43	9.00
NASDAQ Composite Index (Principal Return)	5.79	22.29	13.07	15.83	9.17
Russell 2000 Index	5.67	20.74	12.18	13.79	7.85
Lipper Indexes					
Large-Cap Core Funds	4.45	18.49	9.73	13.42	6.66
Equity Income Funds	3.82	15.90	8.35	11.92	5.93
Small-Cap Core Funds	5.27	20.17	11.39	13.40	7.78

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	1.27%	15.82%	-3.84%	6.16%	0.53%	9/4/07	**2.0%**	**90 days**	**1.56%**	10/31/16
Asia Opportunities	TRAOX	5.60	21.52	11.23	–	11.17	5/21/14	**2.0%**	**90 days**	**2.10†**	10/31/16
Emerging Europe	TREMX	11.59	23.13	0.07	-1.96	-5.14	8/31/00	**2.0%**	**90 days**	**1.75**	10/31/16
Emerging Markets Stock	PRMSX	10.57	23.90	8.59	6.22	1.31	3/31/95	**2.0%**	**90 days**	**1.26**	10/31/16
Emerging Markets Value Stock	PRIJX	8.30	25.56	–	–	18.31	9/14/15	**2.0%**	**90 days**	**3.21†**	10/31/16
European Stock	PRESX	5.08	17.35	3.89	8.69	2.92	2/28/90	**2.0%**	**90 days**	**0.96**	10/31/16
Global Consumer	PGLOX	1.41	8.93	–	–	12.43	6/27/16			**4.14†**	12/31/16
Global Growth Stock	RPGEX	5.73	21.91	10.14	12.06	16.38	10/27/08	**2.0%**	**90 days**	**1.19†**	10/31/16
Global Industrials	RPGIX	6.10	20.90	10.00	–	7.81	10/24/13			**2.29†**	12/31/16
Global Real Estate	TRGRX	0.30	-2.13	4.82	5.78	11.88	10/27/08	**2.0%**	**90 days**	**0.99†**	12/31/16
Global Stock	PRGSX	3.83	21.46	12.53	15.51	4.65	12/29/95	**2.0%**	**90 days**	**0.89**	10/31/16
Global Technology	PRGTX	8.03	31.69	22.75	25.19	15.86	9/29/00			**0.90**	12/31/16
International Concentrated Equity	PRCNX	3.09	15.97	6.33	–	4.65	8/22/14	**2.0%**	**90 days**	**3.27†**	10/31/16
International Discovery	PRIDX	9.28	24.91	13.01	13.66	6.07	12/30/88	**2.0%**	**90 days**	**1.20**	10/31/16
International Equity Index	PIEQX	5.17	19.24	5.31	8.20	1.43	11/30/00	**2.0%**	**90 days**	**0.45**	10/31/16
International Stock	PRITX	4.88	18.72	7.40	8.49	3.00	5/9/80	**2.0%**	**90 days**	**0.84**	10/31/16
International Value Equity*	TRIGX	5.02	15.78	3.43	7.52	1.01	12/21/98	**2.0%**	**90 days**	**0.85**	10/31/16
Japan	PRJPX	6.10	16.93	13.80	14.23	3.65	12/30/91	**2.0%**	**90 days**	**1.02**	10/31/16
Latin America	PRLAX	15.77	26.17	3.09	-0.39	-0.96	12/29/93	**2.0%**	**90 days**	**1.38**	10/31/16
New Asia	PRASX	5.18	19.93	7.53	7.02	3.98	9/28/90	**2.0%**	**90 days**	**0.95**	10/31/16
Overseas Stock	TROSX	6.58	22.34	6.21	8.81	2.23	12/29/06	**2.0%**	**90 days**	**0.84**	10/31/16
QM Global Equity	TQGEX	5.15	18.26	–	–	16.00	4/15/16	**2.0%**	**90 days**	**3.58†**	12/31/16

Figure 9 Benchmarks

International/Global Stock	3 months	1 year	3 years	5 years	10 years
MSCI EAFE Index	5.47%	19.65%	5.53%	8.87%	1.82%
Lipper Averages					
Emerging Markets Funds	7.42	20.07	3.89	4.16	1.14
International Large-Cap Core Funds	5.62	18.78	4.32	7.46	1.22
International Large-Cap Growth Funds	5.44	17.24	5.18	7.31	1.99
International Small/Mid-Cap Growth Funds	7.60	20.77	9.15	11.11	4.10

*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[4]	Ticker symbol	3 months	1 year	3 years	5 years	10 years or since inception[1]	Inception date	Redemption fee	Redemption fee period	Expense ratio	Expense ratio as of date
California Tax-Free Bond	PRXCX	1.04%	0.08%	3.34%	3.55%	4.67%	9/15/86			**0.50%**	2/28/17
Georgia Tax-Free Bond	GTFBX	0.91	-0.09	2.87	2.78	4.11	3/31/93			**0.52**	2/28/17
Intermediate Tax-Free High Yield	PRIHX	1.26	1.30	3.64	–	3.84	7/24/14	**2.0%**	**90 days**	**1.09†**	2/28/17
Maryland Short-Term Tax-Free Bond	PRMDX	0.22	0.46	0.61	0.57	1.43	1/29/93			**0.55**	2/28/17
Maryland Tax-Free Bond	MDXBX	0.70	0.63	3.11	2.92	4.39	3/31/87			**0.46**	2/28/17
New Jersey Tax-Free Bond	NJTFX	1.03	0.29	3.13	3.01	4.30	4/30/91			**0.52**	2/28/17
New York Tax-Free Bond	PRNYX	0.97	0.61	3.27	2.98	4.32	8/28/86			**0.51**	2/28/17
Summit Municipal Income	PRINX	1.22	0.58	3.45	3.35	4.78	10/29/93			**0.50**	10/31/16
Summit Municipal Intermediate	PRSMX	0.95	0.65	2.58	2.57	4.08	10/29/93			**0.50**	10/31/16
Tax-Free High Yield	PRFHX	1.33	1.09	4.48	4.47	5.03	3/1/85	**2.0%**	**90 days**	**0.69**	2/28/17
Tax-Free Income	PRTAX	1.10	0.58	3.07	3.02	4.46	10/26/76			**0.52**	2/28/17
Tax-Free Short-Intermediate	PRFSX	0.34	0.65	1.10	1.08	2.56	12/23/83			**0.49**	2/28/17
Virginia Tax-Free Bond	PRVAX	0.78	0.38	3.05	2.81	4.32	4/30/91			**0.47**	2/28/17

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	1.33%	1.68%	3.78%	3.57%	5.60%	10/31/95			**0.60%**	5/31/17
Credit Opportunities	PRCPX	1.61	9.22	3.12	–	2.19	4/29/14	**2.0%**	**90 days**	**1.50†**	5/31/17
Floating Rate	PRFRX	0.93	4.07	3.72	3.66	3.82	7/29/11	**2.0%**	**90 days**	**0.77**	5/31/17
GNMA[5]	PRGMX	0.80	0.32	1.76	1.36	3.75	11/26/85			**0.59**	5/31/17
High Yield[2]	PRHYX	1.94	8.75	5.15	6.27	7.13	12/31/84	**2.0%**	**90 days**	**0.74**	5/31/17
Inflation Protected Bond	PRIPX	0.76	-1.54	1.08	-0.38	3.47	10/31/02			**0.58†**	5/31/17
Limited Duration Inflation Focused Bond	TRBFX	0.40	-0.09	0.23	-0.07	1.66	9/29/06			**0.50†**	5/31/17
New Income	PRCIX	0.87	0.31	2.52	2.03	4.51	8/31/73			**0.55**	5/31/17
Short-Term Bond	PRWBX	0.44	1.08	1.20	0.97	2.38	3/2/84			**0.46†**	5/31/17
Total Return	PTTFX	1.19	–	–	–	3.91	11/15/16			**1.72**	5/31/17
Ultra Short-Term Bond	TRBUX	0.42	1.73	1.26	–	0.90	12/3/12			**0.44†**	5/31/17
U.S. Bond Enhanced Index	PBDIX	0.77	0.08	2.70	2.04	4.32	11/30/00	**0.5%**	**90 days**	**0.30**	10/31/16
U.S. High Yield[6]	TUHYX	2.50	–	–	–	3.01	5/19/17	**2.0%**	**90 days**	**4.68†**	5/31/17
U.S. Treasury Intermediate[5]	PRTIX	0.41	-2.00	1.76	0.71	4.04	9/29/89			**0.52†**	5/31/17
U.S. Treasury Long-Term[5]	PRULX	0.32	-6.88	4.05	2.08	6.53	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	0.85%	0.07%	2.71%	2.06%	4.27%
Bloomberg Barclays Municipal Bond Index	1.06	0.87	3.19	3.01	4.52
Credit Suisse High Yield Index	2.00	9.12	5.68	6.27	7.44
Lipper Averages					
Short Investment Grade Debt Funds	0.48	1.46	1.26	1.14	2.16
Core Bond Funds	0.81	0.47	2.43	2.00	4.00
GNMA Funds	0.68	-0.28	1.40	1.03	3.75
High Yield Funds	1.83	7.72	4.32	5.18	6.25
Short Municipal Debt Funds	0.44	0.71	0.62	0.62	1.50
Intermediate Municipal Debt Funds	0.99	0.42	2.23	2.06	3.51
General & Insured Municipal Debt Funds	1.15	0.49	2.97	2.80	3.99

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

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

[6] 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[7]	RPIEX	0.66%	-0.16%	—	—	2.75%	1/22/15			**1.16%†**	12/31/16
Emerging Markets Bond	PREMX	2.87	6.60	7.12%	4.63%	6.68	12/30/94	**2.0%**	**90 days**	**0.92**	12/31/16
Emerging Markets Corporate Bond	TRECX	2.64	6.14	5.29	4.59	5.89	5/24/12	**2.0%**	**90 days**	**1.36†**	12/31/16
Emerging Markets Local Currency Bond	PRELX	3.78	8.87	0.40	-0.96	-0.26	5/26/11	**2.0%**	**90 days**	**1.04†**	12/31/16
Global High Income Bond	RPIHX	2.43	9.01	—	—	8.08	1/22/15	**2.0%**	**90 days**	**1.51†**	12/31/16
Global Multi-Sector Bond[8]	PRSNX	1.54	4.20	3.83	3.84	7.09	12/15/08			**0.81†**	5/31/17
International Bond	RPIBX	2.26	-1.99	0.44	-0.51	2.40	9/10/86	**2.0%**	**90 days**	**0.69**	8/1/17
International Bond (USD Hedged)	TNIBX	—	—	—	—	-0.28	9/12/17	**2.0%**	**90 days**	**1.96†**	9/12/17

Figure 14 Benchmarks

International/Global Bond	3 months	1 year	3 years	5 years	10 years
Bloomberg Barclays Global Aggregate ex USD Bond Index	2.48%	-2.42%	0.20%	-0.73%	2.57%
J.P. Morgan Emerging Markets Bond Index Global	2.38	4.15	6.05	4.32	7.28
Lipper Averages					
Emerging Market Hard Currency Debt Funds	2.98	6.83	4.41	2.98	6.30
International Income Funds	1.93	2.73	1.33	1.05	4.06

Figure 15 Money Market Funds

Tax-Free[9]	Ticker symbol	7-day yield	7-day unsubsidized yield[9]	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	0.35%	0.35%	0.08%	0.21%	0.08%	0.05%	0.28%	9/15/86	**0.88%†**	2/28/17
Maryland Tax-Free Money◊	TMDXX	0.48	0.48	0.09	0.18	0.07	0.04	0.30	3/30/01	**0.67**	2/28/17
New York Tax-Free Money◊	NYTXX	0.35	0.35	0.07	0.20	0.08	0.05	0.29	8/28/86	**0.84†**	2/28/17
Summit Municipal Money Market◊	TRSXX	0.47	0.47	0.11	0.34	0.13	0.08	0.34	10/29/93	**0.45**	10/31/16
Tax-Exempt Money◊	PTEXX	0.55	0.55	0.12	0.31	0.12	0.08	0.33	4/8/81	**0.54**	2/28/17
Taxable[9]											
Cash Reserves‡[10]	TSCXX	0.85%	0.85%	0.21%	0.55%	0.21%	0.13%	0.48%	10/29/93	**0.45%**	10/31/16
Government Money‡*	PRRXX	0.69	0.69	0.16	0.32	0.11	0.07	0.43	1/26/76	**0.44**	5/31/17
U.S. Treasury Money‡	PRTXX	0.69	0.69	0.17	0.32	0.11	0.07	0.28	6/28/82	**0.42**	5/31/17

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

[8] Formerly the T. Rowe Price Strategic Income Fund.

*Formerly the T. Rowe Price Prime Reserve Fund.

Money Market Funds:

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

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

[9] 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.

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

Figure 16 Asset Allocation Funds

	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	3.81%	13.82%	7.30%	9.28%	6.09%	12/31/39			**0.68%**	12/31/16
Global Allocation	RPGAX	3.73	13.02	6.67	–	6.94	5/28/13			**1.24†**	10/31/16
Personal Strategy Balanced	TRPBX	3.86	13.36	7.23	9.07	6.26	7/29/94			**0.87**	5/31/17
Personal Strategy Growth	TRSGX	4.83	17.40	8.51	11.16	6.34	7/29/94			**0.88**	5/31/17
Personal Strategy Income	PRSIX	2.98	9.41	5.75	6.85	5.64	7/29/94			**0.75**	5/31/17
Retirement 2005	TRRFX	2.43	7.39	4.97	5.96	4.81	2/27/04			**0.58**	5/31/17
Retirement 2010	TRRAX	2.71	8.39	5.40	6.68	4.88	9/30/02			**0.57**	5/31/17
Retirement 2015	TRRGX	2.96	9.99	6.04	7.75	5.22	2/27/04			**0.59**	5/31/17
Retirement 2020	TRRBX	3.43	12.03	6.83	8.81	5.51	9/30/02			**0.63**	5/31/17
Retirement 2025	TRRHX	3.77	13.73	7.46	9.75	5.73	2/27/04			**0.67**	5/31/17
Retirement 2030	TRRCX	4.05	15.32	8.03	10.54	5.95	9/30/02			**0.69**	5/31/17
Retirement 2035	TRRJX	4.30	16.60	8.45	11.12	6.11	2/27/04			**0.72**	5/31/17
Retirement 2040	TRRDX	4.50	17.62	8.74	11.51	6.30	9/30/02			**0.74**	5/31/17
Retirement 2045	TRRKX	4.57	17.98	8.86	11.59	6.34	5/31/05			**0.74**	5/31/17
Retirement 2050	TRRMX	4.55	17.99	8.85	11.58	6.33	12/29/06			**0.74**	5/31/17
Retirement 2055	TRRNX	4.54	17.95	8.85	11.56	6.32	12/29/06			**0.74**	5/31/17
Retirement 2060	TRRLX	4.58	17.94	8.85	–	7.52	6/23/14			**0.74**	5/31/17
Retirement Balanced	TRRIX	2.43	7.53	4.70	5.54	4.70	9/30/02			**0.56**	5/31/17
Retirement Income 2020	TRLAX	3.40	–	–	–	3.74	5/25/17			**1.31†**	5/25/17
Spectrum Growth	PRSGX	5.34	20.61	9.78	12.54	6.54	6/29/90			**0.80**	12/31/16
Spectrum Income	RPSIX	1.77	4.50	3.93	4.02	5.25	6/29/90			**0.69**	12/31/16
Spectrum International	PSILX	5.59	17.98	6.08	8.24	2.75	12/31/96	**2.0%**	**90 days**	**0.94**	12/31/16
Target 2005	TRARX	2.39	6.86	4.72	–	5.59	8/20/13			**1.35†**	5/31/17
Target 2010	TRROX	2.46	7.10	4.81	–	5.77	8/20/13			**0.92†**	5/31/17
Target 2015	TRRTX	2.51	7.94	5.09	–	6.15	8/20/13			**0.67†**	5/31/17
Target 2020	TRRUX	2.80	9.37	5.63	–	6.82	8/20/13			**0.69†**	5/31/17
Target 2025	TRRVX	3.09	10.88	6.23	–	7.56	8/20/13			**0.77†**	5/31/17
Target 2030	TRRWX	3.43	12.44	6.93	–	8.35	8/20/13			**0.83†**	5/31/17
Target 2035	RPGRX	3.73	13.82	7.52	–	9.03	8/20/13			**0.98†**	5/31/17
Target 2040	TRHRX	4.07	15.18	7.98	–	9.54	8/20/13			**1.06†**	5/31/17
Target 2045	RPTFX	4.26	16.14	8.31	–	9.91	8/20/13			**1.23†**	5/31/17
Target 2050	TRFOX	4.36	17.05	8.54	–	10.21	8/20/13			**1.55†**	5/31/17
Target 2055	TRFFX	4.55	17.70	8.74	–	10.41	8/20/13			**2.17†**	5/31/17
Target 2060	TRTFX	4.54	17.75	8.78	–	7.46	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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Editor: Robert Benjamin
Writers: Leo Bland, Dan Bunch, Tara Coates, John Dixon, Derek Johnson, Nick Loney, Bill Montague, and Steven E. Norwitz.

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