PANORAMA

QUARTERLY THOUGHT LEADERSHIP PUBLICATION FOR OUR CLIENTS

FOURTH QUARTER, 2024

GLOBAL MARKETS
How Central Bank Policy Could Impact Your Portfolio

GLOBAL INVESTMENT THEMES
Could GLP-1s help rebalance the food trilemma?

GLOBAL MULTI ASSET
Building AI-themed investment strategies: A multi-asset perspective

RETIREMENT INCOME
A five-dimensional framework for retirement income needs and solutions

CHINA EQUITY
China's Policy Pivot Marks a Turning Point in the Economic Cycle

PERSONAL PROFILE
Meet Michael Davis, Head of Global Retirement Strategy at T. Rowe Price

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WELCOME......

.........to the fourth quarter 2024 edition of Panorama, T. Rowe Price's investment magazine for Asian investors.

Global equities rose in the third quarter on firming expectations that the Federal Reserve would begin cutting U.S. interest rates, which duly began in September. Into year end, the short-term outlook for risk assets appears positive. U.S. and global inflation continues to decline gradually while economic activity is holding up, the proverbial 'soft landing.' We note that historically, interest rate cutting cycles by the major central banks have supported risk assets in the absence of recession, for which there are currently few signs.

At a recent Investment Forum in Hong Kong, three of T. Rowe Price's senior investment leaders shared their thoughts on the outlook for global markets in 2025. The panel consisted of Justin Thomson, Head of International Equity; Arif Husain, Head of Global Fixed Income; and Thomas Poullaouec, Head of Global Multi-Asset Solutions for Asia Pacific. Our opening article in Q4 Panorama summarizes what was a very lively discussion.

Next, Maria Elena Drew and Daniel Ryan from T. Rowe Price's Responsible Investing Team consider the potential economic benefits from GLP-1, the new anti-obesity 'wonder' drugs. Its advocates believe GLP-1 can play a positive role in helping to balance the conflicting diet, health, and environmental objectives of the world food industry.

Our Global Multi-Asset Solutions Team consider how the AI (Artificial Intelligence) investment theme can be viewed from a multi-asset perspective. An AI-themed portfolio could combine core exposure to technology stocks with allocations to multi-asset ideas and private assets in order to better diversify the opportunity set.

T. Rowe Price's retirement experts have developed an innovative five-dimensional framework for understanding and quantifying the preferences and needs of retirement investors. The framework offers a new way to help retirement sponsors in Asia evaluate retirement income solutions for their plan participants.

Turning to China, the September Politburo meeting signaled a policy pivot by Beijing from risk control to growth support. Portfolio manager Wenli Zheng expects a more favorable environment for growth and business to result from the pivot. He sees some compelling investment opportunities in high-quality growth businesses in China, tech and industrial companies in an upcycle, and companies with rising shareholder returns.

In our Personal Profile interview, we talked to Michael Davis, Head of Global Retirement Strategy for T. Rowe Price. The U.S. is an acknowledged leader in retirement schemes and target date funds. Michael considers what lessons Asian retirement savers might learn from the rich U.S. experience.

We welcome comments and feedback from our readers on Panorama investment magazine. Our contact details can be found on page 34.

T. Rowe Price Australia

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2024 Global Market Outlook Midyear Update

How central bank policy could impact your portfolio

At a recent Asia Investment Forum in Hong Kong, some of T. Rowe Price's senior investment leaders engaged in a lively panel discussion concerning the outlook for global markets in 2025. The panel was comprised of Justin Thomson, Head of International Equity at T. Rowe Price; Arif Husain, Head of Global Fixed Income; and Thomas Poullaouec, Head of Global Multi-Asset Solutions for Asia Pacific. Asking the questions and moderating the session was George Chow, T. Rowe Price's Head of Institutional Distribution for North Asia. What follows is a summary of the key points from the panel discussion.

The Fed 'started big' with a 50 basis point cut in interest rates. How might this impact the U.S. economy?

Arif Husain said that although the Fed "started big" with a 50 basis point (bp) first cut in U.S. interest rates, this was really an exercise in managing expectations. The subsequent press conference was less bold. We are seeing a flood of media comment on the Fed, much of which is just noise. The U.S. economy seems less interest rate-sensitive today than it used to be. The Fed had needed to tighten so much in this cycle in 2022 because of the massive fiscal stimulus that was introduced to counter the COVID pandemic. However, the world economy is in a much better place today. There is little evidence of a looming recession, more like a soft-patch ahead of the U.S. election created by policy uncertainty.

Justin Thomson noted that the so-called dot plot, which reveals the median longer term interest rate forecast by members of the Federal Market Open Committee (FOMC), is lagging behind the consensus market forecast. So investors are expecting that this rate cutting cycle will be faster than the Fed's own forecast. Yes, inflation is currently on the retreat and the Fed does have room to cut rates further. "I feel the neutral or longer-term interest rate probably lies between 2% and 3%, though it is not something that is directly observable. So in truth no one really knows, not even the Fed. It's what the bond market is really trying to figure out. It's not the first rate cut that is important, but where will the process terminate, i.e. what does the Fed regards as the neutral or equilibrium Fed funds rate?"

It would probably be a good thing if this rate cutting cycle is quite short, meaning the cuts represent preventive actions

Justin Thomson
Head of International Equity and Chief Investment Officer

Arif Husain
Head of Fixed Income and Chief Investment Officer, Fixed Income

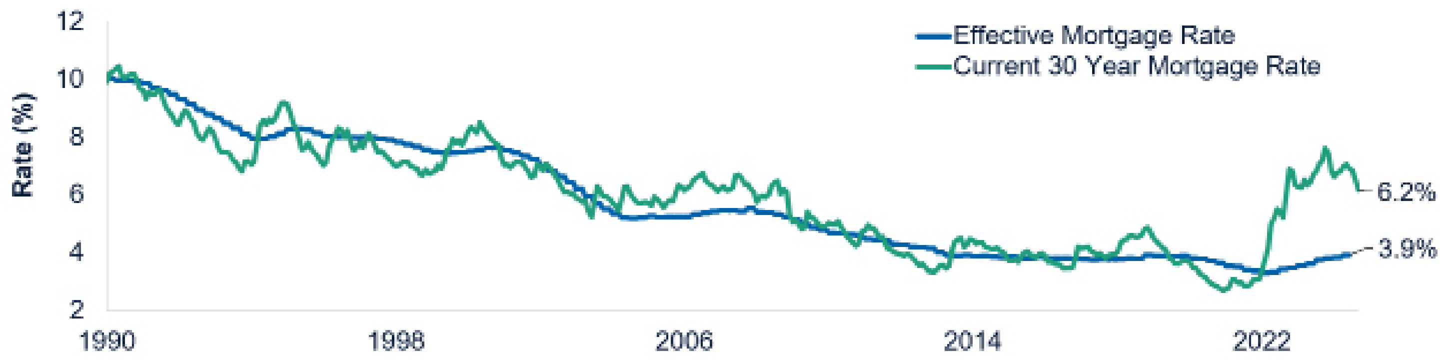
Thomas Poullaouec
Head of Multi-Asset Solutions, APAC

by the Fed and are not indicative of a recessionary crisis. Despite concerns about a potential growth slowdown, the U.S. economy remains resilient, supported by a stable labor market and resilient consumer sentiment. Thomas Poullaouec therefore expects the Powell Fed to deliver two more 25 bps rate cuts this year, making a total of six such cuts by December 2025.

Many economists believe that the Fed needs to cut rates now because inflation-adjusted or real interest rate levels are too high and likely to curb economic growth in 2025 too much. Everything depends on what happens next year. If there are healthy rate cuts by the Fed, just to lower real interest rates, then that should be good for asset prices. But if there is an economic recession and a slump in corporate profits, as in 2001 and 2007, then we could experience a bear market in U.S. and global equities in 2025 despite interest rate cuts. There was a clear path to post-pandemic normalization for the global economy in 2025, though as emergency levels of central bank liquidity are withdrawn, the upside for financial markets may be limited (See Figures 1 and 2).

But more rate cuts are needed to impact supply and demand

(Fig. 1) Effective Rate on Outstanding Mortgages vs. Current Mortgage Rate (January 1990 to September 2024)



Source: U.S. Bureau of Economic Analysis, Federal Home Loan Mortgage Corporation/Haver Analytics.

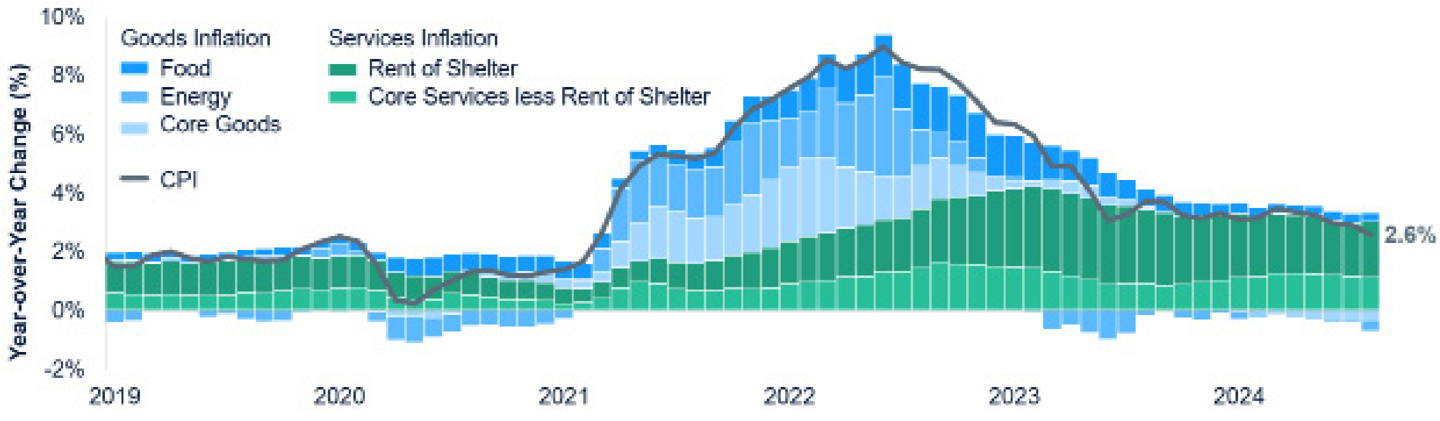
Monetary tightening has eased and global growth has normalized

(Fig. 2) Global Growth vs. Global Monetary Policy (January 1988 to July 2024)

*Based on DeepMacro World Economic Growth Proxy
**Based on Advanced Economies [ex US]: Short-Term Official/Policy Rates
Sources: Federal Reserve Bank of Dallas, DeepMacro/Haver Analytics.

Inflation has shifted from goods to services

(Fig. 3) Contribution to CPI annual inflation.



Source: Bloomberg Finance L.P.

Have central banks really slain the inflation dragon?

Justin Thomson noted that government budget deficits have risen around the world, which either means a period of fiscal austerity or governments could allow somewhat higher inflation to reduce the debt burden over time. On the role of large fiscal deficits, it is not just traditional metrics such as the public sector debt to GDP ratio that are important, but also whether government spending is being directed toward channels that might boost productivity and innovation.

Thomas Poullaouec argued history shows that we rarely experience only one inflation wave, so investors should be cautious even if today it appears that inflation is beaten. He said the Global Multi-Asset team were hedging against the return of rising inflation by being underweight duration in bonds and overweight energy stocks. Portfolios were slightly overweight stocks versus bonds, with the best opportunities seen in the U.S. and Japan. We could see the disinflation story to fade in the first half of 2025, with renewed market concerns about 'sticky inflation.' And even if goods price inflation stays flat, we could see a continuing CPI inflation pulse coming from U.S. housing (See Figure 3). On the positive side, in many emerging markets (EMs) core inflation had been better behaved than among the developed markets, enabling their central banks to begin cutting interest rates ahead of the Fed. So Thomas sees many investment opportunities currently among the EM economies.

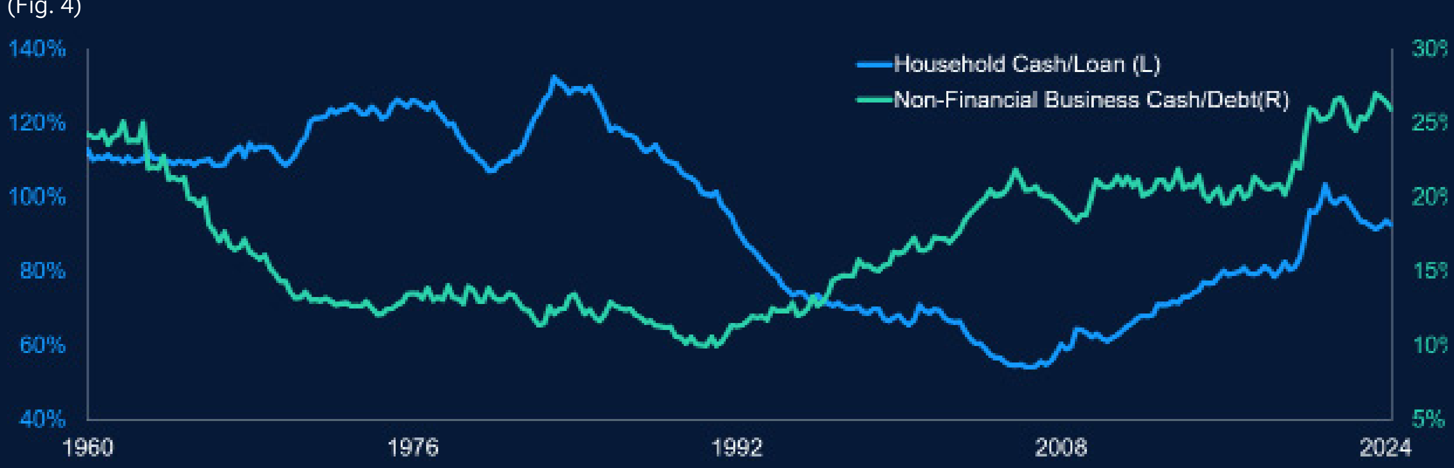
Expanding on fixed income positioning, Arif favors short duration and higher yielding sectors for now as the yield curve is likely to steepen in 2025 to reflect a soft landing outcome. Under such a scenario, long duration sovereign bonds would likely underperform. When thinking about monetary policy and whether central banks are 'staying ahead of the curve,' it is important for investors to consider a wide range of macro indicators and take a more holistic view of the drivers of inflation, as this could provide better insights on the future path of monetary policy.

How does the panel view the risks of a U.S. recession in 2025?

Justin remained concerned with the threat of a recession scenario, which markets seemed to be underpricing. Thomas believes recessions don't arise naturally, but require some kind of shock or disruption. For now, the panel believes investors should stay invested as there are no signs that a 'hard landing' is imminent or just on the horizon. In this context, the U.S. job market will be a key indicator, with a crack in employment being one of the

Corporate and consumer balance sheets remain healthy

(Fig. 4)



Household cash includes: Households/Nonprofit Institutional Service Households: Assets: Money Mkt Fund Shares + Currency & Deposits EOP, NSA, Bil.$.
Household loan includes: Households/Nonprofit Institutional Service Households: Liabilities: Loans, EOP, NSA, Bil.$.
Non-financial business cash includes: Nonfinancial Corporate Business: Assets: Money Mkt Fund Shares + Currency & Deposits EOP, NSA, Bil.$ + Nonfinancial Non-corporate Business: Assets: Money Mkt Fund Shares + Currency & Deposits EOP, NSA, Bil.$.
Non-financial business debt includes: Nonfinancial Non-corporate Business: Liabilities: Loans + Nonfinancial Corporate Business: Liabilities: Loans + Nonfinancial Corporate Business: Liabilities: Debt Securities.
As of 30 June 2024
Source: U.S. Bureau of Economic Analysis/Haver Analytics.

first signs of a hard landing. The return of Japanese overseas investments in response to higher domestic interest rates is another potential global risk for 2025, with the disruption caused by the sudden reversal of the yen carry in August an ominous early warning sign.

With regard to the outlook for the next 12 months, none of our panelists thought that the current economic soft patch was likely to turn into a full recession. For one thing, private sector balance sheets in the U.S. were in good health (Figure 4). Rather, the U.S. and global economies could be reaccelerating by mid-2025. In such a reflation scenario, Arif expected that the yield curve would steepen, and the long-end of the bond market likely underperform. This made short duration bonds, high yield and EM credit look attractive. Arif added that EM fixed income has gained more attention from global investors. He drew attention to three key themes in the fixed income space: (1) increasing demand for private alternatives from a more diverse client base, (2) significant flows into investment-grade, high-yield, and private credit, and (3) a notable uptick in interest in EM fixed income this year.

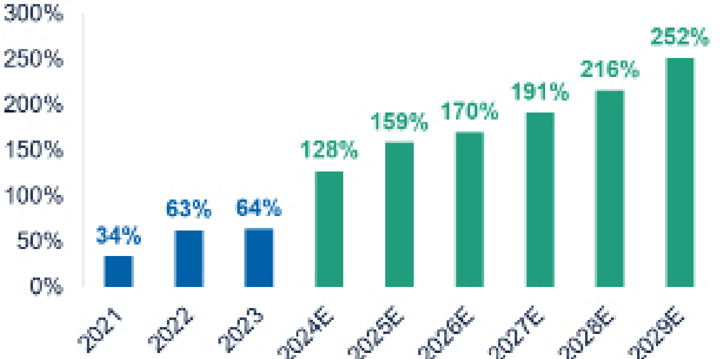
The panel believes that risks to the soft landing scenario could also arise from within the global financial system rather than from within the real economy. The expansion of ETFs and pull back in bank in balance sheets could result in greater friction and volatility in fixed income markets, as in August this year when the abrupt unwinding of the yen carry trade caused significant market disruption.

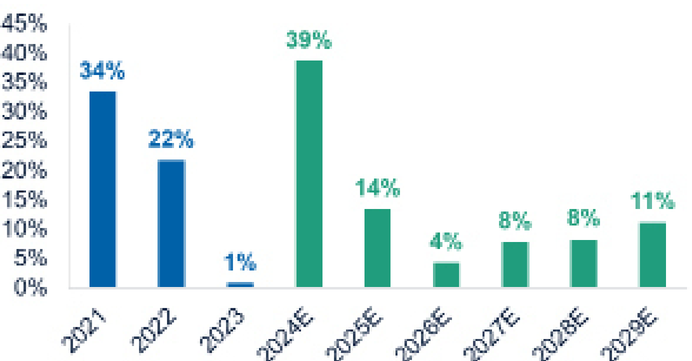
How much does the U.S. presidential election complicate the outlook for investors?

The U.S. election will be a pivotal event in 2024 but was too close to call even in the final run up to the event. Arif advised taking some volatility protection against post-election turmoil. Thomas reminded investors that research by the Global Multi-Asset Team showed that volatility tended to be lower prior to a presidential election

But the growth of A.I. capex has limits

(Fig. 5) 2021 to 2029 (estimated)





* Microsoft, Google, Amazon, and Meta.

Sources: T. Rowe Price analysis using data from FactSet Research Systems Inc. All rights reserved. Please see Additional Disclosures page for additional legal notices & disclaimers.

For illustrative purposes only. There can be no assurance that the estimates will be achieved or sustained. Actual results may vary.

The specific securities identified and described are for informational purposes only and do not represent recommendations.

when the incumbent was expected to be re-elected. Thus a Harris victory might be preferred by markets based on current volatility metrics. A victory for either candidate would likely be inflationary, as both plan to spend more.

On current estimates, Kamala Harris's fiscal plans are projected to cost some US$2 trillion over the next 10 years against a staggering US$10 trillion for Donald Trump. It should be noted there is huge uncertainty over such estimates, as many policy proposals are too vague to cost effectively. Unless we see the return of the 1980s 'bond market vigilantes,' there is little incentive for U.S. politicians to curb government spending in order to lower the budget deficit. Donald Trump also plans to impose widespread new import tariffs, which could add to the market volatility. While 2024 has been a very busy year for elections around the globe, next year will likely bring a lower level of domestic political uncertainty, though geopolitics is expected to remain unruly.

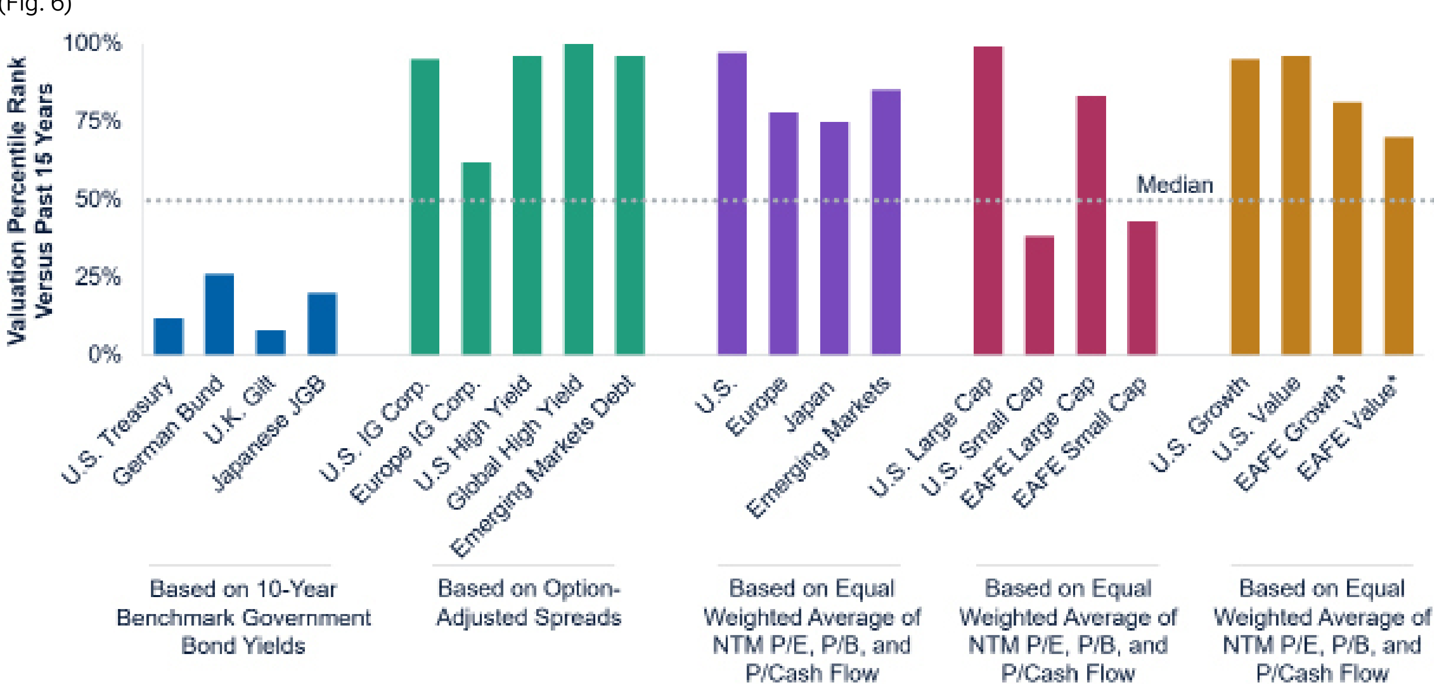
Will the AI theme continue to impact equity markets in 2025?

Commenting on AI, Justin expects markets to over-estimate the short-term impact but under-estimate the longer term impact. He likened the AI rally like a good cappuccino coffee, with plenty of froth on top but something strong and powerful underneath. AI capex had trebled in just three years and some pullback was likely. The dominance of the 'Magnificent Seven' tech stocks had pushed index concentration to new heights, raising risks for both active and passive investors. However, we may be seeing the first signs of a broadening in the opportunity set, in which case small cap stocks and value stocks could look attractive.

Also, it was important to note that global technology is not just about AI. There are many other positive trends such as cybersecurity, enterprise software e-commerce, and increased tech spending in emerging markets. As cyber threats continue to increase, we may expect to see a consolidation among leading cybersecurity vendors. Among other segments, digital commerce penetration and FinTech utilization have normalized post-COVID, while digital advertising is expected to benefit significantly from advances in AI and machine learning. It has been the enormous free cash flow generation of the mega cap platform stocks that has allowed them to aggressively fund their spending on

Valuations are elevated across risk assets

(Fig. 6)



As of 30 September 2024
*Does not include P/Cash Flow due to data availability.
Sources: Bloomberg Index Services Limited, S&P and MSCI. Please see Additional Disclosures page for additional legal notices & disclaimers. T. Rowe Price analysis using data from FactSet Research Systems Inc. All rights reserved.
Indices used, from left to right above, beginning with U.S. IG Corp.: Bloomberg U.S. Investment Grade Corporate, Bloomberg Euro Aggregate Credit, Bloomberg U.S. Aggregate Credit - Corporate High Yield, Bloomberg Global High Yield, Bloomberg Emerging Markets USD Aggregate, MSCI USA, MSCI Europe, MSCI Japan, MSCI Emerging Markets, S&P 500, S&P 600, MSCI EAFE Large Cap, MSCI EAFE Small Cap, S&P 500 Growth, S&P 500 Value, MSCI EAFE Growth, MSCI EAFE Value.

AI (Figure 5), boosting the fortunes of advanced semiconductor stocks like NVIDIA, TSMC and ASML. While industry experts think we may currently be close to a cyclical peak in terms of the annual growth in cloud capex expenditure, strong positive growth is expected to continue in the years ahead.

For global equity investors, there are significant changes ongoing in the AI environment as compared to 12 months ago. AI capex growth is decelerating, while headline valuations are not as attractive as they once were. The recent absorption of so much global capital by the mega cap tech stocks has posed risks for both active and passive equity investors due to the resulting heavy index concentration. However, T. Rowe Price believes the AI build out will continue to unfold over the next three to five years as AI adoption becomes ever more widespread, leading to a wider investment opportunity set.

That said, share valuations for the global technology sector today are nothing like as high as in the late 1990s dot-com era, when the internet bubble gave rise to extreme valuations. Current AI tech valuations appear more reasonable due to the huge earnings growth that large cap technology companies are generating, including the 'Magnificent Seven.'

For Thomas, the tech space in recent years has been dominated by a handful of extremely good U.S mega cap companies. As a result, stock market returns have been extremely concentrated, and almost every other asset class has been crushed by the behemoth of U.S. equities. This is likely to change at some point and we may be getting close to the beginning of a new long-term investment cycle that will be very different from the previous 15 years dominated by U.S. and technology-led stock markets.

Could GLP-1s help rebalance the food trilemma?

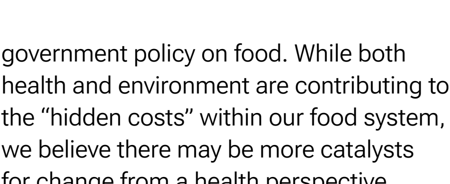
Key Insights

- The global food system is closely tied to seven of the nine processes within the planetary boundaries framework.
- We see signs of environmental and health tipping points in global food due to the clear shift in global diets from "food poor" to "food rich" issues.
- Anti-obesity medications could play a key role in balancing the food trilemma but may also have broad implications that alter public attitudes toward food and obesity, potentially leading to healthier and more productive societies.

Maria Elena Drew
Director of Research,
Responsible Investing,
T. Rowe Price Associates, Inc.

Daniel Ryan
Analyst,
Responsible Investing,
T. Rowe Price Associates, Inc.

The clear shift in global diets from "food poor" to "food rich" issues has highlighted signs of environmental and health tipping points in global food. This raises the possibility of a meaningful change in consumer attitudes and government policy on food. While both health and environment are contributing to the "hidden costs" within our food system, we believe there may be more catalysts for change from a health perspective due to the escalating pressure of health care costs on national budgets, reduced workforce productivity, and the emergence of glucagon-like peptide-1 (GLP-1) drugs and other anti-obesity medications.



Elements of the food trilemma

Food sustainability can be considered as part of a "food trilemma"—balancing the three key, and often conflicting, criteria outlined below:

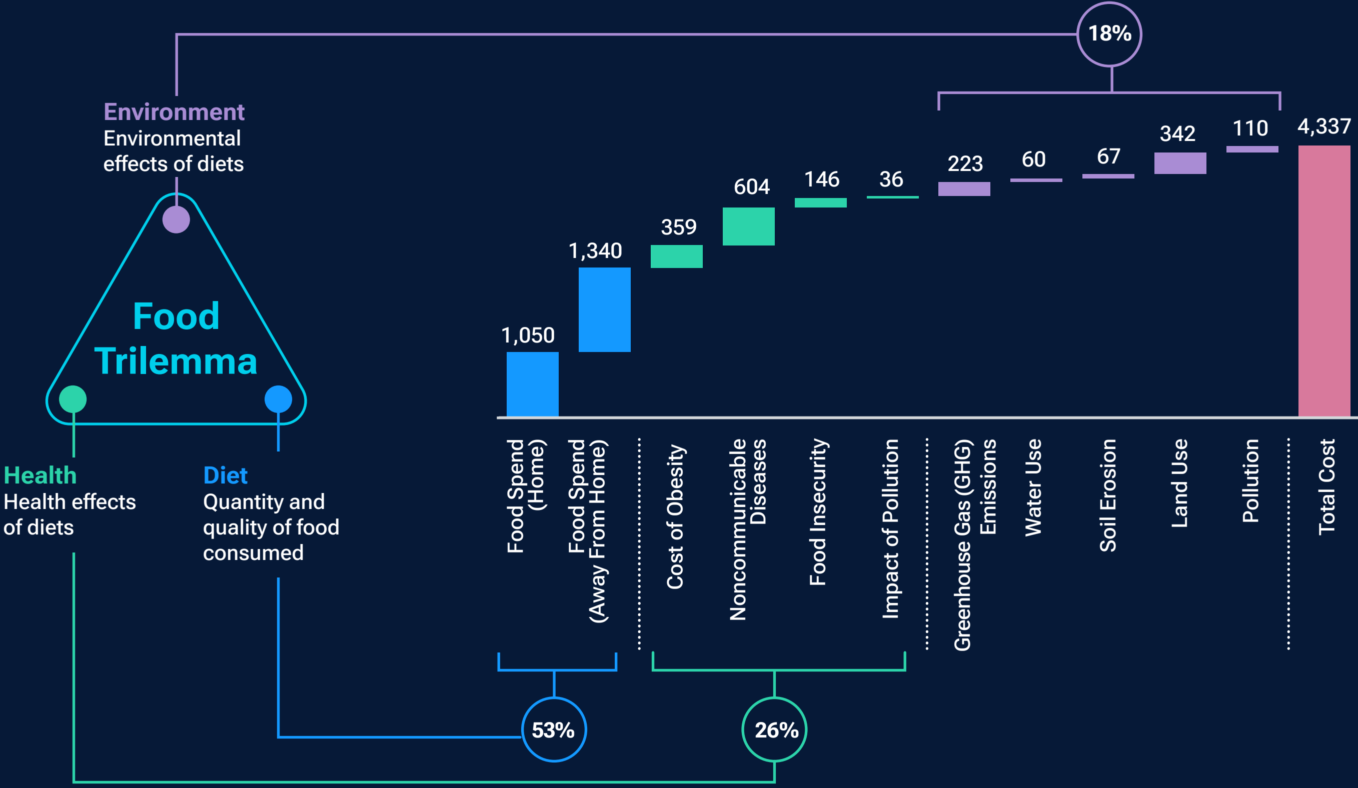
Diet—The types and quantities of food consumed.

Health—The health effects of diets characterized by inadequate, unbalanced, or excessive food consumption—i.e., how poor diet manifests itself in a burden of undernutrition and nutrient deficiency but especially obesity.

Environment—The role of agriculture in anthropogenic climate change, biodiversity loss, and water scarcity.

Balancing health, diet, and environment

(Fig. 1) Diet, health, and environmental costs as a proportion of the total cost of U.S. food



Costs are in USD bn. % figures show diet, health, and environmental costs as a proportion of the total cost of U.S. food. Total may not sum due to rounding.
Note: The cost of purchasing food accounts for around 50% of the total cost of food in this trilemma. For a food system to be sustainable it has to address the total cost of food to society.
Sources: Analysis by T. Rowe Price; health and environmental cost estimates are sourced from the Rockefeller Foundation (as of July 2021), food spend is sourced from the U.S Department of Agriculture, as of February 14, 2024.

The food trilemma and the planetary boundaries

Over the past 50 years, a dramatic shift in diets has had wide-ranging consequences for the environment and human health. Growing affluence and urbanization has driven calorie consumption higher, with global diets now including more ultra-processed food and animal products. Looking at this shift through the lens of the food trilemma, we see that changes in global diets have negatively impacted human health (due to food quality and quantity) and the environment (due to increased agricultural activity). Consumers only pay for around half of the total societal cost of food—the rest is borne by broader society as governments are forced to remediate the environmental and health costs associated with today's diets.

The global food system is closely tied to seven of the nine processes within the planetary boundaries framework[1]—namely biosphere integrity, land-system change, freshwater change, climate change, novel entities, biogeochemical flows, and ocean acidification. With agriculture contributing around a quarter of greenhouse gas (GHG) emissions, tackling the environmental impact of the food system is critical to achieving net zero.[2] However, with cost-of-living pressures being experienced around the world, the political will to enact new regulation on farmers is limited.

[1] The planetary boundaries framework, which is tracked by the Stockholm Resilience Centre (Stockholm University), identifies 9 planetary processes whose interplay can determine the stability of the biophysical Earth system and defines the critical threshold for each of these processes. Moving beyond the critical threshold represents the point at which the system can no longer persist or adapt to feedback loops and will transform into something entirely different. A core tenet of the concept is that each of the processes should not be analyzed as separate issues—as doing so would miss the interactions between them.
[2] Net zero refers to a state where greenhouse gas emissions released into the atmosphere are balanced by removals (such as through forests or carbon capture and storage).

The global food system and the interaction of planetary boundaries

(Fig. 2) How different processes interact to determine the path for climate stability[1]

Land-System Change

Agricultural expansion drives almost 90% of global deforestation—49.6% is attributable to cropland expansion and 38.5% is driven by livestock grazing.[2]

Biogeochemical Flows

Nitrogen and phosphorus flows have been impacted by agricultural and industrial activity. Nearly 80% of anthropogenic nitrous oxide (N_2O) emissions come from agriculture.[3]

Ocean Acidification

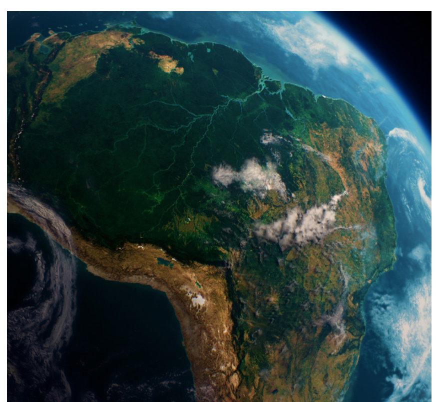
Increased carbon dioxide (CO_2) absorption drives warmer oceans, which contribute to higher global temperatures. Oceans have absorbed 30%–40% of CO_2 and 90% of heat since the preindustrial period.[4]

Climate Change

The global average surface temperature has risen by 1.3°C above preindustrial levels. Around 21%–37% of total greenhouse gas emissions are attributable to the food system.[5]

Freshwater Change

Higher temperatures may contribute to lower rainfall, and a reduction in trees reduces the transpiration process. Food and agriculture are responsible for around 70% of freshwater withdrawal.[6,7]



Biosphere Integrity

Biodiversity loss weakens resilience to climate stressors. The global food system is the primary driver of biodiversity loss, with agriculture alone being the identified threat to 24,000 of the 28,000 (86%) species at risk of extinction.[8]

Novel Entities

These are certain chemicals and substances, such as plastics, that are new in a geologic sense. The FAO estimates that agriculture value chains use 12.5 million tons of plastic products in plant and animal production and 37.3 million tons in food packaging.[9]

[1] The other two planetary boundaries not featured in this graphic are Atmospheric Aerosol Loading and Stratospheric Ozone Depletion.
[2] Food and Agriculture Organization of the United Nations (FAO), 2020.
[3] Source: United Nations environment, FRONTIERS 2018/19—Emerging Issues of Environmental Concern, March, 2019.
[4] Intergovernmental Panel on Climate Change (IPCC), 2021.
[5] IPCC, 2019.
[6] FAO, 2020.
[7] Freshwater withdrawal refers to freshwater taken from ground or surface water sources.
[8] United Nations Environment Programme, 2021.
[9] FAO, 2021.

The rising costs of diet-related diseases

Obesity is an increasingly common byproduct of the food system in almost all countries. In contrast to the outdated view of Western economies with "too much" food and emerging market economies with "not enough" food, obesity is now dominant in almost all countries. According to the World Health Organization (WHO), 1 in 8 people in the world are obese.[3] With the societal burden of obesity increasing so dramatically in the last four decades, the number of disability-adjusted life years (DALYs) lost due to excess body mass index (BMI) has doubled, representing a greater increase than any other leading health risk.[4] Obesity and other metabolic risk factors are now the dominant drivers of disease globally.

Global diet-related health risks on the rise while malnutrition-related health risks have declined

(Fig. 3) Change in profile of leading health risks (2000 vs. 2021)

Obesity costs the global economy USD 1.96 trillion (or around 2.5% of global gross domestic product) according to the World Obesity Federation.

Source: The World Obesity Federation, World Obesity Atlas 2023.

*DALYs: DALYs are the sum of years of life lost due to premature death and years lived with disability due to health conditions or diseases that affect a particular population. One DALY represents the equivalent of one year of healthy life lost due to premature death and disability.
Note: The 0%-12% of DALYs on the x-axis refers to the percent of the estimated global burden of disease, measured in disability adjusted life years, attributable to a given risk factor identified in the chart. The bars illustrated in this chart do not add to 100 as they show only the 25 most significant health risk factors.
Source: Global burden and strength of evidence for 88 risk factors in 204 countries and 811 subnational locations, 1990–2021: a systematic analysis for the Global Burden of Disease Study 2021. *The Lancet* (2024).

[3] Obesity and Overweight fact sheet, as of 2022, World Health Organization, March 1, 2024.
[4] Global burden and strength of evidence for 88 risk factors in 204 countries and 811 subnational locations, 1990–2021: a systematic analysis for the Global Burden of Disease Study 2021. *The Lancet* (2024).

> We expect that anti-obesity medications (AOMs) such as GLP-1s will play an unquestionable long-term role in balancing the food trilemma....
>
> – Maria Elena Drew
> Director of Research, Responsible Investing

Alongside the general increase in obesity prevalence in almost all countries, the prevalence of severe obesity (BMI ≥ 40 per the Centers for Disease Control and Prevention (CDC) definition) greatly increases the cost of obesity. At a BMI of 30–35, median survival is reduced by two to four years, but at a BMI of 40–45, median survival is reduced by eight to 10 years (comparable to the effects of smoking).[5,6] From an economic perspective, while obese patients accrue around 30% higher direct medical costs on average, severe obesity results in significantly more direct expense. In the U.S., the CDC relies on an estimate of USD 173 billion in obesity-related medical costs. Over 30 units of BMI, each additional unit of BMI resulted in additional cost of USD 253 per person.[7] This has contributed to a more than doubling of medical spending in the U.S. on obesity in the last 20 years.[8]

We expect that anti-obesity medications (AOMs) such as GLP-1s will play an unquestionable long-term role in balancing the food trilemma by directly addressing obesity as a key health pressure point and a dominant outcome of food systems. However, we also believe that their uptake, alongside other factors such as scrutiny of ultra-processed food, could have much broader implications for public attitudes toward food and obesity.

GLP-1s are amplifying the narrative that obesity is not a failure of individual willpower, but a byproduct of the food system and a disease. The advent of GLP-1s, alongside scrutiny of ultra-processed food, could therefore increase public awareness of the science of food reward and health costs of contemporary diets. This raises the question of what (if any) measures will different societies take to address the underlying food system drivers of obesity.

Data suggest that GLP-1 treatment reduces food cravings and alters the types of food consumed.[9,10] Rather than simply reducing the quantity of food consumed, patients substitute unhealthy food like sugary drinks, chocolate, and salty snacks with fresh produce, poultry, and fish.

While some patients are able to sustain weight loss by continuing healthier eating habits and other lifestyle changes, with currently available therapies, many patients regain weight after ceasing treatment.[11,12] This reflects an underlying issue with food environments that promote weight gain. There are clearly several components to this, but a shift in diets toward ultra-processed food—especially in the U.S. and the UK—is a key driver. Ultra-processed food consumption is also accelerating in emerging markets.

The science of food reward

In addition to physiological energy needs, food intake is driven by pathways involved in reward processing and reward-motivated behaviors. The palatability of food is a crucial determinant of the decision to eat; food today is often explicitly engineered to be hyper-palatable and create the visual cues associated with increased craving that can trigger food intake in the absence of physiological energy needs.

Obesity traditionally has been perceived as a failure of individual willpower, but this neglects both the physiology of excess BMI and how the food system contributes to its prevalence. The food system itself is designed in such a way that in many countries, energy-dense foods composed of refined grains, added sugars, or fats often represent the lowest-cost option for consumers.[13]

[5] "Body-mass index and cause-specific mortality in 900 000 adults: collaborative analyses of 57 prospective studies," *The Lancet,* March 18, 2009.
[6] "Body-Mass Index and Mortality among 1.46 Million White Adults," *The New England Journal of Medicine*, December 2, 2010.
[7] Ward, ZJ; Bleich, SN; Long, MW; Gortmaker, SL, "Association of body mass index with health care expenditures in the United States by age and sex," 2021, PLOS ONE 16(3): e0247307. Costs are reported in USD 2019.
[8] "Direct medical costs of obesity in the United States and the most populous states," *Journal of Managed Care & Specialty Pharmacy*, January 20, 2021.
[9] "Effects of once-weekly semaglutide on appetite, energy intake, control of eating, food preference and body weight in subjects with obesity," *Diabetes, Obesity and Metabolism*, May 5, 2017.
[10] "Could Obesity Drugs Take a Bite Out of the Food Industry?," Morgan Stanley, September 5, 2023.
[11] "Weight regain and cardiometabolic effects after withdrawal of semaglutide: The STEP 1 trial extension," *Diabetes, Obesity and Metabolism*, May 19 2022.
[12] Louis J. Aronne, MD; Naveed Sattar, MD; Deborah B. Horn, DO, MPH; et al, "Continued Treatment With Tirzepatide for Maintenance of Weight Reduction in Adults With Obesity: The SURMOUNT-4 Randomized Clinical Trial," *JAMA*, December 11, 2023.
[13] Adam Drewnowski and SE Specter, "Poverty and obesity: the role of energy density and energy costs," *The American Journal of Clinical Nutrition*, Volume 79, Issue 1, 2004, Pages 6–16, ISSN 0002-9165. January, 2004.

More scrutiny of food companies?

It is increasingly likely that food companies could face potentially more stringent regulatory regimes in individual markets due to closer scrutiny of their role in public health. On a much longer-term time horizon, the scale of obesity as a global health issue also raises the (albeit now seemingly slim) prospect of international multilateral efforts to combat its spread. While both the United Nations' 2000–2015 Millennium Development Goals and 2015–2030 Sustainable Development Goals have focused on hunger, perhaps the next round of goals could more specifically focus on reducing obesity.

At first glance, this draws similarities with tobacco—growing public awareness of health harms, stricter national regulation, and global initiatives (e.g., the WHO Framework on Tobacco Control treaty) also characterized efforts to combat the societal cost of smoking. However, we do not believe the food and tobacco sectors are directly comparable. First, nutritious food is a prerequisite for health—there is not the same clear existential threat from health concerns for food companies as those posed to cigarette smoking. Second, food companies can reformulate products to address health concerns, and health-focused product offerings are a significant strategic opportunity.

Environmental, social and governance (ESG) considerations such as the food trilemma form part of our overall investment decision-making process alongside other factors to identify investment opportunities and manage investment risk. At T. Rowe Price this is known as ESG integration. ESG investors may adopt a more nuanced, stock-specific approach versus the exclusions-oriented playbook applied to global tobacco when evaluating food and beverage companies. This would still be a departure from the positive ESG view of many food and beverage companies today. This approach may involve scrutinizing the nutrition characteristics of food portfolios, product labelling, advertising, and lobbying/influence in public health more than seen historically.

> ESG investors may adopt a more nuanced, stock-specific approach versus the exclusions-oriented playbook applied to global tobacco....
>
> – Daniel Ryan
> Investment Analyst, Responsible Investing

Building AI-themed investment strategies: A multi-asset perspective

Key Insights

- AI will remain an enduring investment theme due to its transformative impact and widening adoption.
- An AI-themed portfolio could combine core exposure to technology stocks with allocations to multi-asset ideas and private assets to diversify the opportunity set.
- Given the risks, it is important to be discerning in identifying the most promising long-term opportunities and remain flexible as the AI cycle evolves.

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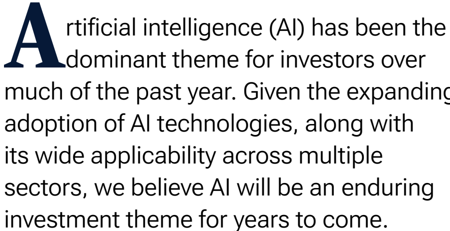
Thomas Poullaouec
Head of Multi-Asset Solutions, APAC



Artificial intelligence (AI) has been the dominant theme for investors over much of the past year. Given the expanding adoption of AI technologies, along with its wide applicability across multiple sectors, we believe AI will be an enduring investment theme for years to come.

As asset allocators, we are interested in designing viable investment solutions and portfolios to capture the AI opportunities. In this article we attempt to outline possible approaches for building AI-themed investment strategies.

Challenges of AI-themed investing today

The primary challenge of building AI-themed investment solutions is that it lacks a clear definition. A glance at existing AI products or indices on the market underscores the issue. For example, some focus exclusively on companies involved directly in AI technologies, such as development platforms and neural networks. Others have a broader scope, with exposure to segments that utilize AI, including robotics, automation, and the Internet of Things.

Despite the variation, it is apparent that an AI-themed investment strategy would still be primarily centered around the technology sector at the current stage of the cycle. In part, this reflects that the AI revolution is in its early days, with the hardware and infrastructure needed for more advanced AI applications still being built up. Moreover, although adoption of AI technologies has been

rapid due to excitement about generative AI and large language models, better models and applications are constantly emerging. Given the rate of change, there is little visibility on which companies or applications may have long-term staying power.

AI-themed investment solutions: Three approaches

The transformative impact of AI makes it impossible to ignore from an investment perspective. Investors with allocations to broad global equity indices would already be exposed, given the dominance of tech giants in stock benchmarks today. However, for those who prefer a more focused AI investment strategy, we outline three possible approaches.

1. An AI-themed equity portfolio

When constructing an AI-focused thematic investment strategy, we favor a core-satellite approach. This would also ensure the portfolio has exposure to the diverse sectors and companies that both support the development of, and stand to benefit from, advances in AI.

A core allocation to the global technology sector is the natural starting point. Major technology companies remain the biggest beneficiaries of AI, reflected best by the meteoric growth of mega-cap technology companies over the past year. For instance, companies across the semiconductor supply chain have seen booming demand for the advanced chips to meet the immense processing and computing requirements to power AI infrastructure and AI-enabled products. Cloud solutions providers are also well positioned, given the massive data storage needs of all AI applications.

However, we do not envisage our core exposures staying static. Although the AI infrastructure buildout is ongoing, innovative tools and applications are concurrently being developed (Figure 1). ChatGPT, developed by Microsoft-backed OpenAI, is one of the best-known examples, but other early-stage businesses are also building AI-related products and services, such as search engine startup Perplexity. While the rapid rate of change makes identifying long-term winners challenging, it is clear that our core allocations should and will evolve as

The AI pyramid

(Fig. 1) Near-term AI opportunities like in infrastructure; applications have long-term potential

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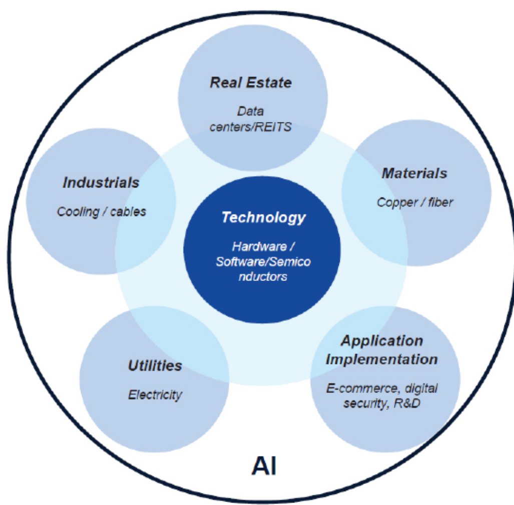
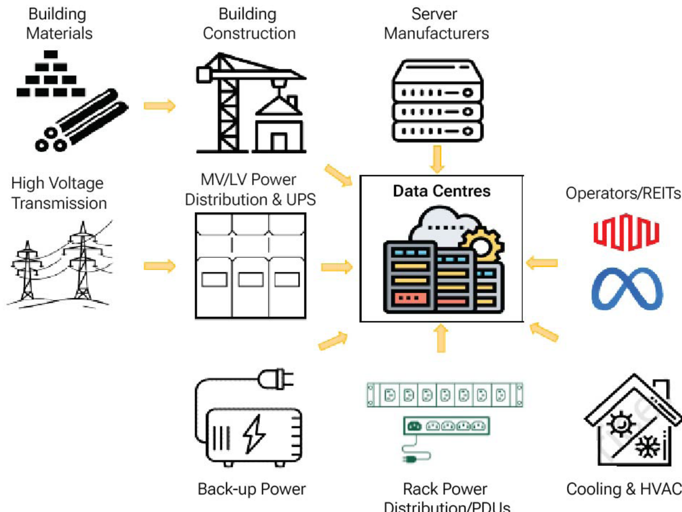
The AI investment universe

(Fig. 2) AI benefits more than just technology



Source: T. Rowe Price. For illustrative purposes only.



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different segments and companies emerge as market leaders.

Meanwhile, we think satellite investments to sectors outside the traditional technology offers complementary exposure to the AI cycle's evolution (Figure 2). Companies across multiple sectors are intrinsically important to sustaining the AI ecosystem. Property developers and operators, for instance, are likely to benefit from rising demand for data centers to cater to the energy- and data-intensive nature of AI development. The power generation and transmission needs of AI data centers, in turn, will bolster demand for utilities and commodities, such as copper. Hence, selective positioning to specific sectors could potentially enhance portfolio diversification and returns, while also differentiating an AI-themed portfolio from pure-play technology funds.

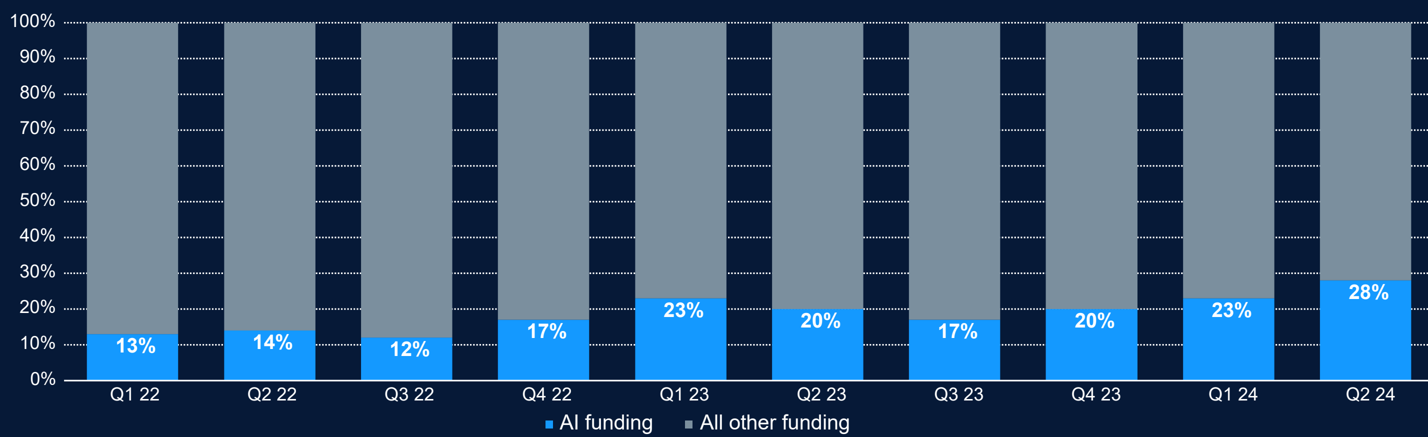
2. A multi-asset portfolio with an AI tilt

Taking a multi-asset approach may suit investors seeking a more diversified solution that goes beyond equities. For investors benchmarked to common multi-asset indices such as a blended index comprised of MSCI All Country World Index (MSCI ACWI) and Bloomberg Global Aggregate Index (Global Agg), it makes sense to allocate the core exposure to a mix of underlying global equities and fixed income strategies, complemented with an AI tilt. At T. Rowe Price, we implement a discretionary overlay with a dedicated risk budget, enabling portfolio managers to express high-conviction views and make tactical investments into AI-related areas that may not be captured in the core allocations. These tactical satellite positions may encompass investments into areas that may be directly or indirectly related to AI themes.

For example, the investment team may favor South Korean stocks over emerging markets equities because South Korea offers exposure to AI-fueled semiconductor growth. Allocations to commodities needed in the AI infrastructure buildout, such as copper, may be considered too. Portfolio managers may also invest in AI-related fixed income securities, such as convertible bonds issued by AI-related companies or securitized debt backed by data center operators, given expectations for higher levels of issuance as companies

Private market activity in AI is robust

(Fig. 3) AI share of funding (2022-2024 Q2)



As of 30 June 2024.
Source: CB Insight.

tap debt financing sources for their AI investments. Convertible bonds further offer the potential of capturing equity-like upside convexity.

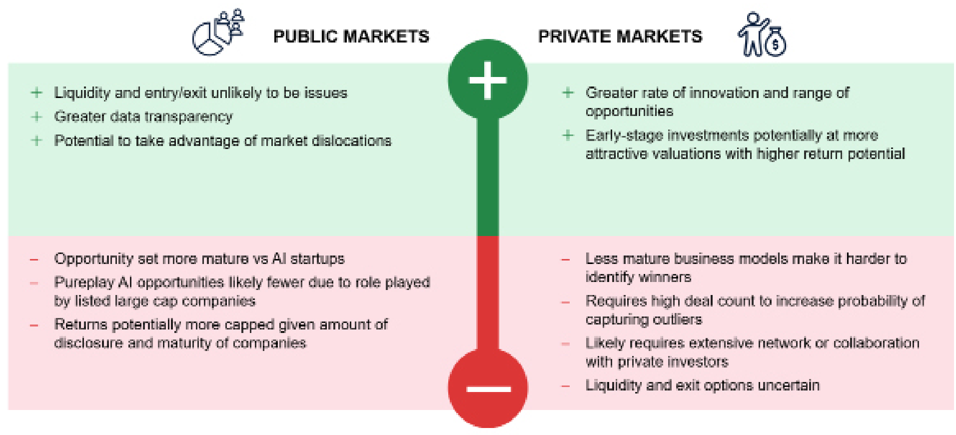
3. AI investments in private markets

Significant innovation in AI is also occurring within private markets, backed by a combination of angel financing, venture capital, and corporate investments. The rising levels of interest within the private space is evidenced by the increasing share of private capital flowing to AI companies in 2024 (Figure 3). Moreover, our research found that integrating private assets in multi-asset portfolios may lead to better risk-adjusted returns, while also improving diversification[1].

We believe adding private assets meaningfully expands the opportunity set available to investors, providing access

Private AI investments complement public market exposures

(Fig. 4) Evaluating AI investments in private and public markets



An optimal AI investment strategy should span across Private and Public Investments

Source: T. Rowe Price. For illustrative purposes only.
It is not intended to be investment advice or a recommendation to take any particular investment action.

[1] Source: "A closer look at the diversification potential of private assets" by Rob Panariello, Som Priestley and Fahad Siddiqui.

to early-stage enterprises with higher return potential. More AI startups appear to be delaying plans to go public, while the influence of hyper-scalers today also limit the role of pure-play AI companies in the public markets. That said, investing in private assets carry meaningful risks, including uncertain liquidity and potentially prolonged holding periods. Therefore, in our view, AI-focused private investing could be viewed as a good complement to investors' AI-linked public equity and bond exposures (Figure 4).

Given these considerations, some private equity investors will spread their funds across multiple companies, hoping not to miss out on potential unicorns. However, we prefer to take a more selective approach, investing in later-stage businesses that are more established, leveraging our strengths in bottom-up fundamental analysis. Although the return potential of these companies may be less compared to early-stage startups, failure rates are also lower. Similar to public markets, we see more compelling opportunities in the infrastructure needed to enable AI technologies. In contrast, it has been more challenging to find deals that fit our criteria to invest in private companies that are developing language models or applications.

Concluding thoughts

We believe AI advancements will have a profound impact on economies, contributing to meaningful gains in productivity and growth. Rapid innovation, a wide range of use cases across multiple sectors and accelerating adoption suggest it will remain a major long-term investment theme. To take advantage of the opportunities, an AI-themed investment strategy should combine core exposure to global technology sector alongside satellite allocations to areas that support AI development, such as infrastructure enablers. An allocation to private markets would further diversify the opportunity set.

Significant risks remain, including uncertainty around profitability, valuations, and regulations. Therefore, being discerning, with a focus on fundamentals, is key to identifying the most promising long-term prospects across the AI space. At the same time, the rapidly-changing landscape also calls for a flexible investment approach that can adapt to the continued evolution of the AI cycle.

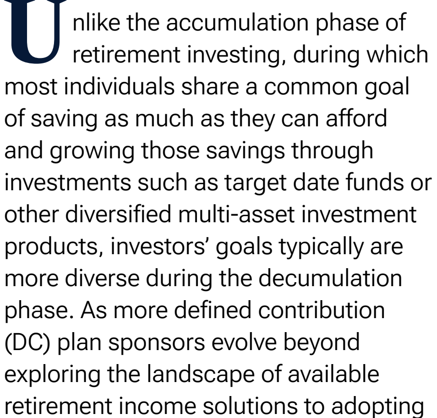
A five-dimensional framework for retirement income needs and solutions

Key Insights

- As more defined contribution plan sponsors consider implementing retirement income solutions, we think they can benefit from research that accounts for the trade-offs inherent in such solutions.
- T. Rowe Price has developed an innovative five-dimensional (5D) framework for understanding and quantifying the unique preferences and needs of retirement investors.
- Our patent-pending 5D framework offers a new method to help plan sponsors evaluate retirement income solutions for their participant populations.

Berg Cui, Ph.D., CFA
Senior Quantitative Investment Analyst

Jessica Sclafani, CAIA
Global Retirement Strategist



Unlike the accumulation phase of retirement investing, during which most individuals share a common goal of saving as much as they can afford and growing those savings through investments such as target date funds or other diversified multi-asset investment products, investors' goals typically are more diverse during the decumulation phase. As more defined contribution (DC) plan sponsors evolve beyond exploring the landscape of available retirement income solutions to adopting an implementation-oriented stance, we believe that the system could benefit from:

- Research that fully appreciates and accounts for the trade-offs inherent in individual retirement income needs and solutions, and
- a common framework for evaluating retirement income solutions—guaranteed or non-guaranteed—to help plan sponsors evaluate products for their participant populations.

To address this challenge, T. Rowe Price's global multi-asset research team, in partnership with our global retirement strategy team, has developed a patent-pending five-dimensional (5D) framework for exploring retirement income needs and potential solutions. Our 5D framework establishes the foundational attributes of the "in-retirement experience" for individual investors and quantifies the economic trade-offs between these attributes.

The 5D framework

(Fig. 1) Key attributes of the in-retirement experience

	Attribute	Definition	Real-Life Meaning
	Longevity risk hedge	Portfolio duration/planning horizon	How many years will my retirement savings last?
	Level of payments	Income yield	What will the amount of my annual income be?
	Volatility of payments	Income volatility	How much can my "paychecks" change from year to year?
	Liquidity of balance	Asset liquidity	If a need arises, how much of my savings can I access?
	Unexpected balance depletion	Asset preservation	How high is the risk of my money running out earlier than planned?

Source: T. Rowe Price.
See Appendix and Additional Disclosure for more information.

Our unique approach starts with a simple assumption that every aspect of the in-retirement experience is captured by at least one retirement income product currently available in the marketplace. By comprehensively reviewing the existing universe of retirement income solutions and analyzing the trade-offs inherent in various product designs, we were able to identify five key attributes that are specific, mutually exclusive, and exhaustive, and that we believe fully characterize the in-retirement experience (Figure 1).

Using these five attributes, we then analyzed various retirement income solutions to identify and articulate the trade-offs inherent in each solution—such as understanding how a specific solution balanced the goal of hedging against longevity risk with the objective of achieving a desired level of income payments.

Our research revealed a parallel between our 5D framework and the traditional risk/return investment trade-off. The 5D framework enabled us to conduct quantitative studies of retirement income solutions based on various well-defined metrics, similar to how the risk/return trade-off has been studied for decades.

A framework for evaluating retirement income solutions

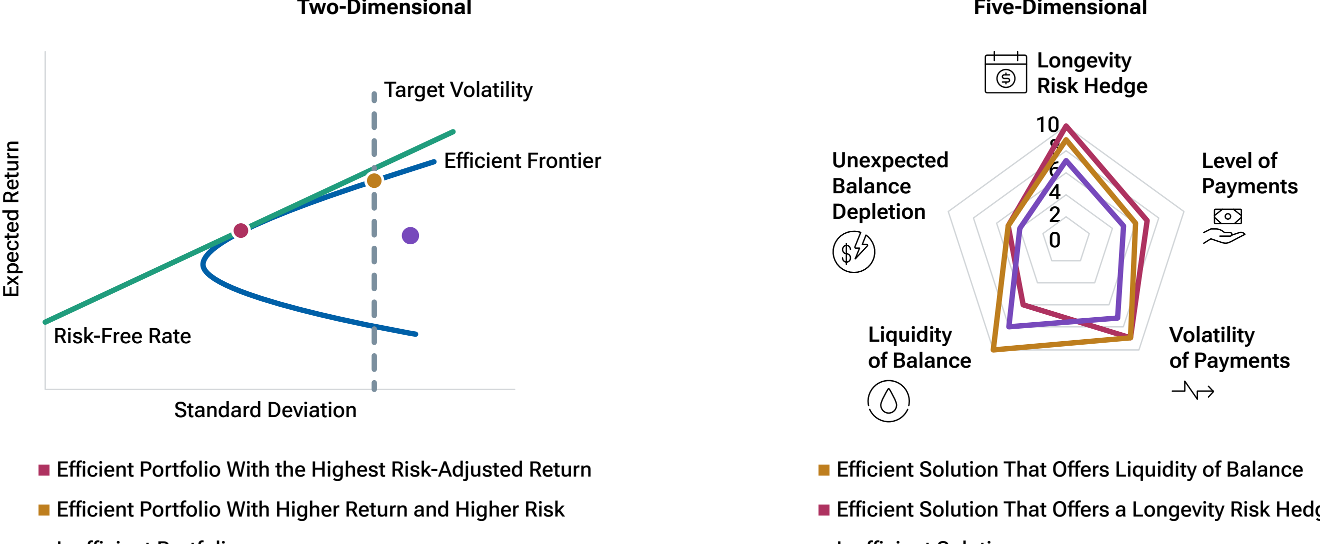
While traditional metrics such as risk-adjusted returns and the familiar mean-variance frontier may suffice for traditional investments during the accumulation phase, plan sponsors and their consultants and advisors need a more sophisticated approach to evaluate retirement income solutions. Leveraging the five key attributes in Figure 1, we use our 5D approach to analyze how various retirement income solutions prioritize these five aspects of the in-retirement experience.

We believe our 5D approach better captures the diverse needs and preferences of retiree populations and, importantly, quantifies the relationships between these preferences. For example, in the accumulation phase, investors primarily seek to achieve the highest

“We believe our 5D approach better captures the diverse needs and preferences of retiree populations, and, importantly, quantifies the relationships between these preferences.

Evaluation of traditional investments vs. retirement income solutions

(Fig. 2) Hypothetical examples of two-dimensional and five-dimensional frameworks



Source: T. Rowe Price. For illustrative purposes only. Not representative of an actual investment. See Appendix and Additional Disclosure for more information.

return possible for a given risk budget, which typically grows more conservative as they near retirement age. During decumulation, risk and return are still important metrics but fall short of fully representing investors' objectives at the point of retirement, which tend to be more varied and unique to each individual.

Because the in-retirement experience includes these five attributes, potential solutions must be optimized against five dimensions instead of the traditional two—risk and return—that dominate the accumulation phase (Figure 2).

Furthermore, we must account for how the five attributes influence one another, as opposed to simply understanding how risk and return are related. For example, to hedge against longevity risk, an investor may need to deprioritize balance liquidity. Similarly, to achieve a higher level of payments, greater risk may need to be introduced, which, in turn, increases the likelihood of unexpected balance depletion. To gain any additional performance on one factor, an investor may need to sacrifice benefits elsewhere.

How does our 5D approach differ from existing retirement income frameworks?

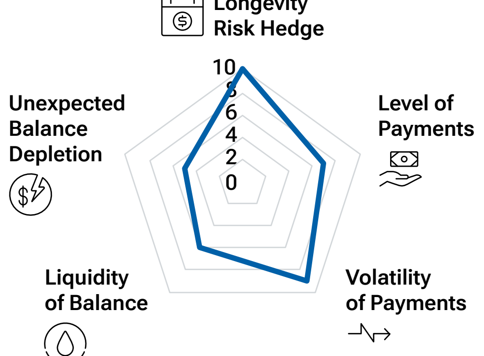
In addition to establishing the five key attributes by which a retirement income solution can be evaluated, our 5D framework captures and quantifies the trade-offs that a retiree must make in prioritizing certain of these attributes. Much of the retirement income research conducted to date has focused on identifying retired participant preferences, e.g., "I want a guaranteed stream of income," but has failed to consider the other side of the ledger, e.g., "I am willing to give up X% in monthly income to achieve that goal."

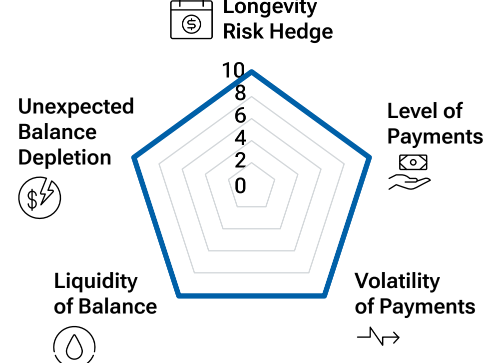
Under the financial market efficient frontier, our 5D framework quantifies retirement income needs by precisely calibrating trade-offs between the five attributes and assigning quantitative values to each of those attributes based on well-defined metrics. Quantifying participant needs for each of the five attributes allows us to identify how

> Quantifying participant needs for each of the five attributes allows us to identify how participants would spend their savings to create desired in-retirement experiences.

Using the 5D framework to illustrate investor preferences for the in-retirement experience

(Fig. 3) Visualization of hypothetical sample preferences





Radar charts illustrate how retirees make trade-offs between attributes to best seek to achieve their desired in-retirement experiences.

Source: T. Rowe Price. For illustrative purposes only. Not representative of an actual investment.
See Appendix and Additional Disclosure for more information.

participants would spend their savings to create desired in-retirement experiences.

Using a radar chart (a way of displaying multivariate data on an axis with the same central point), we can quantify and visualize these trade-offs.

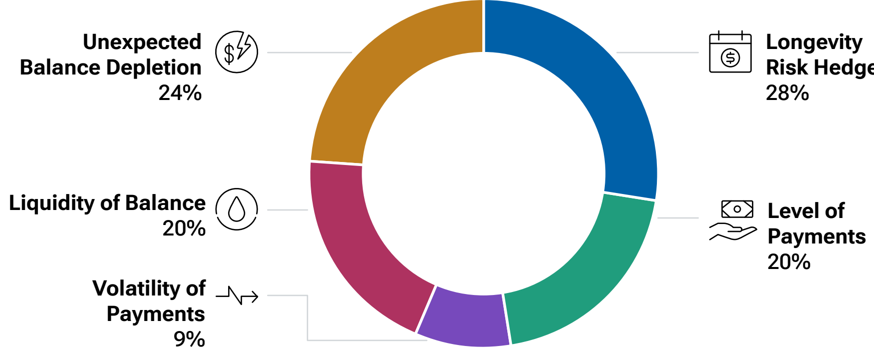
For example, consider the radar charts in Figure 3. The left chart represents one possible hypothetical preference profile for the in-retirement experience. A retiree with this preference shape is primarily concerned about hedging against longevity risk—perhaps because of a family history of great health—and wants guaranteed income for life. This hypothetical retiree also prefers a stable income stream to allow for better travel planning in retirement, but wants a higher income level (measured as a percentage of balance) to compensate for past undersaving.

Given these priorities, the retiree is willing to accept a moderate level of balance depletion risk while giving up some liquidities under the efficient frontier constraint. As one can imagine, preference profiles for different retirees can and do vary widely because of differing in-retirement needs. Because preferences can change across all five dimensions, the range of desired in-retirement experiences can be immensely diverse.

Figure 3 also highlights the difference between our 5D framework and those retirement income studies that fail to consider the trade-offs inherent in retirement income products. There will be only one preference profile in such studies—a perfect pentagon in which maximum values for all five attributes are selected (as shown in the radar chart on the right in Figure 3) without acknowledging that it is impossible to attain all five under the efficient frontier.

Retirement income preferences among U.S. DC plan participants

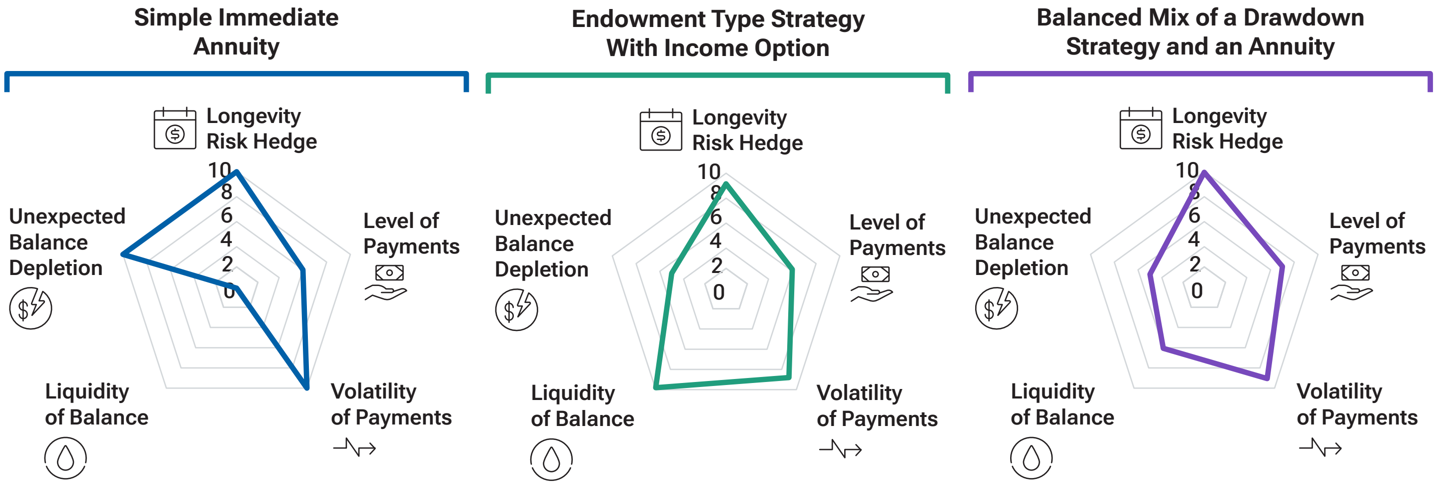
(Fig. 4) Relative importance scores for preference attributes



Data do not add to 100% because of rounding.
Source: T. Rowe Price, 2024 Exploring Individuals' Retirement Income Needs and Preferences.
See Appendix and Additional Disclosure for more information.

Using the 5D framework to compare retirement income solutions

(Fig. 5) Hypothetical solutions with attribute scores



Source: T. Rowe Price. For illustrative purposes only. Not representative of an actual investment. This analysis contains information derived from a Monte Carlo simulation. This is not intended to be investment advice or a recommendation to take any particular investment action. See Appendix and Additional Disclosure for important information.

T. Rowe Price's proprietary 2024 study of approximately 2,500 individual investors shed light on how investors, as a group, *actually* prioritized each of the five in-retirement attributes.[1] As illustrated in Figure 4, the data indicated that individuals who were approaching or in retirement were most concerned about how many years their savings would last (longevity risk), followed by the risk that they might run out of money earlier than expected (unexpected balance depletion). Level of payments and liquidity of balance were assigned equal importance, while volatility of payments was viewed as the least important attribute by the investors surveyed.

Potential applications of our 5D framework for plan sponsors

Once a plan sponsor understands the distribution of preferences within their participant population—whether that's based on a participant survey or a qualitative review that prioritizes the five attributes—we think they will be better positioned to identify potential solutions that prioritize the needs of that population.

Similarly, retirement income products can be plotted using our 5D framework to visualize which products appear to align best with the plan's retirement income priorities (Figure 5). Notably, the 5D framework provides an opportunity to compare different retirement income products using a uniform and unbiased process, much like mean-variance optimization can be used to compare products suited for traditional investments. The 5D framework shows how a retirement income product scores across each of the five attributes, and this output can then be compared with the same output for another product.

Plan sponsors, in partnership with their consultants or advisors, can compare the findings of a 5D analysis and the specific retirement income needs of their participant populations to identify "best fit" solutions. Any retirement income solution can be analyzed using our 5D framework under a commonly accepted set of capital market assumptions to understand and quantify how well the product meets each of the key attributes.

Concluding thoughts

We believe our 5D framework is a novel approach that offers plan sponsors the ability to better understand the unique preferences of their plan participants, enabling them to narrow the retirement income product universe to the solutions that are most likely to meet the needs of their unique populations.

Let's continue the discussion.

Contact your T. Rowe Price representative to learn more about applying our 5D approach to your evaluation of retirement income solutions.

[1] T. Rowe Price, 2024 Exploring Individuals' Retirement Income Needs and Preferences. Data reflect responses from 2,582 individual investors age 40 to 85 that were currently enrolled in a DC plan and had at least $100,000 saved in their plan accounts. The survey was fielded December 2023 through February 2024.

Appendix: Study Methodologies

The methodologies used in this study included theoretical economic tradeoff analysis, Monte Carlo simulation-based quantitative investment analysis, and classic quantitative marketing research methods.

Key Evaluation Metrics

For participant acceptance:

- Coverage ratio of an approach to retirement income solutions: percentage of participants in the plan that are willing to accept at least one product in the approach as their retirement income solution.
- Number of products: number of retirement income products in each approach.
- Acceptance rates for the same products in different approach: percentage of participants in the plan that are willing to accept the same product when offered in different approaches.
- Relative importance scores: the proportional impact that each attribute had on a respondent's choices. For example, in Figure 6, on average, men and women would rank longevity risk hedge as more important than the other attributes provided in the study. However, where they differed was for unexpected balance depletion, which was ranked as more important by females than males. The importance score is a relative measurement, so the sum of the impacts from all five attributes is normalized to 100% and the results are expressed as percentages.

For efficiency:

- The set of metrics for the five attributes.
- The metric set varied from a basic set (as illustrated in Fig. 1) to more comprehensive sets with multiple metrics for each attribute.
- All five attributes were evaluated jointly to make efficiency determinations, based on the more efficient definition.

China's Policy Pivot Marks a Turning Point in the Economic Cycle

Key Insights

- The September Politburo meeting signaled a policy pivot from risk control to growth support. We expect a more favorable environment for growth and business.
- Immediate policy focus is on property and local government debt to stabilize the economy. Over the medium term, consumption and industrial upgrade hold the key.
- We see compelling opportunities in high quality growth businesses, technology/industrial companies in an upcycle, and companies with rising shareholder returns.

Wenli Zheng
Portfolio Manager, China Evolution Equity Strategy

Decisive policy shift from controlling risk to supporting growth

In our view, the Politburo meeting on September 26 signaled a clear change with respect to China's policy priorities. Since 2021, financial deleverage and austerity were the primary agenda. However, faced with weakening demand and a slowing economy, there is now a clear sense of urgency to support growth. We think a policy turning point was reached with the Politburo's strong rhetoric about the economy, the call to reverse the property decline, and the flurry of expansionary policies that followed.

The first set of announcements from the People's Bank of China (PBOC) and other financial regulators were centered on monetary policy easing, including interest rate cuts, a reduction in the required reserve ratio for banks, lowering the cost for existing mortgages, and targeted support for the equity market. Subsequently, the Ministry of Finance (MOF) came out with announcements regarding fiscal support, with the initial priorities being local government debt, property destocking, and increased spending on the safety net for low-income groups.

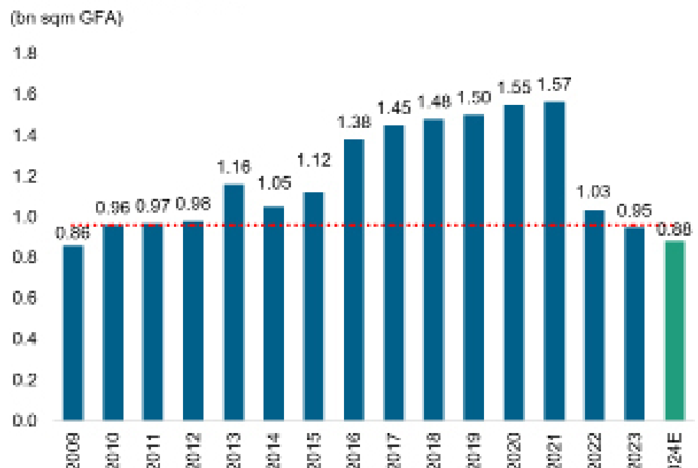
The market is currently laser-focused on the specific size of the fiscal budget. We believe the directional change is what matters. With the strong commitment to support growth, we may now have the "policy put" in place. More support is likely to come if the initial phases prove to be insufficient. In addition, with the clear message from Beijing, the local governments' mentality will shift. This will create a more favorable policy environment at the local and execution level.

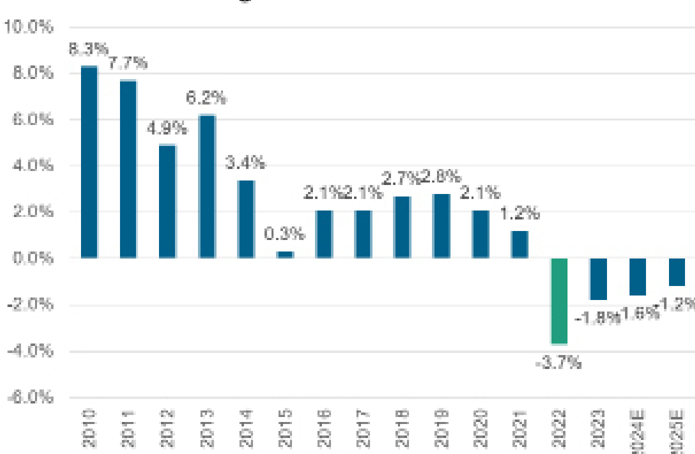
Current financial deleverage cycle enters late innings

China's economic recovery since the COVID reopening has disappointed. While there are structural challenges, we believe that the deleveraging cycle since 2021 was the dominant factor accounting for

Property sales volume back to 15 years ago

(Fig. 1)





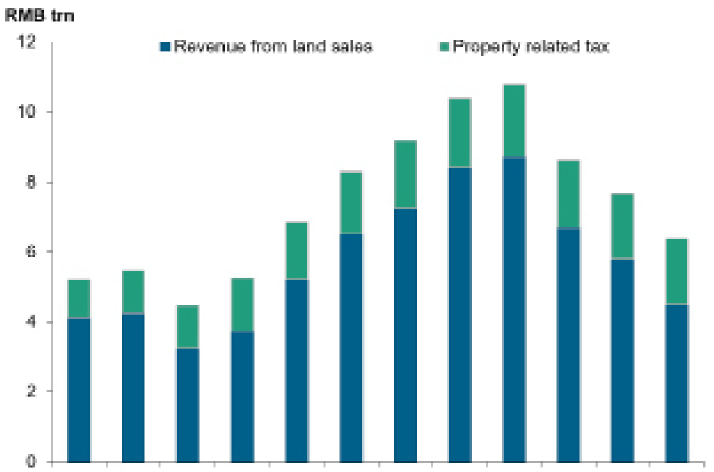
As of 31 August 2024
There is no guarantee that any forecast made will come to pass.
Source: Citi Research
GFA = Gross Floor Area

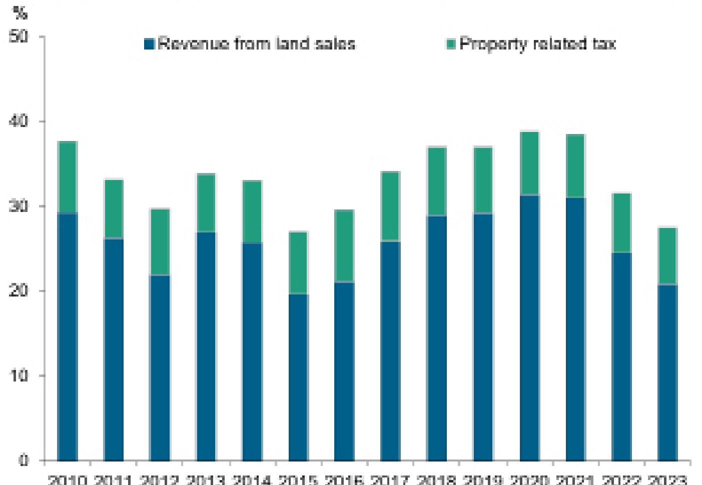
the weakness. The agenda was to address the overinvestment and overpricing in the property sector. From the peak in 2020, the price of secondary homes declined 30%, primary sales volume more than halved, and new housing starts declined by over 70%. The negative impact on the Chinese economy was significant, though the worst might be behind us. With China's property investment as share of total investment normalizing to around 9% to 10% (around the average for DM economies), the industry is now on a more sustainable footing than it was three or four years ago (See Figure 1).

China's property slump resulted in the deterioration of another ongoing chronic problem, local government debt. Land finance was close to 40% of local government revenues in 2020. However, this revenue source has since declined by over 40%. The result of this is a declining willingness to invest by local governments, an austerity mentality taking hold, and a less friendly business environment.

Local government and land finance in China

(Fig. 2)

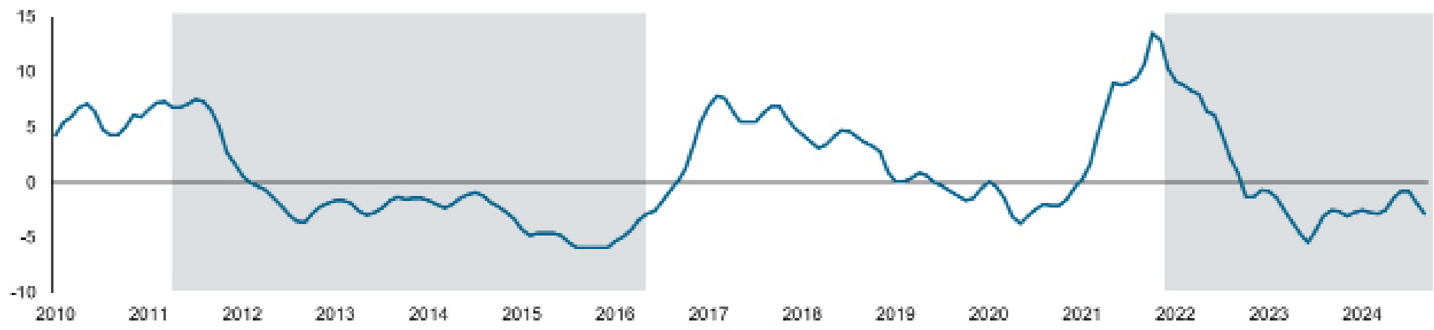




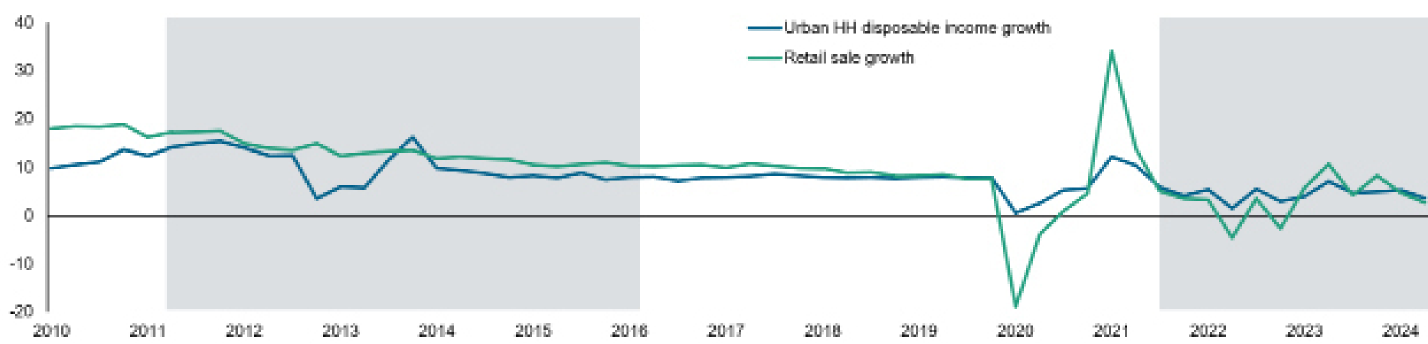
As of July 2024.
Revenue in 2024 is estimated using realized growth in July ytd. Actual outcomes may differ materially from estimates. Estimates are subject to change.
Souce: Wind, Nomura Global Economics.

Weak consumption and deflation pressures are symptoms of China's slowing economy

(Fig. 3)



As of September 2024.



As of June quarter 2024.
Source: Bloomberg Finance L.P.

To better understand the current trajectory, it would be helpful to review the last deleveraging cycle in 2011-2015. China's huge stimulus in response to the Global Financial Crisis (GFC) in 2008 led to significant overinvestment in infrastructure and overcapacity in upstream industries. A weak producer price index (PPI) was the symptom of that cycle, with the annual change in the PPI in negative territory for four consecutive years. On the other hand, consumption spending held up quite well back then. This round of deleveraging since 2021 is different. It had a significant impact on the property sector supply chain and a negative wealth effect on households. The symptom is weak consumption and deflation pressure (Figure 3).

Recent policy announcements directly target the weak links in the Chinese economy of property, local government debt, and consumption. We expect these initiatives to stop the negative feedback loop and put the economy back on a stable path over coming quarters.

China's long term economic transition remains intact

The near-term policies focus on the imminent challenges of property and local government debt. However, China also needs new drivers to sustain high quality growth over the mid to long term. We expect a gradual shift away from traditional fixed asset investment(FAI)-driven growth.

Over the past three decades, China has experienced four economic downturns. Each time, a new growth driver has emerged post the downturn. Post the late 1990s Asian Financial Crisiss, it was an export boom in the early 2000s; following the Global Financial Crisis in 2008, it was increased infrastructure investment; the 2014-2015 downturn was followed by the property market boom. Looking ahead, we expect consumption and industrial upgrading to be the key factors that help to drive China's next phase of economic growth.

Currently, private consumption is less than 40% of China's GDP, significantly below most other major economies. However, we think this could start to change. The Chinese government's agenda has started to shift away from "hard infrastructure" with an emphasis more on "soft infrastructure". That includes new urbanization, the social safety net, education, healthcare, and childcare. These trends will be supportive of increasing consumption over the coming years.

Consumption: diverging trends

(Fig. 4)

Manufacturing vs Consumption

Share of Global Output (%) — USA 15%, China 30%, Japan 6%, Germany 5%, India 3%, Rest of World 41%

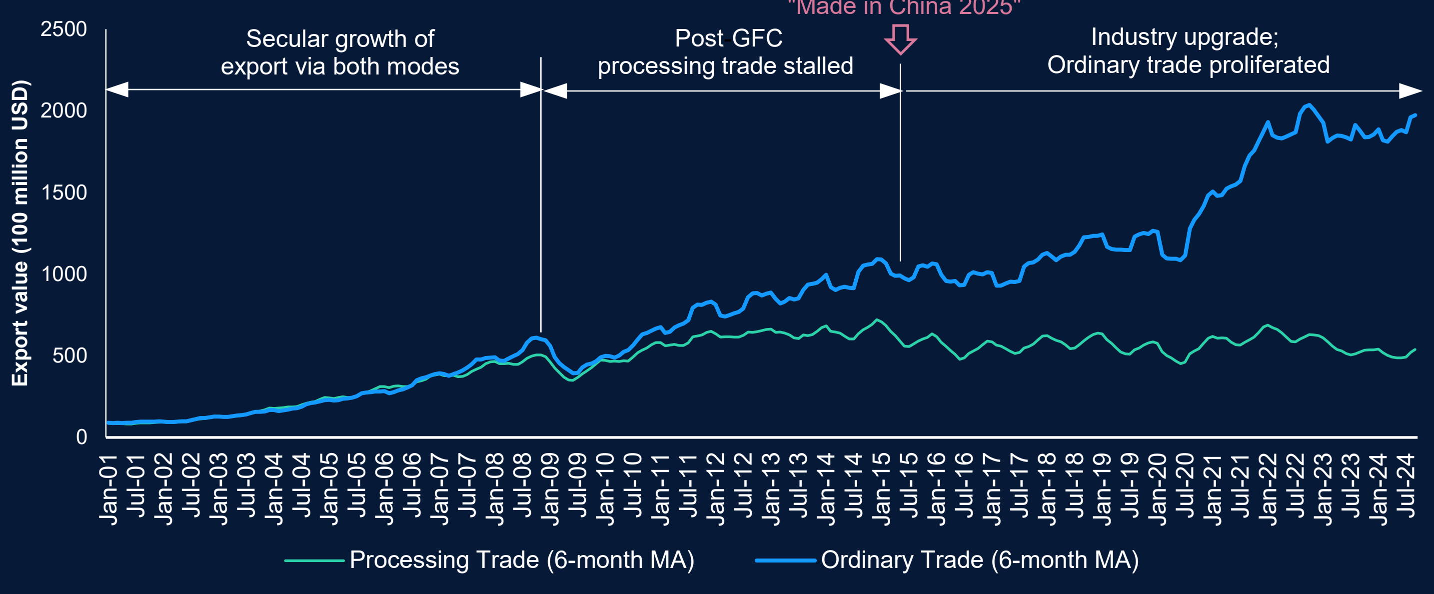
Share of Global Consumption (%) — USA 28%, China 14%, Japan 5%, Germany 4%, India 3%, Rest of World 46%

USA · China · Japan · Germany · India · Rest of World

As of 31 August 2024.
Source: Worldbank. NBS, BEA, CAO, Deutsche Bundesbank, Ministry of Statistics and Programme Implementation (India), Haver Analytics, CEIC. Citi Research.

Ordinary trade and processing trade show diverging trend in China's export

(Fig. 5) China Export via Ordinary Trade and Processing Trade



As of September 30, 2024.
Source: Wind, China Customs, Bernstein Research.

Technology and industrial upgrading could be another key driver, both domestically and in global market. China already accounts for over 30% of global manufacturing output. The future is more about increasing value added rather than pure volume. The effect of China's industrial upgrade is well reflected in its export mix. China's processing trade had declined over past decade, but ordinary trade, which carries much higher value-added, more than doubled during the period.

After the PBOC's announcement on September 24, the MSCI China index rallied by over 30% in the following two weeks. This was followed by a 10% pull back when the market reopened on October 8 after China's week long National Holiday. We think economic improvement and a corporate earnings inflection are probably still two to three quarters away. The market currently is mostly trading on sentiment and policy expectations. Despite near term volatility, we see an improving outlook and attractive valuation. We are

constructive on the outlook for Chinese equities over the next two to three years.

With the recent market recovery, MSCI China's PE ratio has re-rated to near its 20-year average but remains at a 20% discount to EM-ex China markets. Post this broad based re-rating, we think corporate fundamentals will be the key performance driver going forward. From a bottom-up perspective, we can continue to find compelling investment opportunities in China's deep, liquid stock market.

After three and a half years of market downturn and underperformance of growth stocks, selective high quality growth stocks in China are trading at an attractive price. We continue to like our holdings in online recruiting, shopping malls, and hotel chains. These are scalable businesses with high earnings growth visibility over the next few years. We believe they also stand to benefit from an improving macro-outlook.

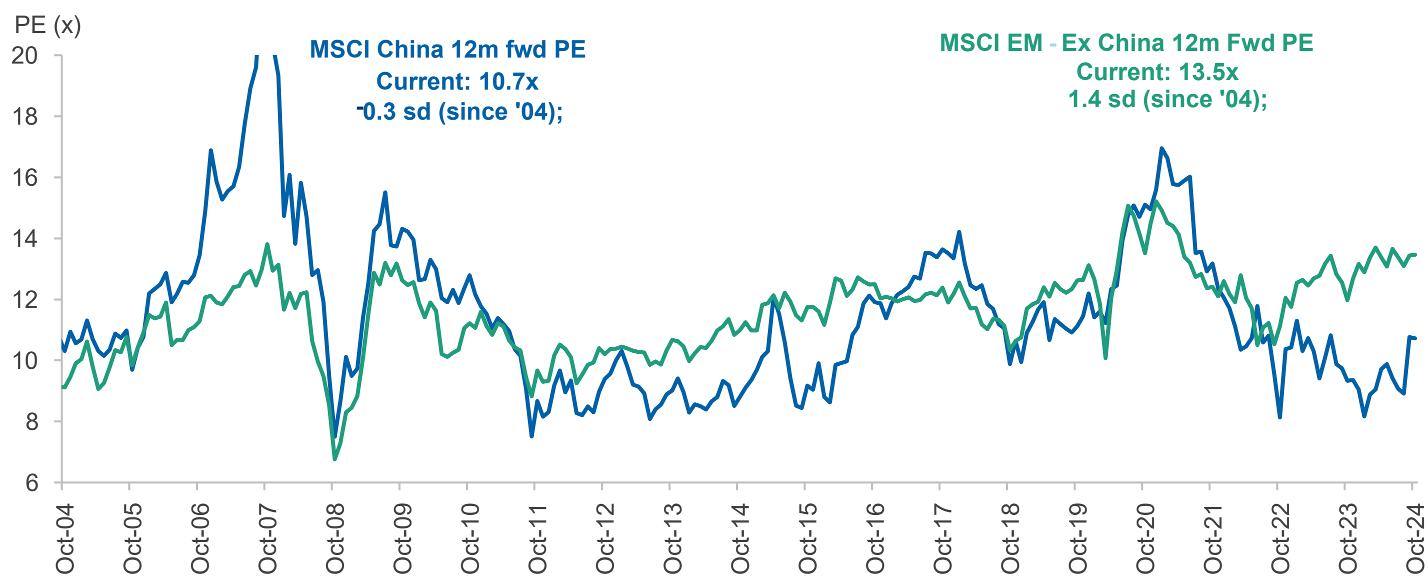
Another fertile hunting ground is industrial businesses with strong competitiveness and a favorable industry cycle. Examples include rail equipment, power grid upgrade, shipbuilding, and construction machinery. We expect these businesses to see accelerating earnings growth and improving returns over coming quarters, with or without additional policy stimulus.

There are increasing opportunities for rising shareholder returns. In selective industries, as businesses mature, they enter the "harvest stage" and become highly cash generative. We look for Chinese companies with a combination of rising cash flow, disciplined capital allocation, and shareholder friendly mindset. We have found that combination in our holdings of telecom tower, outdoor media, and delivery companies.

Conclusion

China's economic policy has reached the turning point from deleverage to growth. This increased policy support could stabilize the economy by effectively addressing the property and local debt issues. We believe the transition to consumption and industrial upgrading will over time drive the next phase of China's economic growth. We continue to find compelling opportunities in Chinese equities. We aim to build a balanced portfolio that will benefit from China's economic transition in coming years.

MSCI China's forward PE has re-rated near its 20-yr historical average from oversold levels
(Fig. 6)



As of October 11, 2024.
Source: Factset, MSCI, Goldman Sachs Global Investment Research

Meet Michael Davis

An interview with Head of Global Retirement Strategy, T. Rowe Price

BIOGRAPHY
Career

Michael joined T. Rowe Price in 2016 as head of defined contribution plan specialists for the Americas. In January 2024 he transitioned to the new role of Head of Global Retirement Strategy. His team leads enterprise retirement strategy, advises on new product development, and provides retirement thought leadership.

Prior to this, Michael was employed by J.P. Morgan Asset Management from 1998 to 2000 and by J.P. Morgan Investment Banking from 1991 to 1998. In 2009 he joined the Obama Administration as Deputy Assistant Secretary of Labor in the division that oversees the retirement system in the U.S.

Professional & Education

Michael earned a B.B.A. in finance from the University of Texas at Austin and an M.P.P. in public policy from Harvard University, Kennedy School of Government. He is a FINRA+ Series 3, 7, 30, 63, and 24 registered representative. Michael is a member of the executive committee for the DC Institutional Investment Association.

[1] The Financial Industry Regulatory Authority is a private U.S. corporation that acts as a self-regulatory organization for member brokerage firms and exchange markets. FINRA is authorized under the federal securities laws and is registered with the Securities and Exchange Commission (SEC).

Michael, can you begin by telling us about your background? How did you come to pursue a career in asset management?

Starting at the beginning, for my undergraduate degree I majored in finance at the University of Texas. I came to choose finance really because of what was going on in South Africa at the time. While apartheid was still the law of the land, there many companies and entities that were divested from the South African government. It was an example of using economic channels and influence to achieve a political outcome. This made me to want to understand economics and finance more. The role that they could play in policy decisions was something that was really fascinating to me.

After taking a master's in public policy at Harvard, I became very interested in the intersection between urban economic development and finance and how one could encourage local businesses and commercial interests to create new development where development was needed. Consider the impact, for instance, of opening a grocery store or pharmacy store in an inner city area with few other options, where there was a ready supply of labor but not enough jobs. I was particularly inspired by the example of baseball start Magic Johnson, who in 1991 started a Foundation to support community-based organizations and development in ethnically diverse, urban communities, helping to address their education, environment, health, and social needs.

While I was at Harvard, I met some students who had worked in investment banking. Having grown up in an inner city area in Dallas, I didn't know very much about investment banking as a career vocation. They opened my eyes and exposed me to a whole new field of work in finance. I saw how you could integrate investment banking with public finance, as every stadium, power plant, transmission centre and airport needs to be financed efficiently. So I joined the public finance arm of investment banking at J. P. Morgan, working there for six years. At that point, I became very interested in asset management, so I moved from investment banking to the asset management business at J.P. Morgan.

I was intrigued by the notion of working in an investor's best interests, being responsible for managing their retirement assets. I was inspired by the idea that you're obviously working for a commercial purpose, it is also for a greater good, in that you are trying to preserve and protect the retirement savings that people have worked so hard to earn. I covered large institutions in the Midwest and ended up running the Western U.S. for J. P. Morgan's Institutional Asset management business.

So, what prompted you to join T. Rowe Price?

In 2009 I joined the Obama Administration as Deputy Assistant Secretary of Labor in the division that oversees the retirement system in the U.S. I found that my time in government helped to broaden my perspective, as you come to view and understand business as one of many different constituencies. But you also need to understand all the other influences that have an impact on policy outcomes, and this makes you more aware and more comprehensive in the way that you think about the world. I left the U.S. government in 2013 after President Obama's re-election, having worked on his re-election campaign, and took a job as a fixed income portfolio manager at Prudential, managing a core stable value fund.

After that I moved to Calvert Research and Management for three years, an investment management company headquartered in Washington that is a global leader in ESG (environment, social and governance) investing. Through one of my policy networks, I

heard about a new senior retirement position at T. Rowe Price, the acknowledged industry leader in areas like target date funds. So after meeting with T. Rowe Price management, in 2016 I joined the DC (defined contribution) specialist team for the Americas division.

Can you tell us about your role at T. Rowe Price as Head of Global Retirement Strategy?

My role is to accelerate and help to drive our retirement initiatives across the firm. There are several business initiatives that are in progress across T. Rowe Price business units that have retirement as a key component of what they do. The firm could benefit more from these retirement activities by gives them more leverage and connectivity across the enterprise.

We know, for example, that no less than two thirds of the firm's total assets under management of USD1.59 trillion are retirement related. That fact is important as it provides an opportunity to leverage our business in a way that makes a difference for our clients at the end of the day. The benefit of a role like mine as head of Global Retirement Strategy is to accelerate what we do from a product development standpoint, to amplify what we do in retirement by spurring more innovation, and most importantly, to deepen and focus the research capabilities that we have in a way that highlights the retirement insights that we have available to us across the enterprise.

The US is a global leader in retirement schemes and TD funds. What lessons can Asian investors learn from the US experience?

In America, T. Rowe Price has a long history of being at the forefront of retirement savings provision. Some of our retirement products and solutions will be new to plan sponsors in Asia, a region where developments in pension provision have been lagging the U.S. That means plenty of opportunities for T. Rowe Price's retirement business in Asia, and so we have strong plans for the regions, with a number of strategic projects currently underway.

Longevity and aging is a global dynamic, with the ratio of working age individuals to those who are of retirement age falling in every major economy. What that means is that countries with pay-as-you-go pension systems are going to find themselves under a growing amount of pressure. Government supported DB (defined benefit) schemes in particular will be under so much pressure their sustainability falls into question. Levels of government and/or employer support is relatively low in some Asian countries compared with the U.S. or Europe. At the end of the day, individuals and households across Asia are going to have to accept greater responsibility for their retirement pensions, especially as Asians are living longer lives than in the past.

I think we in the United States have an advantage in that we have been focused on DC (defined contribution) pension schemes for over 50 years. So we have a lot of data, a lot of experience and knowledge that can be shared with those saving for retirement in Asia. We do believe that our rich U.S. retirement experience has value for individuals, businesses, and governments in Asia. We are seeing this play out in the conversations that we've been having in 2024 with several key Asian institutions, ranging from superannuation firms in Australia to pension providers in China, Korea and Japan.

They have each been very interested in our perspectives on retirement savings, covering both the accumulation and decumulation phases. T. Rowe Price's global retirement team sees great value in building, maintaining, and deepening our relationships with Asian pension institutions in the years ahead, which we think will lead to greater commercial outcomes for the firm. This applies to Asian government bodies besides the private sector, as we have senior people who are former regulators. So I believe there's a lot of insight that we can provide to Asian governments and institutions as they embark on their own retirement evolution journeys. It's already making a difference in terms of our ability to engage with them as clients and offer solutions that help them to solve their pension problems.

What is your long term outlook for the global retirement savings industry. Should today's savers in APAC be concerned about high initial equity valuations and lower future returns?

Well, as I have said, because of the longer lives that people are living, it just makes it really difficult for governments to provide the level of pension support that is going to give people a sufficient level of retirement income. So private savings are necessarily going to become a bigger, more important part of the pension equation. The math is simply universal. So providing good advice about their retirement prospects to individual Asian savers is crucial. We need to encourage a high level of financial literacy that will help people to achieve good retirement outcomes. For younger workers just starting to save for their retirement today, high initial equity valuations suggest there is some risk that returns over the next decade may be a bit lower than in the past. In which case, there is little alternative to allocating a larger share of income to savings and starting to save for retirement sooner rather than later.

Lastly, can you please share with us some of your personal interests. How do you usually relax outside work?

With three kids, it's hard to find time that is not already allocated to their activities, even though two of them are in college now. To be honest, spending time with them is my primary outlet and I celebrate the fact that they still enjoy having us involved in their activities. Outside of that, I love to travel, read and play golf when I can. On the travel front, I love the opportunity to learn about other cultures and I always try to visit local art and history museums in each country that I visit.

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We established our Tokyo office and Hong Kong office in 1982 and 1987 respectively, and since then we have expanded our business by operating in Australia and Singapore. Today we have more than 200 associates based locally.

INDEPENDENT ASSET MANAGER
Our sole business is managing our clients' interests

ALIGNMENT OF INTERESTS
We are a publicly listed company with substantial employee ownership

FINANCIAL STRENGTH
We maintain a strong balance sheet.

GLOBAL EXPERTISE
Continually growing global team of investment professionals

Founded in
Baltimore, USA in 1937

USD1.59
trillion in assets under management[1, 2]

807
investment professionals worldwide[3]

Local presence in
16
markets

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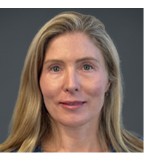

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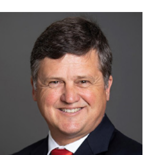

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[2] As at 30 September 2024.
[3] As at 30 September 2024.

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