T. Rowe Price
INVESTOR®
INSIGHTFUL STRATEGIES FOR INFORMED INVESTORS

Find Your Freedom

Now is the time to start envisioning—and planning for—the future you want.
6

SPRING 2018
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TAKE NOTE INSIDE
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Welcome Shareholder

We all have different ideas for retirement. Some individuals look forward to days filled with travel and adventure, while others want to spend more time with family and friends. And though we may differ in our vision for retirement, we have in common the need to plan for our future.

In our cover story, "Find Your Freedom," we share key steps you can take today to help you achieve your goals—no matter what you have planned or how many years from retirement you may be.

Among other stories, we discuss the right time to take Social Security benefits, what to do with an old 401(k), and why you should consider making IRA contributions earlier each year.

We hope you find this issue full of helpful insights as you plan for the future you're envisioning.

Sincerely,

Edward C. Bernard

Edward C. Bernard
Chairman, T. Rowe Price Investment Services

IN THIS ISSUE

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*Call **1-800-401-1819** 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. All data included in this issue are as of 12/31/17, unless otherwise indicated. For up-to-date standardized returns, visit **troweprice.com/performance**.*

The printing release date for the Spring 2018 issue was in late January.

PORTRAIT BY MARY F. CALVERT; PHOTOGRAPHS BY SHARPLY_DONE, FLY-JET, GRIFFIN24; COVER PHOTOGRAPH BY ALDO MURILLO

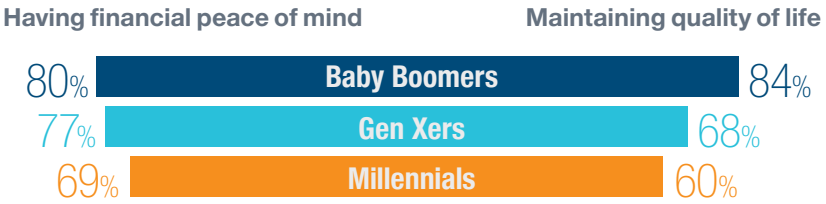
PERSONAL FINANCE

What Are Your Financial Priorities?

Peace of mind is one of the top objectives for investors, according to a recent T. Rowe Price study.*

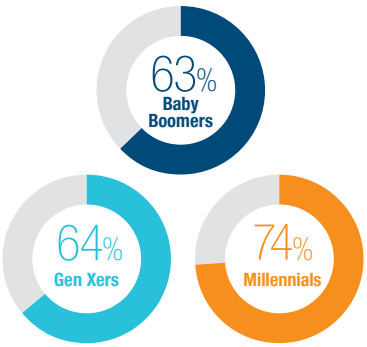
What matters most

Among their priorities, investors across all generations place the most importance on:

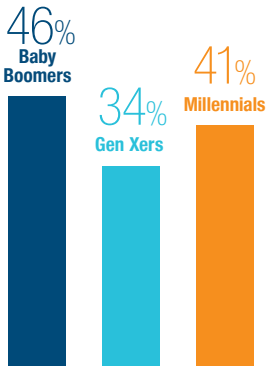


Looking toward the future

The majority of investors of all ages feel comfortable they're on track to meet their financial goals.



Investors across all generations have considered delaying retirement beyond their original target age in the last 12 months.



Reaching retirement goals

T. Rowe Price recommends these three steps to help you stay on track:

Invest more early on

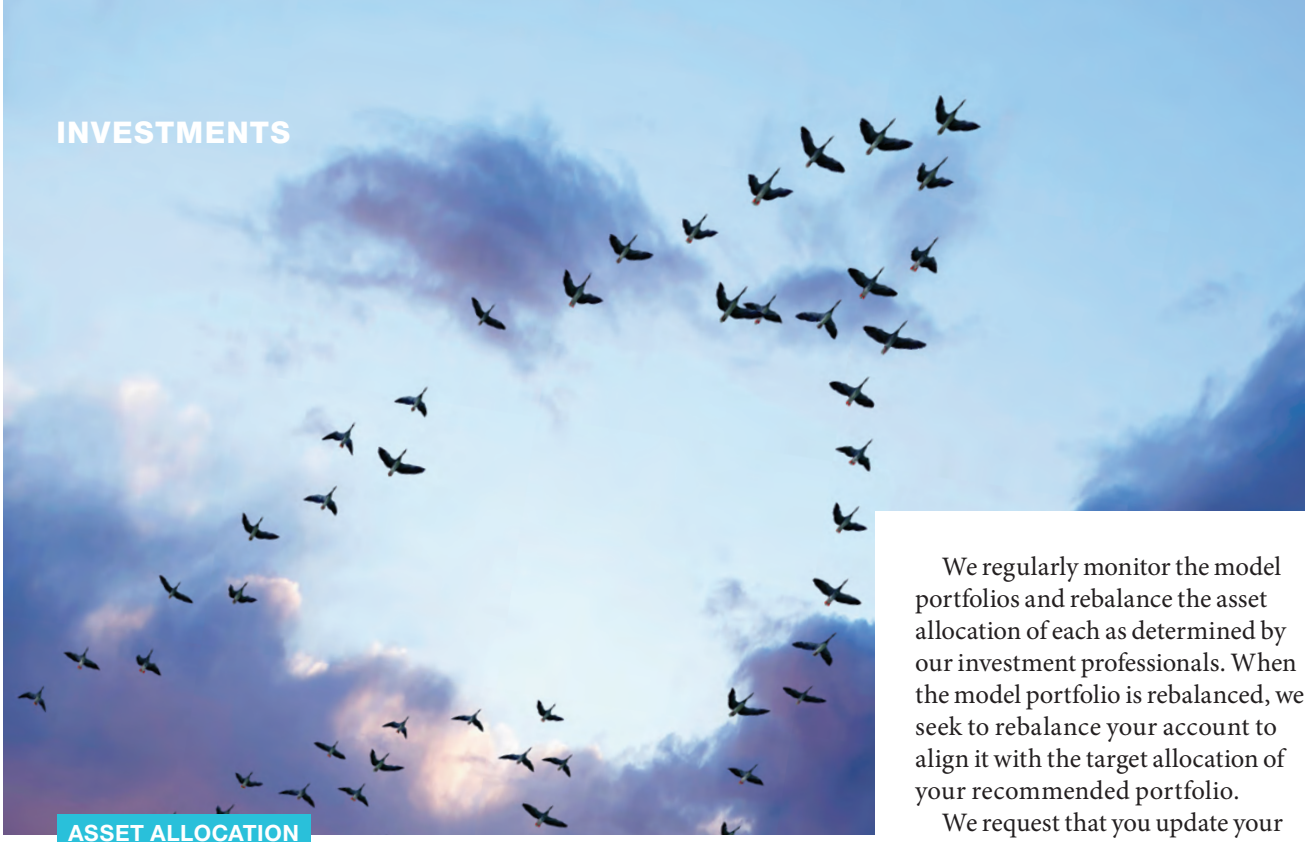
Save 15% of your income

Maintain exposure to equities

*The 2017 T. Rowe Price Retirement Savings and Spending Study was a representative national study conducted online in March 2017 of 3,022 adults age 18+, never retired, and currently contributing to a 401(k) plan (or eligible to contribute) with a balance of $1,000+.

NEXT STEPS

For more on ways to reach your retirement goals, see the Cover Story on **page 6**.



ASSET ALLOCATION

Aligning Risk Tolerance With Time Horizon

Diversified model portfolios provide strategic asset allocation powered by investment expertise.

Our digital discretionary investment program, T. Rowe Price® ActivePlus Portfolios, invests assets in one of 10 model portfolios based on information provided after an investor completes a short online questionnaire. Each model portfolio invests in approximately eight to 13 T. Rowe Price mutual funds according to a predetermined asset allocation strategy.

"These multi-asset class portfolios offer investors T. Rowe Price's strategic and tactical thinking on asset allocation and access to the firm's top global investment ideas through a diversified range of funds," says Toby Thompson, who manages the program with Robert Panariello and Guido Stubenrauch.

How it works

The program recommends a model portfolio based on information you provide in response to the online questionnaire, such as your investing time horizon and appetite for risk. The 10 model portfolios correspond with different time horizons and risk tolerances to meet a wide variety of investor needs—ranging from the most aggressive portfolios (as much as 100% in equity funds) to those with limited equity exposure. The portfolios invest in eight to 13 stock, bond, and money market securities. Once you receive your recommendation, it's easy to open an account.* (See "T. Rowe Price® ActivePlus Portfolios.")

We regularly monitor the model portfolios and rebalance the asset allocation of each as determined by our investment professionals. When the model portfolio is rebalanced, we seek to rebalance your account to align it with the target allocation of your recommended portfolio.

We request that you update your time horizon annually so that we can adjust your portfolio as necessary. Also, it's important to let T. Rowe Price know if things change with respect to your life events or your financial situation. You can update your profile anytime to receive a new model portfolio recommendation. If you have questions, you'll have access to telephone support. "While the program is completely digital and accessible on mobile and desktop devices, investors also have access to client specialists—a licensed phone support team that can help with questions," says Thompson.

Put our expertise to work for you

T. Rowe Price ActivePlus Portfolios combines the ease and convenience of digital investing with the insights and expertise of our investment professionals.

- Discretionary management of your account, including asset allocation, portfolio rebalancing, and trading decisions.
- No additional advisory fees to manage your account and

PHOTOGRAPH BY SHARPLY_DONE

no commissions—you pay the expenses of the underlying T. Rowe Price funds in your account, which are the same expenses that all fund shareholders pay.

- Highly tenured investment teams that actively monitor the markets, manage risk, and seek opportunities that offer the most long-term potential.
- A diversified account invested in a select model portfolio of actively managed T. Rowe Price mutual funds designed to meet specific objectives.
- Access to licensed client specialists who can answer questions about your account and more. ■

NEXT STEPS
Explore T. Rowe Price ActivePlus Portfolios at **troweprice.com/activeplusportfolios**.

T. Rowe Price® ActivePlus Portfolios

A digital discretionary investment program that recommends a model portfolio based on an investor's risk tolerance and time horizon.

To start, investor takes an **online risk assessment**.

Based on the answers, investor is offered **one of 10 preestablished model portfolios** of mutual funds.

Investor sees the **trades and holdings** of underlying mutual funds on their statement.

Investor **owns shares** of the underlying mutual funds and **can restrict holdings**, subject to approval.[1]

Investor updates the **risk assessment annually** or if personal situation changes.

$50,000
to open an account[2]

[1]You may request to restrict up to 3 funds from your portfolio at a time. By restricting a fund(s), you're requesting that we replace that mutual fund with an alternative program fund within the same asset class (for example, U.S. large-cap growth, U.S. investment-grade fixed income, etc.). Keep in mind: Not all mutual funds within a portfolio have an acceptable alternative. In this scenario, we'll contact you to review your options, which may include changing or removing the request or, in some cases, closing your account.

[2]Currently accepted for Roth, Traditional, and Rollover IRAs.

*Investors are eligible to open an account provided they are at least 18 years old, reside in the U.S., and meet the account minimum of $50,000.

Investments in T. Rowe Price® ActivePlus Portfolios are subject to the risks associated with investing in mutual funds, which may result in loss of principal. T. Rowe Price does not guarantee the results of our investment management, or that the objectives of the funds or the portfolios will be met.

The T. Rowe Price® ActivePlus Portfolios is a discretionary investment management program provided by T. Rowe Price Advisory Services, Inc., a registered investment adviser under the Investment Advisers Act of 1940. Brokerage services are provided by T. Rowe Price Investment Services, Inc., member FINRA/SIPC. Brokerage accounts are carried by Pershing LLC, a BNY Mellon Company, member NYSE/FINRA/SIPC. T. Rowe Price Advisory Services, Inc., and T. Rowe Price Investment Services, Inc., are affiliated companies.

Find Your Freedom

Now is the time to start envisioning—and planning for—the future you want.

When you think about retirement, how do you see yourself spending your time? Do you dream of traveling the world? Or do you want to spend more time with your family and friends? Perhaps you'll decide to continue working, take classes, or volunteer more in your community. "No matter your plans for retirement," says Stuart Ritter, CFP®, a senior financial planner with T. Rowe Price, "it's important to take actions today to help ensure your savings will provide for the future lifestyle you're envisioning."

PHOTOGRAPH BY ALDO MURILLO

KEY POINTS

- When balancing your savings priorities, retirement likely should come first.
- How much you set aside and how long you save have the most impact on your ability to achieve long-term goals.
- It's critical to maintain appropriate equity exposure for your age.

Four Steps for Every Age

However far away you are from retirement, these steps can help you achieve your goals.

1 Take advantage of any company match. Contribute at least enough to your workplace plan to receive the full company match, if offered by your employer. That way, you'll receive the maximum amount of "free money" to which you're entitled.

2 Save at least 15% of your income. Contributing this amount (including any employer matching contributions) to retirement accounts can help you cover your expenses over a retirement that may last three decades or longer. If you are married and take time out of the workforce for any reason, consider opening a spousal IRA to keep your savings on track. (See "Are You on Track?")

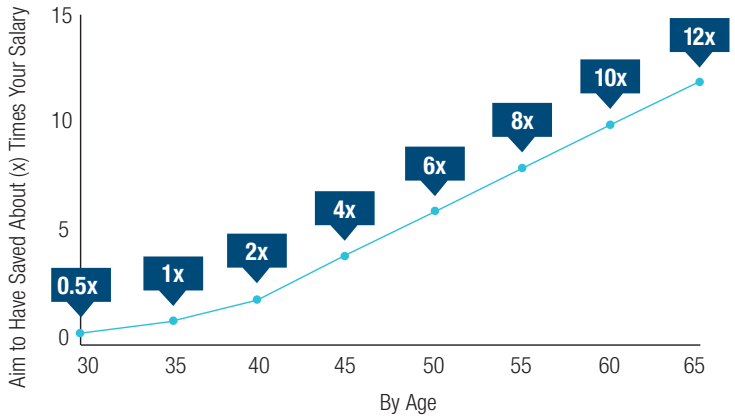
3 Consider Roth contributions. A Roth IRA or Roth contributions to your employer's plan, if available, can be a good choice if you don't expect your tax bracket to decrease in retirement or if you already have significant Traditional assets and won't need all of those funds for income.

4 Maintain appropriate equity exposure for your age. Equities offer greater long-term potential return than other asset classes, such as fixed income and cash. Your age and tolerance for risk will help you determine the precise amount of equities to hold. (See "Retirement Asset Allocation by Age," on page 10.)

Your situation is unique, as is your vision for retirement. "Whether retirement is still decades away or just a few years down the road," says Ritter, "taking the appropriate financial steps now can help you retire on your own terms later."

Are You on Track?

T. Rowe Price recommends that investors have these amounts saved in order to maintain their standard of living in retirement.



Assumptions: Individuals have saved (from age 25 to a retirement age of 65) 15% of their annual salary (increased by 3% each year) in a tax-deferred retirement account with a preretirement portfolio consisting of 60% stocks/30% bonds/10% short-term bonds, changing to 40% stocks/40% bonds/20% short-term bonds during retirement. Gross retirement income through age 95 is estimated to equal 75% of preretirement salary, consists of annual retirement account withdrawals of 4% plus estimated Social Security benefits (both beginning at age 65), and is increased by 3% annually for inflation. The savings benchmark analysis is based on results from our Retirement Income Calculator, which considers 1,000 market simulations and an 80% simulation success rate, using hypothetical age 65 salaries of $70,000, $100,000, and $110,000. That tool's methodology and assumptions are explained in detail at **troweprice.com/ric**. Users should consider their own circumstances. Results may not apply to earnings that vary substantially from modeled salaries.

15%

The recommended amount of income to contribute to your retirement accounts

What You Can Do Now

Find your age group, then consider implementing actions from the checklist to help you further prepare for the future you want.

In Your 20s and 30s

You may be actively managing your finances while looking for some direction on how to allocate your assets. Following some basic tips can help you establish a solid foundation for your retirement savings.

- Make sure you're tracking your expenses and develop a budget that allows you to meet your savings goal.
- We recommend contributing 15% to retirement accounts (including any employer matching contributions).
- Balance your other financial priorities, such as paying down debt, with saving for your retirement.
- If you can't hit the 15% retirement savings target right now, start with at least 6% (10% is better!) and work your way there with 2% annual increases. Use your workplace plan's auto-increase option, if offered.
- Consider maintaining a high exposure to equities (90% or more) in your retirement account. With decades to retirement, you can take full advantage of equities' growth potential.

In Your 40s and 50s

You may be facing competing financial priorities, such as saving for emergencies or paying for your children's college expenses. But it's important to keep your retirement investing as a priority.

- Use the auto-increase feature in your workplace plan if you have access to one.
- If you're not saving 15%, increase the amount you are saving by 2% per year.
- Consider maintaining a high exposure to equities (60% to 100%). Even when you are 11 to 15 years from retiring, you still may want to have 80% of your portfolio allocated to equities.
- Don't forget about managing savings you may have in old workplace savings plans.
- Take advantage of retirement account catch-up contributions in the year you turn age 50. You can contribute up to $6,000 more annually to your workplace plan ($24,500 total in 2018) and $1,000 more annually to your IRA ($6,500 total in 2018).

In Your 60s and Up

Retirement is within your sights. In this phase, you are either gearing up for it in the next decade or finalizing plans to make the transition.

- Consider setting aside more than 15% of your income, including any company match.
- If you've fallen a bit behind with your savings, take advantage of catch-up contributions for IRAs and workplace plans, if needed. If you are or plan to be self-employed, look into contributing to a SEP-IRA or an Individual 401(k).
- Consider a balanced approach to asset allocation, maintaining appropriate exposure to equities for sufficient growth potential in your portfolio (50% to 65%, gradually decreasing as you move into and through retirement) and fixed income and cash investments to dampen volatility.
- Don't forget about managing savings you may have in old workplace savings plans.
- Think about your sources of retirement income, including Social Security benefits, income from a pension, and even part-time work. Then consider how much you will need to maintain a comfortable standard of living—a flexible 4% withdrawal guideline offers a way to balance your need for income in retirement with your desire not to outlive your assets.

PHOTOGRAPH BY ALDO MURILLO

What's Your Retirement Personality?

Are you a Freedom Seeker, Reinventor, Preserver, or Explorer?

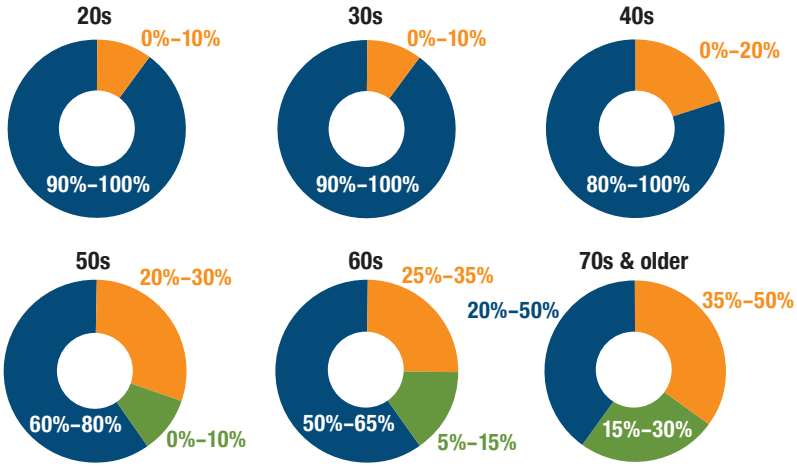
Take our **five-question quiz** to reveal your retirement personality and start to imagine what your future might look like. Then, consider whether you're taking the necessary financial steps to get there.

Visit **troweprice.com/retirementpersonalityquiz**.

NEXT STEPS
For more on how to save and plan for retirement, visit **troweprice.com/insights**.

Retirement Asset Allocation by Age

Maintaining the right mix of assets can help you reach your retirement goals and ensure you'll have the savings you need for the future you envision.



These allocations are age-based only and do not take risk tolerance into account. Our asset allocation models are designed to meet the needs of a hypothetical investor with an assumed retirement age of 65 and a withdrawal horizon of 30 years.

The model asset allocations are based upon analysis that seeks to balance long-term return potential with anticipated short-term volatility. The model reflects our view of appropriate levels of trade-off between potential return and short-term volatility for investors of certain ages or time frames. The longer the time frame for investing, the higher the allocation is to equities (and the higher the volatility) versus fixed income or short-term investments.

Limitations

While the asset allocation models have been designed with reasonable assumptions and methods, the chart provides models based on the needs of hypothetical investors only and has certain limitations:

- The models do not take into account individual circumstances or preferences and/or may not align with your accumulation time frame, withdrawal horizon, or view of the appropriate levels of trade-off between potential return and short-term volatility.
- Investing consistent with a model allocation does not protect against losses or guarantee future results.

Please be sure to take other assets, income, and investments into consideration when evaluating model allocations. Other T. Rowe Price educational tools or advice services use different assumptions and methods and may yield different outcomes.

PHOTOGRAPHS BY CHRISD600; ALDO MURILLO (BACKGROUND)

T. Rowe Price
TAKE NOTE

Cloud Computing Is Spreading Globally
A5

PHOTOGRAPH BY FLY-JET

The Right Time to Take Social Security

Your decision on when to take Social Security benefits could have a big impact on how much money you end up with.

You might be tempted to claim your Social Security benefits as soon as you qualify, but this may not be the best choice for you. Filing for benefits at age 62 offers an immediate income stream, but it means receiving a lower annual amount than if you wait a few years to start collecting. In fact, every year you wait, you increase your starting payment by 7%–8%, up to age 70. Thanks to those annual increases, if you wait until age 70 to begin receiving payments, your benefit will be almost twice as much as if you had started payments at age 62.

What's Your Full Retirement Age (FRA)?

If you were born...

1937 or earlier	between 1938 and 1942[1]	between 1943 and 1954	between 1955 and 1959[2]	1960 and later
65	65+	66	66+	67

Source: Social Security Administration.

Before making any decisions, carefully consider your individual financial situation—when you start collecting could make a difference of several hundred thousand dollars to the total income you receive in retirement. If you are single, your decision on when to take benefits may depend on a few factors, including the retirement savings at your disposal, other sources of income in retirement, and your life expectancy.

If you are married, however, you have additional options to consider, and the decisions you and your spouse make will affect your combined income in retirement. As with single individuals, you and your spouse can get the largest benefit from Social Security by waiting until age 70 to collect, and continuing to work until that time. However, many couples may not want both partners to work that long. "In this case, we suggest a compromise in which the higher-earning spouse forgoes benefits until at least after his or her full retirement age [the age someone becomes eligible for full retirement benefits], ideally waiting until age 70," says Judith Ward, CFP®, a senior financial planner with T. Rowe Price.

The impact of timing your benefits

The following scenarios show how different decisions produce different lifetime incomes from Social Security.

In these three hypothetical illustrations, a married couple, Paul and Jane, are both age 60. Paul currently earns $50,000 per year, and Jane earns $90,000. Paul survives until age 83, and Jane survives until age 95. Each scenario assumes a different age at which each spouse starts collecting his or her own benefit amount. Then, upon Paul's death, Jane (the surviving spouse) begins to receive the Social Security survivor benefit amount, which is the larger of a couple's two benefit payments.

Scenario #1

Receive benefits as early as possible

Both Paul and Jane could choose to receive benefits as early as age 62, when they become eligible. But that decision would mean they would both receive the smallest benefit available over the course of their entire retirement horizon.

Paul's annual benefit	At age 62	$12,804
Jane's annual benefit	At age 62 Survivor benefit	$19,404 $19,404
Cumulative lifetime benefit*		$909,216

*Includes benefits for both Paul and Jane from age 62 to age 83, plus Jane's benefits until her death at age 95.

Scenario #2

Maximize your Social Security

Some couples may continue working through their 60s and not need their Social Security benefits right away. Consider if Paul and Jane each file for benefits at age 70, ensuring that they both receive the highest possible annual benefit from Social Security based on their personal work histories. In exchange for forgoing Social Security income in their initial years of eligibility, the couple has the potential to receive over $300,000 more in lifetime benefits. "Maximizing the higher-earning spouse's benefit allows the surviving spouse to potentially plan a more financially comfortable retirement and ensures the highest possible benefit for the surviving spouse," says Ward.

Paul's annual benefit	At age 70	$24,444
Jane's annual benefit	At age 70 Survivor benefit	$35,952 $35,952
Cumulative lifetime benefit*		$1,216,572

*Includes benefits for both Paul and Jane from age 70 to age 83, plus Jane's benefits until her death at age 95.

Scenario #3

Collect some now with a larger survivor benefit later

If Paul and Jane have some flexibility in their retirement planning and still want to maximize the benefit for the surviving spouse (in this illustration, Jane), they can pursue a split strategy. They can wait to take the higher-earning spouse's (i.e., Jane's) benefit when she is age 70, while beginning to take Paul's benefit early at age 62.

Paul's annual benefit	At age 62	$12,804
Jane's annual benefit	At age 70 Survivor benefit	$35,952 $35,952
Cumulative lifetime benefit*		$1,167,684

*Includes annual benefits for Paul from age 62 to age 83, plus Jane's benefits from age 70 until her death at age 95.

"Paul's claiming at age 62 provides some income for the couple while they are in their 60s and puts less pressure on their investment portfolio, while Jane's delay helps boost the couple's benefits significantly greater than what they would have if they both started collecting at age 62," says Ward. "Depending on their circumstances, the higher earner may need to work longer in order to make the delay feasible."

2x

If you wait until age 70 to begin receiving payments, your benefit will be almost twice as much as if you had started payments at age 62.

Making choices about your income

Waiting just a few years to apply for Social Security benefits can lead to significantly more income. "Ultimately, the trade-offs you make and your choices about when to start taking benefits have the potential to affect your quality of life for years to come, especially for a surviving spouse," says Ward.

Set up your Social Security account

It's a good idea to review your Social Security statement each year to make sure the earnings history is accurate and to see your benefit amounts at different retirement ages. This can help you better plan for the future, including coordinating benefits with your spouse, if applicable.

The Social Security Administration no longer mails paper statements, unless you're over age 60, aren't receiving benefits, and don't have an online "*my* Social Security" account. If you haven't done so already, go to SSA.gov and set up your account. ■

NEXT STEPS

For more information on Social Security benefits, visit **ssa.gov**.

Answers to Common Social Security Questions

Judith Ward, CFP®, a senior financial planner with T. Rowe Price, explains how to undo your Social Security filing decision and how to claim full benefits while working.

If I have already started taking benefits and now regret my decision, do I have any recourse?

Yes. If you started receiving your benefits less than 12 months ago, you can pay everything back to the Social Security Administration and start over with a new claiming strategy at a later date. Alternatively, if you have been receiving benefits for more than 12 months and have reached your full retirement age (FRA), you can ask to "suspend" your benefits up to age 70, which could increase your payments as much as 32% (assuming an FRA of age 66). Keep in mind, when suspending benefits, all benefits based on your work history, including spousal benefits, will be suspended as well.

I plan on working full time past age 62. Why should I delay benefits until I reach full retirement age?

If you file early but continue to work, the Social Security Administration will temporarily reduce your benefits, which will gradually be reimbursed to you, starting at your FRA. The already lower benefit you receive when you file before your FRA will be further reduced by $1 for every $2 you earn above the annual wage limit—$17,040 in 2018. Once you reach your FRA, however, there is no limit on how much you can earn without any reduction in your benefits. If you are working past age 62, waiting to claim benefits helps avoid having your work income temporarily count against the benefit amount you're eligible to receive.

[1]For people born between 1938 and 1942, FRA is between age 65 and 2 months and age 65 and 10 months, depending on birth year. [2]For people born between 1955 and 1959, FRA is between age 66 and 2 months and age 66 and 10 months, depending on birth year.

Cloud Computing Is Spreading Globally

Still in its early stages, this technology has multiple years of growth ahead.

For years, companies needed to install servers and software on-site to meet their various computing needs. This technology required expensive maintenance and routine upgrades. Now, cloud computing offers a more customer-friendly solution—one that is disrupting the technology landscape.

Providers of cloud computing services host hardware and applications in their own data centers, which customers access through the Internet. These companies offer on-demand computing power or software to customers via the cloud. These avenues result in a significant reduction in a company's investment in hardware and software, as well as subsequent cost savings on IT staff needed to maintain those resources.

Cost savings and increased efficiencies

To better illustrate the benefits of and growing demand for on-demand computing power and its growing appeal, it helps to look at the dominant player in the industry—Amazon.com's Amazon Web Services (AWS). Launched in 2006, AWS has experienced rapid growth, with revenues of less than USD $1 billion in 2011 jumping to over USD $17 billion in 2017. AWS's scalability allows companies to adjust to meet the amount of server capacity they require, effectively ending the days of idle capacity. AWS and similar cloud-based infrastructures and platforms, such as Microsoft's Azure and Alibaba Group Holding's AliCloud, help facilitate e-business, big data analytics, enterprise applications, and many other functions.

On-demand computing power allows firms to focus on their core competencies, rather than diverting resources to maintain in-house technology. In fact, an increasing number of businesses run their operations entirely through the cloud. Netflix is a prominent example. Netflix began its migration to the cloud in 2008 following a database corruption that prevented it from shipping DVDs for three days. The cloud has helped avoid another such interruption, while also supporting Netflix's rapid growth and expansion—allowing management to focus on key issues rather than diverting time and resources to keeping pace with the company's ever-increasing capacity needs.

In our meetings with management teams across the technology sector and in other sectors, we've consistently heard that cloud computing models can lead to significant cost and operational efficiencies. Over the past five years, we've noted that companies have increasingly adopted a "cloud first" strategy, as more businesses demonstrate an interest in opting for cloud services versus on-site options. A recent survey of more than 2,000 IT professionals conducted by the antivirus

PHOTOGRAPH BY ZODEBALA

software company McAfee found that over 80% of businesses are now adhering to a cloud-first strategy.

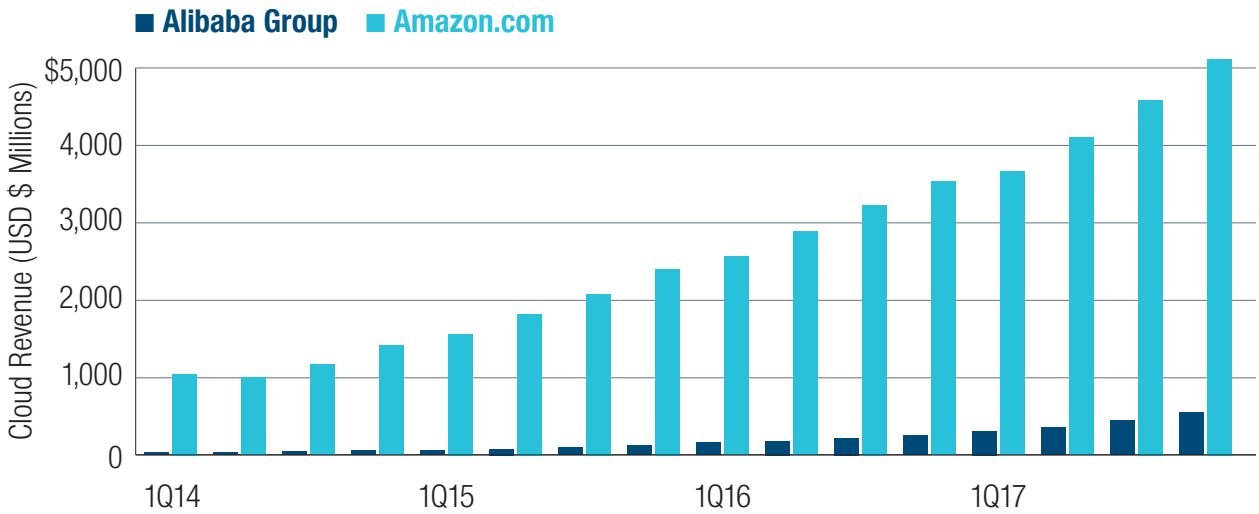
From licenses to subscriptions

Businesses are making use of the cloud in a variety of ways. For example, a retailer might decide that it wants to use social media as a means to resolve customer issues and complaints. Several leading providers of enterprise software-as-a-service (SaaS) are helping companies more strategically track and respond to customer posts.

Salesforce is a leading SaaS provider, with the majority of its revenue derived from customer relationship management applications. Salesforce's strong front-office product portfolio and highly recurring subscription business model could help it remain a major beneficiary of the trend toward SaaS. We are mindful, however, that the company's operating margins are lower than some of its peers and that the potential for future acquisitions could be a headwind for the stock.

Another company actively involved in this area is Workday, which helps enterprises manage labor resources and firms' financial information. Most of Workday's revenue comes from human resource applications. We believe that its platform is highly versatile and differentiated, making it a very durable software company. However, we continue to be mindful of valuation and changes to the stock's risk/reward profile. Our expertise in investing in these software companies helps us effectively assess their valuation and others like them because we understand what the steady state of operating margins should be for a software company when it is fully scaled. Additionally, our insights into how much value each new customer will add assist in our evaluation of a company's decision to expand.

Early Days for AliCloud Revenue Compared With AWS
As of December 31, 2017



Sources: Alibaba and Amazon.

Artificial intelligence will further drive cloud adoption

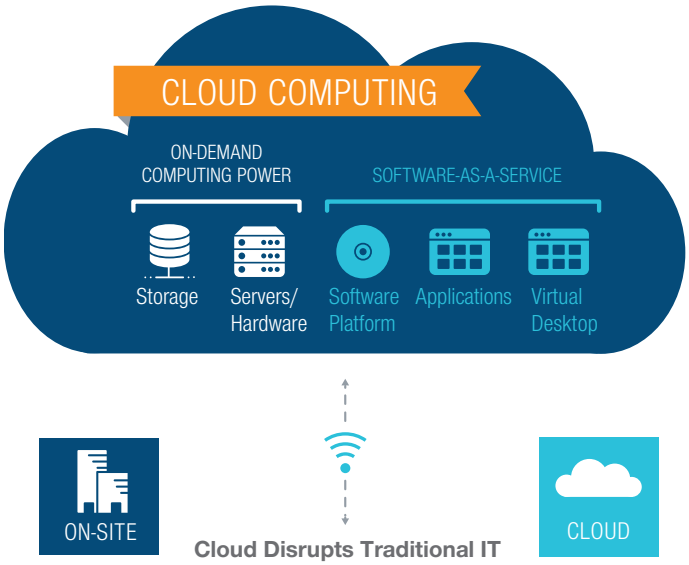
Cloud computing is also destined to play a key role in the rapidly growing field of artificial intelligence (AI). Businesses in areas ranging from financial services to biotechnology to retail are seeking to use AI to improve efficiencies, develop new products, and better target markets. In particular, companies are hoping to task computers with mining massive amounts of data and drawing conclusions from it without the use of human programmers, a process known as "machine learning."

Developing in-house machine learning platforms is a herculean task, however. First, the data that are fed into machine learning programs need to be properly organized and labeled. Second, massive amounts of computing power are required to train the models, calling for a significant investment in hardware that may sit idle for much of the time. Third, the true AI expertise needed both to set up and maintain the models is scarce and expensive. As *The New York Times* recently reported, even junior AI specialists often command up to $500,000 a year in compensation.

Outsourcing to the cloud solves many of these problems. Cloud services can aid companies in the collection and preparation of their data while enabling it to live closer to the computers necessary to train AI models, thus saving on bandwidth costs. In the cloud, companies are also able to readily access AI frameworks, tools, or off-the-shelf AI models already developed by the cloud providers themselves or the developer

Businesses Can't Ignore Cloud Computing

The potential efficiencies and cost savings available make this new technology a major disruptor in the technology landscape.



Purchase hardware and software and hire IT staff	COSTS	Subscriptions lower capital expenditure and reduce personnel
Need to frequently update and maintain	PERFORMANCE	Immediate access to latest technology and innovation
Challenges with insufficient or idle capacity	SCALABILITY	Quickly adjust capacity to meet changing demand
In-house tech expertise and app development	FOCUS	Allows more focus on core competencies

Source: T. Rowe Price.

Investing in cloud computing requires a deep understanding of the industry and how emerging trends and innovations will leverage—and even change—this technology.

community. For example, a company wishing to make use of voice recognition to improve customer service or other facets of its business can leverage Amazon Lex, an offering that uses the same deep learning technologies Amazon built to power Alexa in its popular Echo devices. Given the rapid growth and complexity of AI, companies have every incentive to leverage cloud platforms in their effort to remain competitive.

A global mind-set for a global trend

A key advantage of investing across the globe is that we can apply what we learned in one market to others. For example, our extensive experience investing in Amazon helped guide our early interest in China's Alibaba Group Holding, which has grown to become one of the largest e-commerce companies in the world.

We believe that Alibaba, like Amazon, is cementing its place as a global leader in the collection and utilization of data. In some areas, Alibaba may even stand alone. Given the variety of its business lines and the many areas of the Chinese economy in which it operates, no other company can rival Alibaba in the comprehensiveness of the data it has on its users, which it can then feed into massively scaled applications. Remarkably, Alibaba is responsible for roughly three-quarters of online sales in the country.

Likewise, AliCloud, the company's cloud business, has scale and network benefits that are reminiscent of a younger AWS. To be sure, cloud computing adoption is still in its early stages within the region, and we acknowledge that AliCloud is likely to encounter unforeseen challenges in its push for widespread adoption. Additionally, local competitors such as Tencent Holdings and Huawei pose a challenge. On the other hand, AliCloud boasts advantages relative to its predecessor. Unlike Amazon.com in 2006, AliCloud does not need to pitch the benefits of cloud computing to potential customers since these are now well known. Furthermore, AliCloud faces fewer competitive headwinds given the absence of many legacy software providers in China.

In our view, the growth of cloud computing is only in its early stages. Nevertheless, investing in cloud computing requires a deep understanding of the industry and how emerging trends and innovations will leverage—and even change—this technology. T. Rowe Price's bottom-up approach to stock selection coupled with our firm's global capabilities uniquely position us to identify cloud computing companies that are best positioned to potentially achieve meaningful growth. ■

NEXT STEPS

For more investing education, visit **troweprice.com/insights**.

Media and telecommunications companies are subject to the risks of rapid obsolescence, lack of investor or consumer acceptance, lack of standardization or compatibility with existing technologies, an unfavorable regulatory environment, intense competition, and a dependency on patent and copyright protection.

As of December 31, 2017, the securities listed represented the following percentage of the Media & Telecommunications Fund's portfolio: Amazon.com 10.90%, Alibaba Group Holding 6.30%, Tencent Holdings 4.24%, Netflix 1.94%, Microsoft 0.57%, Workday 0.45%, and Salesforce.com 0.40%. The following security was not held by the fund as of December 31, 2017: Huawei. The manager's views and portfolio holdings are historical and subject to change. This material should not be deemed a recommendation to buy or sell any of the securities mentioned.

T. Rowe Price Target Date Funds

Flexible investment solutions that offer convenience and diversification to help meet your needs before, during, and after retirement.

Innovative investment strategies

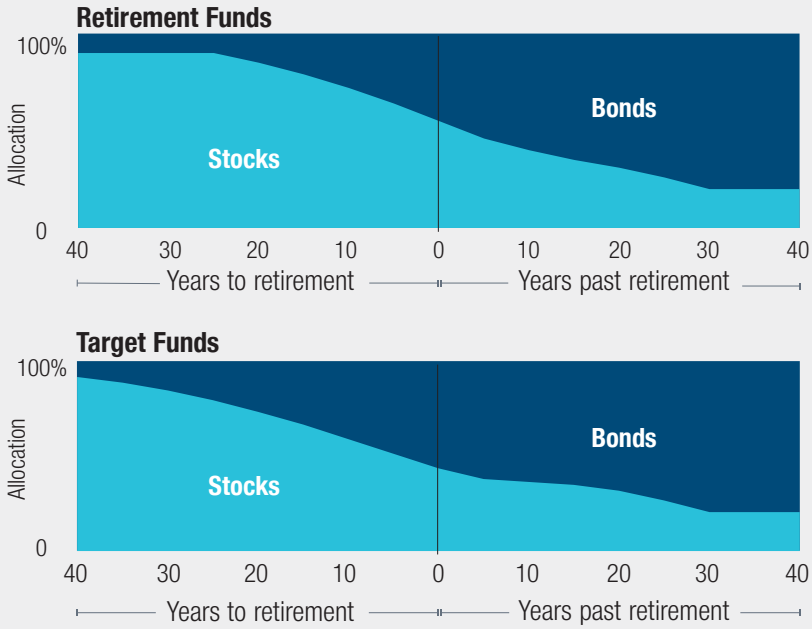
Target date funds generally are designed to reduce exposure to stocks and increase exposure to bonds as the target retirement date approaches. Some funds, such as the two suites of T. Rowe Price target date funds, continue to adjust the investment mix throughout retirement.

The **T. Rowe Price Retirement Funds** seek asset accumulation prior to retirement while maintaining sufficient assets to sustain withdrawals during a retirement that could last 30 years or more. This strategy uses a higher allocation to stocks, typically ranging from a 90% allocation 30 years from retirement to about 55% at the expected retirement date. Each fund reaches its most conservative planned allocation 30 years after its stated retirement year, when equity exposure is fixed at 20%.

The **T. Rowe Price Target Funds** also promote asset accumulation prior to retirement, but they generally maintain a lower equity exposure to reduce the risk of volatility and principal loss around and just after the target retirement date. ■

Two Approaches to Asset Allocation

The T. Rowe Price Retirement Funds offer investors greater exposure to the long-term growth potential of equities, while the T. Rowe Price Target Funds offer investors less equity exposure than our Retirement Funds to reduce the risk of principal loss around the retirement date.



NEXT STEPS

Visit **troweprice.com/targetdatefunds** to find a target date fund that meets your needs.

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' allocations among a broad range of underlying T. Rowe Price stock and bond funds will change over time. The Retirement Funds emphasize potential capital appreciation during the early phases of retirement asset accumulation, balance the need for appreciation with the need for income as retirement approaches, and focus on supporting an income stream over a long-term postretirement withdrawal horizon. The Target Funds emphasize asset accumulation prior to retirement, balance the need for reduced market risk and income as retirement approaches, and focus on supporting an income stream over a moderate postretirement withdrawal horizon. 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. The key difference between the Retirement Funds and the Target Funds is the overall allocation to equity; although they each maintain significant allocations to equities both prior to and after the target date, the Retirement Funds maintain a higher equity allocation, which can result in greater volatility over shorter time horizons.

RETIREMENT SAVINGS

What Should You Do With Your Old 401(k)?

The best choice depends on your circumstances.

You have four options for what to do with an old 401(k) account. "What's right for you depends in part on whether you're changing jobs or retiring from your career," says David Gonzalez, CFP®, a lead financial planner with T. Rowe Price. Keep in mind that preserving the tax benefits of your retirement assets may substantially improve your ability to build wealth over the long term. You can choose from any of the following options:

1. Leave your assets where they are

If the plan allows, this option lets your assets continue to benefit from any tax-advantaged growth. Find out if you must maintain a minimum balance or if there are any fees for leaving your assets in the plan, and be familiar with the plan's distribution provisions.

2. Roll your assets into a new employer plan

If you're changing jobs, you can roll your old 401(k) account assets into your new employer's plan (if permitted). If you are still saving for retirement, it may be convenient to consolidate your old 401(k) assets into the new plan. Find out if your new plan accepts rollovers and if there is a waiting period to move the money. Also, review the differences in investment options and fees between your old and new employers' 401(k) plans.

3. Roll over your savings to an IRA

If you're looking for a wider variety of retirement investment options, you can roll your old 401(k) into an IRA. Keeping the assets in an IRA maintains their tax-advantaged status. Review the differences in investment options and fees among an IRA and your old and new employers' 401(k) plans.

4. Cash out your assets

Cashing out your old 401(k) may have significant financial consequences. Not only are those funds subject to an immediate tax withholding, but you also may be subject to a 10% early withdrawal tax penalty if you cash out before age 59½.[1] In addition, the amounts you withdraw will lose the potential for tax-deferred growth unless you do a direct rollover within 60 days.

Choosing the best option for your situation

How to best proceed depends on your personal circumstances. "If possible, choose an option that allows you to continue to preserve the tax-advantaged status and increase the growth potential of your wealth," says Gonzalez.

Other important factors to consider include fees and expenses, available services, protection from creditors, and special tax considerations for employer stock. Please consider consulting with a tax advisor. ■

PHOTOGRAPH BY GRIFFIN24

Advantages and Considerations of the Four Options

Here's the information you need to help make the right choice for your situation.

	Advantages	Considerations
1 **Leave your assets where they are**	▪ Offers familiar investment options. ▪ Maintains your plan account's tax-advantaged status. ▪ Generally allows for penalty-free withdrawals if you leave your job in the year that you turn age 55 or older (although distributions are still subject to income taxes). ▪ May provide access to investments that might not be available elsewhere.	▪ May have a minimum balance requirement of $5,000 to remain in the plan.[2] ▪ Subject to plan withdrawal provisions. ▪ May have limited investment options.
2 **Roll your assets into a new employer plan**	▪ Maintains your plan account's tax-advantaged status. ▪ May permit loans.[2] ▪ Generally allows for penalty-free withdrawals if you leave your job in the year that you turn age 55 or older (although distributions are still subject to income taxes). ▪ May provide access to investments that might not be available elsewhere. ▪ If you are still working at age 70½, you may not have to take required minimum distributions from your current employer's plan.	▪ Limits investment options to those in the new plan. ▪ Limits your access to withdrawals.[2] ▪ May involve a waiting period prior to moving assets from a former employer's plan.[2] ▪ Generally, rollover contributions to a new plan (if permitted) can be withdrawn at any time and do not have to meet a permissible distribution event. Taxes and penalties may apply.
3 **Roll over your savings to an IRA**	▪ Maintains your plan account's tax-advantaged status. ▪ Often offers access to a wider range of investment options (versus keeping the assets in an employer-sponsored plan). ▪ Permits penalty-free withdrawals after age 59½ and under limited circumstances. ▪ Allows you to consolidate multiple accounts into a single IRA.	▪ Does not offer loan provisions. ▪ Generally, you may not make penalty-free withdrawals until age 59½. ▪ There may be negative tax consequences of rolling over significantly appreciated employer stock to an IRA.
4 **Cash out your assets**	▪ Provides immediate access to your retirement plan assets.	▪ Removes the potential for continued tax-deferred growth of your assets unless you do a direct rollover within 60 days. ▪ Mandatory 20% withholding on the distribution. You may be liable for a greater amount when you file your taxes if your income tax rate is higher than 20%. ▪ May be subject to a 10% early withdrawal penalty if you are under age 59½. (Some exceptions apply.)

NEXT STEPS

For more information on options for your old 401(k) account, visit **troweprice.com/rollover**.

[1]Certain exceptions apply. [2]Depends on employer plan provisions.

PHOTOGRAPH BY CHIMPINSKI

RETIREMENT PLANNING

5 Things to Know About RMDs

Once you turn age 70½, you'll need to take required minimum distributions.

Generally, beginning at age 70½, retirement account holders must take required minimum distributions (RMDs) from their tax-deferred retirement accounts. You need to pay federal, and sometimes state, income taxes on the taxable amounts of these distributions.

"RMDs aren't optional," says Keith McGurrin, CFP®, a lead financial planner with T. Rowe Price. "If you don't take your RMD, or take out too little, you may be faced with an IRS penalty tax of 50% of the amount not distributed." Following are answers to five questions you may have about RMDs:

1 When do I need to take the first RMD?

For IRAs, you must take your first RMD by April 1 of the year after the year you turn age 70½—regardless of whether or not you are retired. For each following year, you must take an RMD by December 31.

Any distributions made through December 31 are generally taxable in the current year. Many IRA holders take their first distribution by December 31 of the year they turn age 70½.

Required beginning dates for RMDs from an employer plan vary, depending on plan rules. Please note that you must take each RMD for a qualified employer-sponsored plan from that plan; you may not take the amount from an IRA.

2 Which accounts require distributions?

The most common accounts that require RMDs include:

IRAs*	Employer-Sponsored Retirement Plans
Traditional	401(k)*
Rollover	403(b)*
SEP	457
SIMPLE	Roth

If you're working at age 70½ and have assets in an employer-sponsored retirement plan at your current job, you may be able to delay taking distributions from that account until April 1 of the year after the year you retire.

3 How do I calculate the RMD?

You need to calculate your RMD each year because it is based on your current age and account balance at the prior year-end. For IRAs and 403(b) plans, the account owner is responsible for calculating and taking RMDs. T. Rowe Price offers a free online

PHOTOGRAPH BY ANDREYPOPOV

TIP: While planning to take your RMDs, it's a good time to review the beneficiary designations on all your retirement accounts as well.

calculator to help with this, or you can read IRS Publication 590-B and use Appendix A: Worksheet for Determining RMDs. The employer is responsible for determining the RMD amount from qualified employer plans, such as 401(k)s, and distributing the RMD.

4 I have multiple IRAs. How many RMDs do I need to take?

If you have multiple IRAs, you need to calculate the appropriate RMD for each one. However, the total distribution amount can be taken from one or more IRAs to satisfy the withdrawal.

The 403(b) plan rules mirror IRA rules in terms of the total distribution, but it's different with 401(k)s. If you have multiple 401(k)s from prior jobs, each plan will calculate the RMD and send a distribution.

NEXT STEPS

Visit T. Rowe Price's RMD Learning Center at **troweprice.com/rmd**.

*Roth IRAs don't require RMDs for the account owner, while Roth plan contributions do.

PHOTOGRAPH BY JOHNNYGREIG

5 What if I don't need to spend the distribution?

Once the RMD is distributed, you don't have to spend it if you don't need to, but it cannot remain in the tax-deferred retirement account. If you are considering ideas of where to keep this distribution, you can:

- Add it to your rainy day fund or reinvest the money in a regular taxable account.
- Contribute to a 529 college savings plan for a grandchild.
- Contribute to a Roth IRA if you have earned income and meet the contribution limits (RMDs are not eligible to be rolled directly into another retirement plan or converted to a new Roth IRA).
- Or, you can send your RMD directly to a qualified charity and not include the amount as taxable income (up to $100,000). ■

Determine Your RMD Timing

An example for first-time RMD takers

Mary was born on March 1, 1947, and turned 70½ on September 1, 2017. The deadlines for making her first two RMDs are as follows:

- **First RMD:** April 1, 2018 (this counts as her RMD for 2017).
- **Second RMD:** December 31, 2018.

In this example, if Mary takes both distributions in 2018, they will be included in her taxable income for 2018.

The Confident Wallet™

Brought to you by T. Rowe Price and The Washington Post BrandStudio, **The Confident Wallet** is a personal finance podcast series that inspires long-term success through informed decisions on saving and investing.

- Join host Lynnette Khalfani-Cox (The Money Coach®), T. Rowe Price financial planners, and third-party experts as they navigate a variety of personal finance topics.
- Panelists will provide you with actionable strategies on a range of topics like prioritizing finances, saving for college, planning for retirement, and getting an estate in order.

IN THIS SERIES

Episode 1: Prioritizing Your Finances

Episode 2: Saving for College

Episode 3: Getting Your Estate in Order

Episode 4: Building a Retirement Strategy

Episode 5: Closing In on Retirement

Episode 6: Understanding Your Social Security Options ■

NEXT STEPS

You can access and find additional details on the episodes at **washingtonpost.com/brand-studio/confident-wallet**.

Please note that you will be directed to The Washington Post's website.

T. Rowe Price Honored for Excellence

We were recently honored at the 2017 Mutual Fund Education Alliance (MFEA) STAR Awards for excellence in mutual fund marketing and communications. T. Rowe Price received the STAR Award for Overall Retail Communications in the large-plus funds category. And this is the 16th consecutive year that the firm has received a STAR Award for *T. Rowe Price Investor*® magazine.

The MFEA STAR Awards program was designed to honor the fund industry for its extraordinary efforts to communicate with and market to investors in ways that support shareholders and their investment goals. Over the years, it has distinguished itself as the premier fund industry competition that encourages excellence and fosters improvement and innovation. ■

There's Still Time to Make Your 2017 IRA Contribution

You have through April 17, 2018, to contribute, but it's wise to do so as soon as possible. You may even want to consider your 2018 contribution at the same time. Investing early is an effective way to maximize the compound growth potential of your investments. ■

IRA CONTRIBUTION LIMITS		
Tax Year	Under Age 50	Age 50 or Older
2017	**$5,500**	**$6,500**
2018	**$5,500**	**$6,500**

Note: You may not contribute more than your taxable income for the year.

NEXT STEPS
To make an IRA contribution today, log in to your account at **troweprice.com/contribute**.

A Fast Way to Put Your Tax Refund to Work

One of the best ways to maximize the value of your tax return is to put it to work right away by taking advantage of our direct deposit tool.

1. Access the tool at **troweprice.com/taxplanning**.
2. Log in to your account to set up the direct deposit.
3. We'll provide you with routing and account numbers to enter on your tax forms. ■

NEXT STEPS
Visit **troweprice.com/taxplanning**.

PHOTOGRAPHS BY MAPODILE MKHABELA; SIDEKICK

RETIREMENT SAVINGS

Why Contribute Early

Investors have the potential to earn thousands more in tax-deferred savings by making their IRA contributions earlier in the year.

Every year, you have a nearly 16-month period over which you can contribute to an IRA for that tax year. If possible, you may want to make contributions as soon as you are eligible to do so.

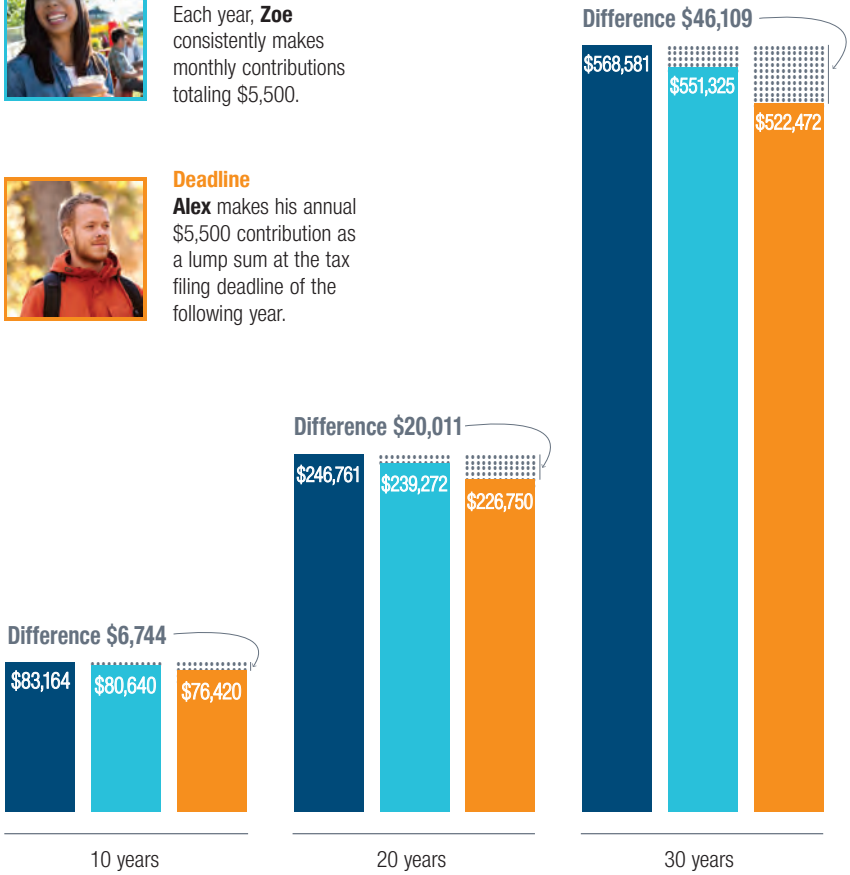
Making an early contribution—whether through a lump sum at the start of the tax year or by contributing evenly each month throughout the year—gives your savings more time to benefit from the power of compounding. Accelerating contributions by a few months may not seem like a big deal for one year, but it can have a significant impact over the long term. While investments are not guaranteed to grow every year, over time, you are likely to benefit from being invested longer.

There may be reasons why you can't contribute to your IRA at the start of every year. Of course, funding an IRA later is still better than making no contribution at all. ■

Early
Mike makes a $5,500 lump-sum contribution (the maximum contribution limit for 2017 and 2018) at the beginning of each year.

Throughout
Each year, **Zoe** consistently makes monthly contributions totaling $5,500.

Deadline
Alex makes his annual $5,500 contribution as a lump sum at the tax filing deadline of the following year.



Assumes a 7% annual rate of return compounded monthly, $5,500 contributed annually, and contributions made for 10, 20, or 30 consecutive tax years. Account balances are as of the tax filing deadline month and reflect the same number of annual contributions for each investor. This example is for illustrative purposes only and not meant to represent the performance of any specific investment option.

PHOTOGRAPHS BY HERO IMAGES; MONKEYBUSINESSIMAGES

NEXT STEPS
Visit **troweprice.com/IRA** to learn more about IRAs.

T. Rowe Price Funds

For detailed information on T. Rowe Price mutual funds, including investment performance, visit **troweprice.com/performance**.

STOCK

Domestic
Blue Chip Growth
Capital Appreciation[1]
Capital Opportunity
Diversified Mid-Cap Growth
Dividend Growth
Equity Income
Equity Index 500
Extended Equity Market Index
Financial Services
Growth & Income
Growth Stock
Health Sciences
Media & Telecommunications
Mid-Cap Growth[1]
Mid-Cap Value[1]
New America Growth
New Era
New Horizons[1]
QM U.S. Small & Mid-Cap Core Equity
QM U.S. Small-Cap Growth Equity
QM U.S. Value Equity
Real Estate
Science & Technology
Small-Cap Stock[1]
Small-Cap Value
Tax-Efficient Equity
Total Equity Market Index
U.S. Large-Cap Core
Value
International/Global
Africa & Middle East
Asia Opportunities
Emerging Europe
Emerging Markets Stock
Emerging Markets Value Stock
European Stock
Global Consumer
Global Growth Stock
Global Industrials
Global Real Estate
Global Stock
Global Technology[1]
International Concentrated Equity
International Discovery
International Equity Index
International Stock
International Value Equity
Japan
Latin America
New Asia
Overseas Stock
QM Global Equity

ASSET ALLOCATION

Balanced
Global Allocation
Personal Strategy Balanced
Personal Strategy Growth
Personal Strategy Income
Real Assets
Retirement 2005, 2010, 2015, 2020, 2025, 2030, 2035, 2040, 2045, 2050, 2055, 2060
Retirement Balanced
Retirement Income 2020[2]
Spectrum Growth
Spectrum Income
Spectrum International
Target 2005, 2010, 2015, 2020, 2025, 2030, 2035, 2040, 2045, 2050, 2055, 2060

BOND

Taxable
Corporate Income
Credit Opportunities
Dynamic Global Bond[3]
Emerging Markets Bond
Emerging Markets Corporate Bond
Emerging Markets Local Currency Bond
Floating Rate
Global High Income Bond
Global Multi-Sector Bond
GNMA
High Yield[1]
Inflation Protected Bond
International Bond
International Bond (USD Hedged)
Limited Duration Inflation Focused Bond
New Income
Short-Term Bond
Total Return
U.S. Bond Enhanced Index
U.S. High Yield
U.S. Treasury Intermediate
U.S. Treasury Long-Term
Ultra Short-Term Bond
Tax-Free[4]
CA, GA, MD, NJ, NY, VA Tax-Free Bond
Intermediate Tax-Free High Yield
MD Short-Term Tax-Free Bond
Summit Municipal Income[2]
Summit Municipal Intermediate[2]
Tax-Free High Yield
Tax-Free Income
Tax-Free Short-Intermediate

MONEY MARKET

Taxable
Cash Reserves[5]
Government Money[6]
U.S. Treasury Money[6]
Tax-Free[4]
CA, MD, NY Tax-Free Money[5]
Summit Municipal Money Market[2,5]
Tax-Exempt Money[5]

[1]Closed to new investors except for a direct rollover from a retirement plan into a T. Rowe Price IRA invested in this fund. [2]$25,000 minimum. [3]Formerly Global Unconstrained Bond. [4]Certain tax-free funds may not be appropriate for tax-deferred investments, including individual retirement accounts (IRAs).

[5]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.**

[6]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.**

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