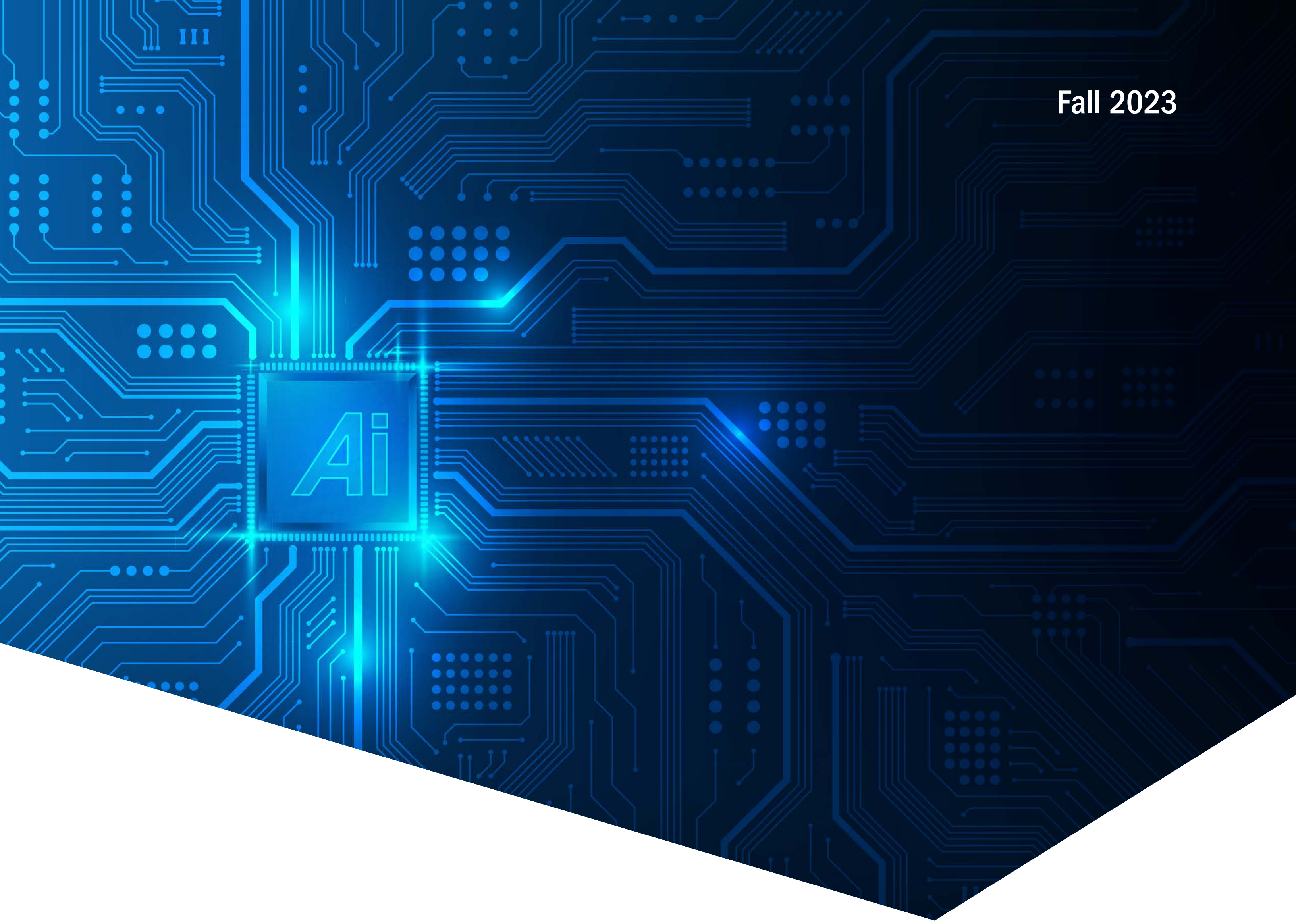
Fall 2023



INVESTOR NEWSLETTER

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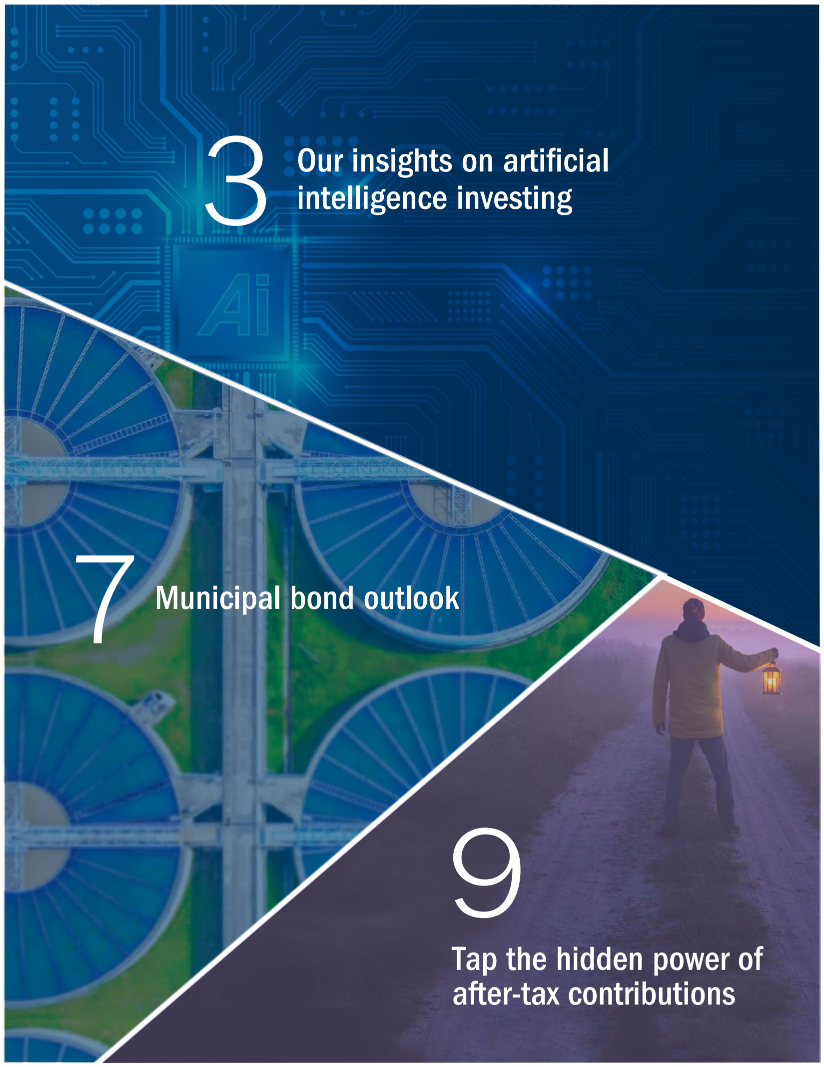


ALSO INSIDE

Fall 2023

Volume 14 Issue 4

Columbia Threadneedle Investor Newsletter is published quarterly online and features timely articles covering economic trends, investment strategies and solutions, and service changes.

Our insights on artificial intelligence investing

PAUL H. WICK
CIO, Seligman Investments
Equity Team Lead, Technology

SANJAY DEVGAN
Portfolio Manager,
Technology

RAHUL NARANG
Senior Portfolio Manager,
Technology

We sat down with three of our technology experts to get their thoughts on the opportunities in artificial intelligence (AI).

AI has become top of mind for investors and the market more broadly. What's driven this narrative shift?

Sanjay Devgan: People have been trying to model human intelligence in computer systems for over 30 years. What's interesting now is the confluence of computing power, connectivity and storage — those are the fundamental building blocks. On the compute side, we went from millions, to tens of millions, to hundreds of millions, to billions of transistors. So compute power has increased exponentially. If we're talking about connectivity, we're now shipping switches that are capable of supporting 25.6 terabits per second. (One terabit is a trillion bits per second.) Next year, we're going to start shipping 51.2 terabit switches. And then you've had a coincident increase in memory capacity.

This confluence allows you to run the calculations required for AI. If you boil it down, AI literally is just billions and billions of calculations, just simple math matrix multiplication. But you need to do it many times, and then you need to bring that back. The calculation isn't complex; it's just the number of nodes needed to process it is massive.

Rahul Narang: Artificial Intelligence has been topical for several years, but the inflection started to happen last year when companies finally had the computing power and the data to harness more performance from deep neural networks. OpenAI released ChatGPT in late November for public use, which received widespread media coverage and investor interest.

Paul Wick: OpenAI's ChatGPT was the opening salvo. And then it turned out literally a week or two later that Microsoft had invested $10 billion to gain a controlling stake in OpenAI, and that raised a lot of eyebrows.

Narang: While it seems like AI is a new thing, it's not new to us. It's something we've been researching and investing in for many years with the help of the deep bench of central research analysts at Columbia Threadneedle Investments.

How does the advent of AI compare to things like the launch of the internet, cloud-based computing or mobile devices?

Wick: I think the advent of generative AI, and AI in general, is going to rival the advent of the internet and mobile computing as a really important trend in the technology marketplace. One area in which it's going to be a little bit different is that it's not necessarily a distribution engine. So, you think about the internet and mobile devices — you're able to consume games, do commerce online and view advertisements. Those developments were big distribution developments as well as new technology developments.

Generative AI, I think, is going to be a very powerful tool for knowledge workers, in particular, and I think it's going to make the internet just easier to use and much more powerful.

Narang: We are viewing AI as the next platform transition. We had PCs, the internet, mobile era and cloud computing, and now we're seeing AI. Similar to how some of these other technologies had a lasting impact on the global economy, we expect AI to add $7 trillion of global economic impact over a ten-year period.

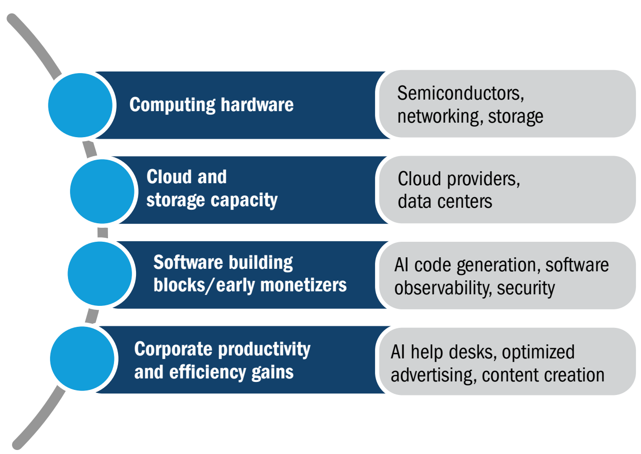
What are some of the areas of opportunity in AI that you are excited about?

Narang: The speed of innovation from companies around AI is breathtaking. We are seeing a faster cadence of product releases that is helping create better products for end users. For example, Microsoft has released several co-pilots which could help drive productivity gains when writing code. Other areas we are seeing AI being used by companies are for customer service, IT help desks, content creation, fraud detection, supply chain optimization and predictive maintenance. The emergence of AI in health care is reshaping how patients are diagnosed, treated and monitored. NVIDIA is doing a fair amount of work here. Specialized large-language models should help speed up

Continued next page

the discovery of new life-saving drugs. We also expect to see more advanced use cases in autonomous driving and robotics over time.

Devgan: There are obviously a lot of great tangible things that you can point to today. But I don't think the really big thing has been developed yet. I think it's going to be somebody, you know, some kid sitting in his college dorm, asking "how do I leverage this?" If we go back to the transition from 3G to LTE and cellular handsets, I remember as a consumer I would just look at the web on my phone thinking, why do we need LTE? But you had businesses like rideshare applications, things like Uber and Lyft that could not exist in the 3G realm and that came to fruition because of that advance.



How fast do you expect to see these AI-related changes unfold?

Narang: The speed of change is hard to predict, but so far, it is fair to say this has been faster than most investors expected — ChatGPT reached 100 million users quickly, and NVIDIA recently delivered quarterly results, with guidance a few years ahead of schedule. We continue to expect sporadic breakthroughs as the technology evolves.

Do you expect AI to introduce a lot of new players in the tech space, or will we see the big get bigger?

Wick: Well, it just so happens that a lot of the companies that are beneficiaries of AI are also well-positioned with the rest of their businesses. So even if AI wasn't this monumental new trend, companies like Google or Lam Research or Broadcom or NVIDIA would still be doing pretty well. AI is kind of icing on the cake.

Devgan: I'll look at it from a hardware and software perspective. If I look at hardware, given that chip development costs are north of $100 million just to develop one chip, and that's if you get it right the first time, I think you're likely to see the incumbents get bigger. Yes, it's possible there could be a startup, but I think the deck is kind of stacked against them.

Now, if we go to the services side, I think there will be applications of AI for certain end markets. There are going to be some smart people who can leverage this technology to create a business off of it, and that's where you're going to see the opportunity for new players.

Narang: As the technology continues to evolve, and the infrastructure continues to expand, other subsectors within technology will likely benefit. This includes IT services companies that will help with the implementation of AI use cases, as well as software companies via enhanced value proposition, data monetization and productivity improvements. The cloud providers have huge amounts of data and are building strong generative AI environments. The capital expenditure dollars being spent by the cloud titans into building out AI infrastructure is staggering.

Data remains a differentiator in which mega-cap technology companies can widen their competitive moat and benefit from AI. Some of the other companies that are currently benefiting from this theme are NVIDIA, Microsoft, Meta, Alphabet, Broadcom, Synopsys, Arista Networks and Adobe, just to name a few. This list is not comprehensive by any means. Investors will need to be patient. As with other technological shifts, some winners emerge immediately, while others take years.

How is demand for AI impacting the semiconductor space?

Wick: Well, NVIDIA has the early lead in the technology that trains the data set, but there are other companies, especially the hyperscalers — Meta, Amazon, Microsoft, Google — that are all developing their own custom semiconductors, and the companies that are helping them create these new chips are likely going to do very well. That would be the ASIC chip suppliers like Marvell and Broadcom. You also have the plumbing of these data centers. They require massive computation and access to stored information, so you need low latency, and increasingly, these AI data centers are going to switch to ethernet, so ethernet switch makers should be a beneficiary.

Another area where AI has some really interesting implications is semiconductor capital equipment. Chips needed for AI consume a huge amount of a 12-inch wafer, so the die sizes are getting bigger, and they're getting so big that increasingly, the designers are having to break them up into multiple chips and then package them together. A company that seems to have the lion's share of getting these chips stacked on top of each other and interconnected properly is Lam Research.

There's another aspect to the plumbing that's quite interesting though, and that has to do with just the electricity to run the data centers. These data centers are incredibly power-hungry, much more so than a conventional data center that just serves videos or music or social media, for example. And one of the big problems that we have in the United States — and actually throughout the world — is that there's a huge shortage of power transformers. There's a concept called time to power, and it's getting increasingly hard to get a new data center hooked up to the electrical grid. An example of a company that is currently capitalizing on this is Bloom Energy. They have natural gas-based fuel cells that run on hydrogen. If you're a data center and you want to put in a power hungry AI building with lots and lots of racks of servers and video graphics processors, and the local utility tells you that you that have to wait 18 months before they can hook you up, you can go to Bloom Energy.

What are the risks for investors as they think about investing in AI?

Wick: We try to stay grounded, and we ask ourselves, is this a reasonable valuation to pay? How good could earnings possibly be? You have to look at traditional metrics like the market value relative to the annual sales of the company and whether the company is or will be profitable. Does the management team have a good execution track record? Is the accounting conservative or is it aggressive?

Narang: Many earnings conference calls are littered with AI references and partnerships. We have been investing in this theme for many years but have done so in a disciplined manner. One needs to really dig into the business model: Does the company have a competitive moat around their business, understand product differentiation, consider unit economics, the competitive landscape, the total addressable market, how sustainable is demand, and then overlay valuation analysis? We are looking for AI-related products taking market share, perhaps translating into margin improvement, or adding incremental revenues. It is important not to get caught up in the hype of AI marketing.

Is there anything that you think is getting overlooked by the market?

Wick: I mentioned time to power, and I think most people aren't paying attention to that angle. I think the market is generally looking pretty hard to uncover companies that have an AI hook, and there aren't that many cases where the market has missed it.

Narang: Regulation is a big unknown. We're not exactly sure how that's going to play out, and it could slow the pace of adoption or create impediments. I think countries around the world are trying to figure this out. One other thing that could really slow this down is just bad data. This technology relies on data, and if we start to see bad outcomes from bad data, that could give a pause to the way companies are thinking about deploying AI.

Municipal bond outlook:

We think positive performance will continue

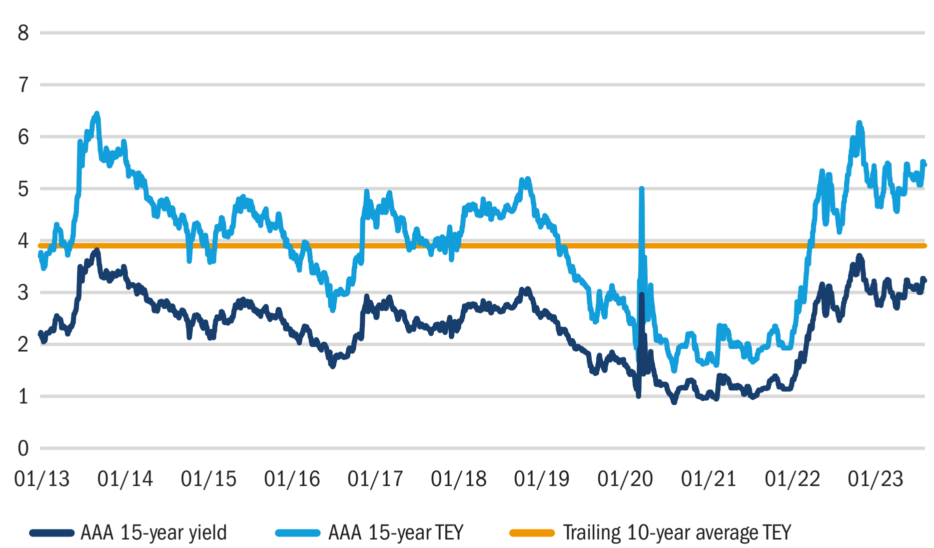
Investors who are waiting for a change in Fed policy may miss a rare opportunity — especially in longer maturity municipal bonds.

After unusually negative performance in 2022, we've seen a welcome bounce back in the municipal bond market. Investors — especially those who are waiting for a change in Fed policy — may be missing out. However, here's why we think investors should start allocating to municipal bonds now.

Tax-equivalent yields offer an exceptional income opportunity

Municipal bond yields have risen dramatically since their recent lows and now sit above 3.5%.[1] But while high absolute yields on high-quality assets like municipal bonds are compelling, the real story is tax-equivalent yields, which started the year at unprecedented levels and have become even more compelling. Right now, investors in tax-free municipal bonds can get attractive taxable-equivalent yields.[2]

Maximum tax-equivalent yields (TEY) are significantly above their long-term average
(15-year AAA yield, %)



[1] S&P Municipal Bond Index Yield to Worst as of 07/31/23
[2] Based on the Bloomberg Municipal Bond Index and the Bloomberg U.S. Treasury Index yields as of 07/31/23
Source: Columbia Threadneedle Investments as of 07/31/23 based upon the Refinitiv AAA 15-year MMD Spot Index. Taxable equivalent yields are based on the top federal bracket (37%) and net investment income surtax (3.8%). Other taxes are possible. The average is based on daily observations over the trailing 10-year period. Past performance does not guarantee future results. It is not possible to invest directly in an index.

These current higher yields offer investors an opportunity to lock in income, especially in longer maturity bonds, which may not be the case if and when the Fed ends its tightening cycle and rates start to fall. Muni yields are essentially in the same place as when the year began, so investors have not missed out on the attractive opportunity.

Fundamentals and technicals are favorable and resilient

Overall, underlying creditworthiness in the municipal market is strong and stable. Against continued economic uncertainty and the possibility of a recession, state government rainy day funds are at a record high. Municipal credit upgrades are still well outpacing downgrades, which reflects sustained budget surpluses set aside for a potential economic downturn.

A favorable technical environment has also been beneficial this year, and we expect that to continue.

The supply/demand imbalance we started the year with remains — issuers that are flush with cash are being patient, waiting for lower rates to either refund or issue new debt. This relative supply scarcity in the primary market continues to support the market and benefit investors.

Municipal bonds are poised to outperform

While volatility has continued in the rates market, municipals have proven resilient, and year to date, the Bloomberg Municipal Bond Index has outperformed both the Bloomberg Treasury Bond Index and the Bloomberg Aggregate Bond Index. Since the low of October 26, 2022, the Bloomberg Municipal Bond Index has rallied 8.41% (as of July 31) with lower investment grade, high yield and longer duration outperforming due to income being the main driver of returns. With the positively sloped yield curve from 10–30 years, this gives us a strong conviction for longer duration with the higher income component.

We don't need to see Fed rate cuts for a rally from here, as higher yields should support performance. Investors who want to capture the full cycle of stronger performance may want to consider investing now or building a position over time, incrementally adding to their bond allocation before (and then while) rates fall rather than waiting for an all clear on tightening from the Fed. For now, investors may have the opportunity to purchase bonds at attractive yields before the path of declining rates is priced in.

Opportunities in the long end of the curve, especially among high-quality issuers

While opportunities currently exist on both ends of the muni bond curve, the real value is on the longer end, where we see a robust opportunity in high-quality municipal bonds with maturities of 10 years or more, both for their healthy yields and potential for price appreciation if the rate environment turns. Quality, in this case, means not only AAA or AA rated general obligation bonds, but also higher quality issuers within certain sectors. If the economy tips toward recession, investors moving out of equities may turn to municipal bonds, especially ones with longer durations, as they seek a high-quality, less recession-sensitive alternative to stocks. In such an environment, sourcing attractive bonds could become even more difficult than it is now.

This year, we've also seen higher-than-usual rates at the short end of the curve, while the municipal yield curve has been inverted — a highly unusual and likely temporary situation driven by the Fed's persistent and aggressive tightening. While there are income opportunities to take advantage of in shorter term investments, the attractiveness will fall as the Fed gets closer to rate cuts.

The bottom line

Historic tax-equivalent yields alone are a good enough reason to consider allocating into municipal bonds. Doing it in the current yield environment also allows investors to pursue a longer term buffer against the potential for falling interest rates or the impacts of a recession.

A pause in the hiking cycle has historically meant strong performance for munis
Taxable equivalent forward returns after a Fed pause (%)

	3 months	6 months	12 months
Munis	4.7%	7.9%	14.5%

Source: Columbia Threadneedle Investments, Bloomberg. Represents data for the Bloomberg Municipal Bond Index from 1984 to 2023. Taxable equivalence applied to income component of municipal bond total returns using the top marginal tax rate of 37% plus the ACA surcharge of 3.8%. Other taxes are possible. **Past performance is not a guarantee of future results. It is not possible to invest directly in an index.**

Investing involves risk including the risk of loss of principal. Bonds involve **credit risk** and bond prices decrease when rates rise. Income from tax-exempt **municipal bonds** or municipal bond funds may be subject to state and local taxes, and a portion of income may be subject to the federal and/or state alternative minimum tax for certain investors. Federal and state income tax rules will apply to any capital gains.

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Tap the **hidden power** of after-tax contributions

Focus on minimizing taxes and maximizing retirement income

For most working clients, the majority of their wealth is related to their job. The features and benefits of 401(k) plans and other employer-sponsored plans are obscure and complicated, but capitalizing on them can allow benefits you may not even know about.

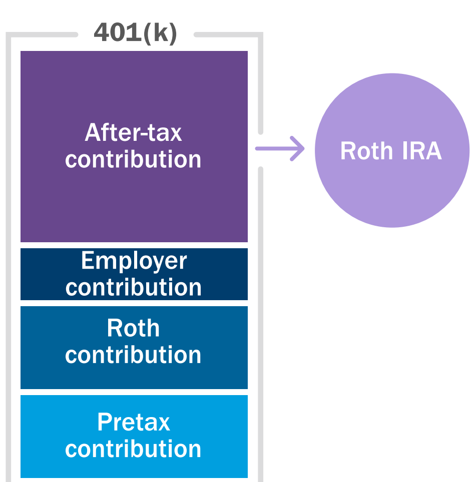
Optimize contributions to maximize retirement income

One of those obscure, complicated and often overlooked plan features is the ability to make after-tax contributions to an employer-sponsored plan — something that's growing in popularity. To find out how plan participants can tap into this, let's take a step back.

For most Americans, a combination of pension distributions, 401(k) or other defined contribution plan balances and Social Security make up the majority of their retirement income. All three of those income sources are usually taxable when distributed. For some plan participants, one way to minimize the impact of taxes on retirement income is to make after-tax contributions to their plan if they can.

For example, consider a client who has maxed out on 401(k) deferrals. If their employer plan provides an after-tax account, aside from Roth, that client may be able to contribute more — sometimes up to $30,000 more — than the plan's pretax limits. Each year, those clients could then transfer their after-tax contributions into a Roth IRA (or an in-plan Roth account).

Making after-tax contributions through an employer-sponsored retirement plan can help minimize taxes on retirement income



For illustrative purposes only.

So how does this help save on taxes down the line? Essentially, the employer plan serves as a pass-through that allows a participant to move contributions into a Roth well in excess of the annual Roth IRA contribution limits (currently $6,500). The Roth account then grows tax-free — and since the initial contributions were made post-tax, distributions are also tax-free.

Take the next step

Of course, each defined contribution plan is unique. Columbia Threadneedle's advisor consulting resources can help your financial advisor identify if a plan allows after-tax contributions and provide detailed information surrounding limits and restrictions that may apply.

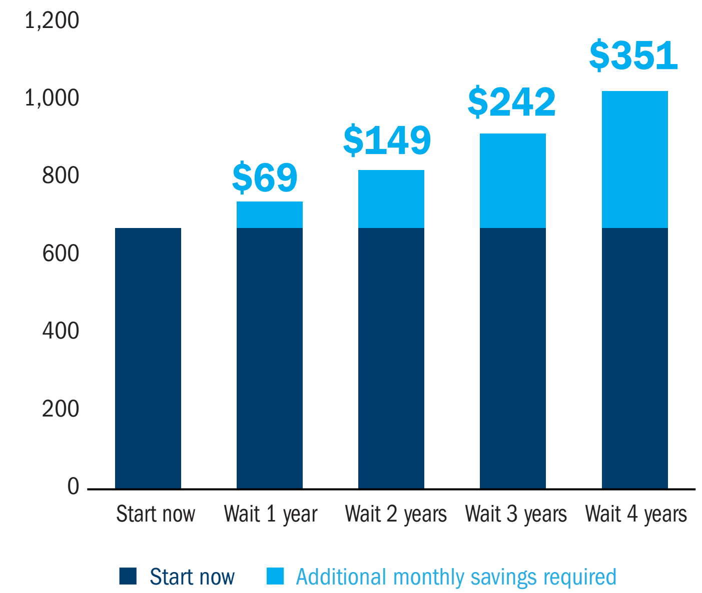
Many plan participants who are eligible to take advantage of this contribution feature may not be aware of it. Financial advisors are encouraged to visit our **workplace compensation resources page** to find information about after-tax contributions (including articles, Q&As with experts, conversation toolkits, CE credit courses and more).

Latest insights Education **savings**

Investing in Emily's education

Waiting to save for college will require a higher a higher monthly payment

Assumes 100% funding of $197,555[1]



For illustrative purposes only. This illustration is hypothetical and is not meant to represent any specific investment or imply any guaranteed rate of return. This information is not intended to provide investment advice and does not account for individual investor circumstances. Investment decisions should always be made based on an investor's specific financial needs, objectives, goals, time horizon and risk tolerance.

[1] Source: Price of Procrastination Calculator, columbiathreadneedleus.com/calculators. Based on the cost for the 2022–2023 school year and assumes a 4% college cost inflation rate and a 6% annual investment return.

Families often ask, "When should parents start saving for college?" The short answer is now — and here's why:

Maria and Charles Ward have a five-year-old daughter, Emily. They plan on Emily attending an in-state public school, giving them 13 years to prepare for this expense. If the Wards start saving now, targeting 100% of Emily's in-state public college tuition, they would need to save $667 per month. However, waiting to save for college will require them to save more each month for each year that they wait.

The earlier the Wards save, the longer they can benefit from compounding growth — which is particularly important given their relatively short investment horizon of around 13 years.

Our **Price of Procrastination** calculator can help determine how much more you would need to save to put your child through college.

Our reading list

Looking for some book suggestions?

Colleagues from across Columbia Threadneedle Investments share some of their recommendations in our annual reading list.

Nic Janvier, CFA
Executive Portfolio Manager, EMEA
We live in a world of first, quick takes, often before the facts are well understood. Fred Segal's book — *Freezing Cold Takes: NFL: Football Media's Most Inaccurate Predictions and the Fascinating Stories Behind Them* — is a fun read looking back at some of the more ridiculous takes by the media in NFL history. It's a humbling reminder to all of us that the first take is often the wrong take, and sometimes massively wrong.

Fran Asselta
Co-Head North America Institutional Distribution
Lessons in Chemistry by Bonnie Garmus is an enjoyable novel set in the 1960s about a talented chemist who gains fame as the star of a cooking show. It's also about a smart career woman who fought the stereotypes of that era. I also liked *The Paris Apartment* by Lucy Foley. It's a good mystery with twists, turns and interesting characters.

Gene Tannuzzo
Global Head of Fixed Income
I'd recommend *The Essential Wooden: A Lifetime of Lessons on Leaders and Leadership,* by legendary UCLA basketball coach John Wooden and Steve Jamison. It's an interesting read on building team success and maintaining it over a long period of time.

Ted Truscott
Chief Executive Officer, Global Asset Management
The Finest Hours by Michael Tougias and Casey Sherman tells the true story of a Coast Guard rescue of men trapped on an oil tanker that had literally split in two during a nor'easter in February of 1952. The Coast Guard station in Chatham, Massachusetts is still in operation and has a plaque commemorating the rescue, which saved more than 30 people.

Josh Kutin
Head of Asset Allocation, North America
After hearing positive reviews for a long time, I recently finished the Akira Toriyama manga series *Dragon Ball* and *Dragon Ball Z*. I think the series deserves its strong reputation from both manga and anime enthusiasts, and I enjoyed it thoroughly despite my lack of literacy in this genre. While on the surface, it might seem there's a superficial simplicity to the protagonist's overarching desire to be the best fighter, the endearing cast of characters with constantly changing allegiances keeps the story fresh and entertaining.

Guy Pope
Senior Portfolio Manager, Head of Columbia Contrarian Large Cap Core
I've got three books to recommend: *The Wisdom of the Bullfrog* by Admiral William H. McRaven is an entertaining and quick read embedded with valuable leadership lessons. In Rick Rubin's *The Creative Act*, the iconic music producer and co-founder of Def Jam Records explores his creative process. Finally, *Chip War* by Chris Miller is a great historical review of the semiconductor industry and where we sit today.

Alex Christensen
Portfolio Manager, Multisector Fixed Income
Killers of the Flower Moon by David Grann is an immense tale of the systematic greed and race-fueled killing of Osage natives in the 1920s, and it's a shocker. Bonus points for reading it before the Martin Scorsese film starring DiCaprio and De Niro comes out this fall. Also, as a bonus, the number one book I recommend to anybody new in fixed income is *When Genius Failed* by Roger Lowenstein. It's the story of the biggest hedge fund rise and fall in history. It's fun to read as a narrative of a long-gone Wall Street, both for professionals and fixed-income newbies.

Rich Rosen
Senior Portfolio Manager, Head of Focused Large Cap Value
Shantaram by Gregory David Roberts tells the story of an escaped convict and is rich in detail about self-realization. I'd also recommend all the James Reece books written by Jack Carr (best read in order), because it's always great when the bad guy gets theirs in the end! I also recommend William Cohan's *Power Failure: The Rise and Fall of an American Icon* — a story about GE. Having read all the books on the failed banks and investment firms of the last 20 years or so, I like understanding what makes companies great as well as what can lead to their demise.

William Davies
Global Chief Investment Officer
A book that I always recommend is *A Life Too Short* by Robert Reng. It's an outstanding book about mental health challenges among the super-talented, focusing on the pressures faced by Robert Enke, a German soccer goalkeeper. Fair warning, however; this is not a lighthearted read.

Ed Al-Hussainy
Senior Currency and Rates Analyst, Head of Emerging Market Fixed Income Research
Vibrate Higher by Talib Kweli is a journey through the foundational years of 1990s New York City hip hop. And with lyrics we can all relate to: "Now this morning, I woke up feeling brand new and I jumped up. Feeling [Fed] high, and [Fed] lows in my soul and my goals."

Kelly Cavagnaro
Co-Head North America Institutional Distribution and Global Head of Consultant Relations
Antifragile by Nassim Nicholas Taleb is a story about luck, risk and decision-making. Taleb teaches us to welcome shocks and get better and better as a result. While clearly applicable to the worlds of business and investing, I'm applying its concepts in everyday life as well — from helping my children overcome obstacles, to improving my running routine.

Rahul Narang
Senior Portfolio Manager
The Age of AI and Our Human Future by Henry Kissinger, Eric Schmidt and Daniel Huttenlocher looks at how artificial intelligence will change our relationships with knowledge and politics, and the societies in which we live. I'd also recommend *Powers and Thrones: A New History of the Middle Ages* by Dan Jones. It's a big history that examines a thousand years of profound transformation across every sphere of human life.

David Goodman
Senior Equity Analyst
I'm currently reading *The Oregon Trail* by Rinker Buck. It's the true story of two brothers who traveled the Oregon trail in a covered wagon on the original route (when possible) in 2011. It's funny and I'm enjoying reliving the journey. I'd also recommend *Napoleon* by Andrew Roberts. Napoleon's story is fascinating on many levels: he didn't learn French until he was 10, spoke with a heavy accent and struggled with communicating but was able to rise to prominence.

Jim Bumpus
Head of Intermediary Markets
Trust by Hernon Diaz is a unique, fun and complicated story told from four different perspectives. Things are not always what they seem in this 1920s New York City novel about capitalism, class and the narratives people create for themselves. A very interesting and literary book.

Scott Couto
Head of North America
Alaska by James Michener is a historical novel that tells the story of Alaska and its multicultural foundations through the lens of a multigenerational family saga.

2023 Boston TRIATHLON

In August, the starting gun signaled the opening of the 2023 Columbia Threadneedle Investments **Boston Triathlon**.

After COVID-19 restrictions forced a scaled down event in 2021 and extreme temperatures delayed last year's race, we were rewarded with a more normal race day this year as we again served as title sponsor of the triathlon, which is celebrating its 15th anniversary.

In addition to the hundreds of registered participants, **Columbia Threadneedle** had over 50 employees, friends and family ready to swim, bike and run their way to the finish line.

Race weekend kicked off on Saturday, August 26 with the family-friendly Splash and Dash race designed for kids between ages 3 and 15. The featured Olympic and Sprint races took place the following morning, culminating with our post-race get together in the Columbia Threadneedle tent.

Swim, bike, run

The Columbia Threadneedle Investments Boston Triathlon is an exciting opportunity for swimmers, bikers and runners to participate as individuals or as part of a relay. Athletes can tackle either the full Olympic distance (1.5 km swim, 35 km bike, 10 km run) or the sprint (750 m swim, 17.5 km bike, 5.5 km run).

Racing for a cause

For the eighth consecutive year, we partnered with Boston Medical Center (BMC). All donations and funds raised this year will support BMC's work in health equity and addressing social determinants of health. In addition to the financial support provided through the race, our organization has made grants to BMC over the last four years, with total donations of $115,000. Our support has helped the Elders Living at Home Program, which provides intensive case management services to older individuals (age 50-plus) who are homeless or at imminent risk of losing their housing.

We're also continuing our long-standing partnership with Dare2tri and were excited to welcome two of their athletes who competed in the race. Dare2tri is a Chicago-based nonprofit that seeks to positively impact the lives of athletes with physical disabilities and visual impairments by developing their skills in paratriathlon.

Members of two Boston-area running groups — TrailblazHers Run Co. and PIONEERS Run Crew — also had a large presence at the event. Our firm shares common values with the clubs, namely fostering a diverse and welcoming environment for people from all walks of life, and we were pleased to welcome athletes from both groups who competed in the race.

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Please join us in **congratulating** our athletes and volunteers at this year's event.

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Investing smarter for the world you want

Columbia Threadneedle Investments offers investment solutions to make a difference in your world, and the wider world. Millions of people rely on the firm to manage their money and invest for their future; together they entrust the firm with $617/€578 billion.* Columbia Threadneedle is globally connected with a team of over 650 investment professionals providing diverse expertise, spanning almost every asset class and market. The firm is intense about research, believing that original independent research makes investment decisions smarter.

Columbia Threadneedle has a responsible ethos as investment decisions today help define the future we all seek. Every day the firm looks for opportunities to improve how it invests and what clients experience; a focus on continuous improvement means that Columbia Threadneedle never stands still. Whatever world you want, Columbia Threadneedle's purpose is to help you achieve it.

To find out more, call 800.426.3750
or visit columbiathreadneedle.com

COLUMBIA THREADNEEDLE INVESTMENTS

*Source: Columbia Threadneedle Investments as of June 30, 2023.

The views expressed are as of the date given, may change as market or other conditions change and may differ from views expressed by other Columbia Management Investment Advisers, LLC (CMIA) associates or affiliates. Actual investments or investment decisions made by CMIA and its affiliates, whether for its own account or on behalf of clients, may not necessarily reflect the views expressed. This information is not intended to provide investment advice and does not take into consideration individual investor circumstances. Investment decisions should always be made based on an investor's specific financial needs, objectives, goals, time horizon and risk tolerance. Asset classes described may not be appropriate for all investors. Past performance does not guarantee future results, and no forecast should be considered a guarantee either. Since economic and market conditions change frequently, there can be no assurance that the trends described here will continue or that any forecasts are accurate.

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