

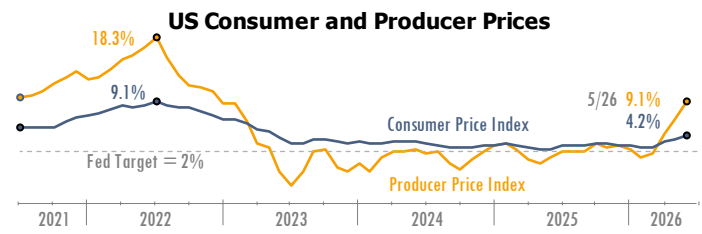
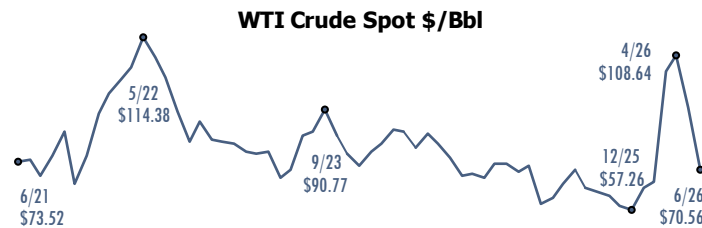
# MARKET Recap

## The US Economy: “Uneven Acceleration”

The economy grew at a 2.1% annualized pace in the first quarter, revised upward by 0.5% compared to earlier estimates. Private investment spending (primarily technology), government spending, and exports drove the acceleration. The Atlanta Fed’s model currently projects less robust growth for Q2 due to a widening trade deficit (higher imports), slowing business investment, and slightly softer consumer spending.



For a quarter dominated by war in the Middle East, one would expect oil prices to be a dominant story. Of course it mattered, but the short-term impact of an oil spike tends to be more political than economic. While consumers felt the pinch, prices have already fallen sharply, back to levels approaching the pre-conflict range. Barring a large-scale resumption in hostilities, the oil price spike will prove to be brief.



Even with that data in hand, the Federal Reserve’s June meeting produced a hawkish tone focused on concerns over the inflationary trends. The press conference confirmed market expectations that the short-term path of interest rates is not likely lower, and may in fact be higher, to reverse a troubling trend in producer and consumer prices.

It presents the new Chairman with a policy challenge. As he notes, higher interest rates have served to constrain some parts of the economy. But two spending trends emerged from the tightening cycle unabated: government spending and AI-related capital expenditures.

The looming fiscal situation figured prominently in last quarter’s newsletter, so we won’t belabor the point here, other than to note that the real inflationary impact of the war is upward pressure on defense spending for the next several years. At the same time, AI-related spending continues at breakneck speed. In the short run, the trade deficit widens as critical semiconductors and rare-earth metals are imported. Data center construction and operations increase demand for copper and other key materials, and push energy prices higher. Software providers are passing along the considerable cost of AI adoption to the business market, which has yet to see AI replace the need for many of these services.

It is clear from Chairman Warsh’s comments that the Fed has taken notice. It is less clear to us what exactly the Fed can do about it in the short-term. Most quantitative signals indicate that policy should be tightened, but the impact of monetary policy is not even. Higher rates could slow corporate spending on AI adoption (maybe), but spending by hyper-scalers appears to be inelastic at this point, reflecting a do-or-die environment. In order to push price growth back toward the 2% target, the Fed would need to tighten enough to counteract AI and a spendthrift government.

The FOMC is signaling 2 years of modestly higher policy rates, leveling off around 3.1%, a bit higher than projected last year. Chairman Warsh noted these forecasts were penciled in with “big erasers,” reflecting low conviction in the baseline. However not a single participant expressed much of a downside to that level, while upside risk assessments abound.

### 6/26 Survey of Fed Board Members & Bank Presidents

	Median				Range			
	2026	2027	2028	Longer Run	2026	2027	2028	Longer Run
Change in Real GDP	2.2 ↓	2.3	2.2 ↑	2.0	1.8-2.6	1.9-2.9	1.8-2.6	1.7-2.5
Unemployment	4.3 ↓	4.3	4.2	4.2	4.3-4.6	4.0-4.6	4.0-4.4	3.8-4.5
PCE Inflation	3.6 ↑	2.3 ↑	2.0	2.0	2.7-3.3	1.9-2.4	2.0-2.2	2.0
Fed Funds Rate	3.8 ↑	3.6 ↑	3.4 ↑	3.1	3.4-4.4	2.9-4.4	2.9-3.9	2.9-3.9

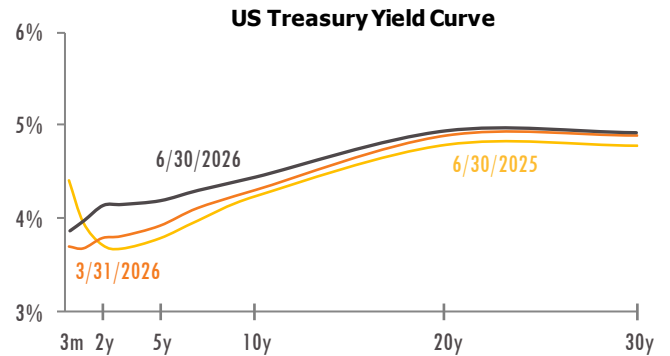
Arrows = change from March

### Participants' Risk Weightings



## The US Bond Market

Broad market sentiment regained its enthusiastic charge during the Q2 despite little progress on geopolitical conflicts, little assurance that hyper-scaler buildouts will achieve a strong return on investment, and little improvement in inflation. The US Treasury yield curve, however, did reflect these concerns. Rates flattened as the front of the curve climbed in anticipation of a September rate hike, with greater-than-even odds of at least one more hike to follow later this year or in early 2027. Prospects for progress on any of the major fronts are keeping the possibility of a neutral Fed in play, while the threat of worse-to-come is raising the probability for 3 to 4 rate hikes by April.



While corporate bond issuance could not keep up with the record pace of the prior quarter, it set a new record for second quarter debt raising. By mid-May, hyper-scalers had issued \$110 billion of public bonds and supported an additional \$20 billion of data-center financing. While Meta issued \$25 billion in the US, Alphabet chose to issue debt in Europe and Canada to avoid oversaturating the market. A total of \$150 billion US and \$100 billion foreign issuance is expected this year [JPM].

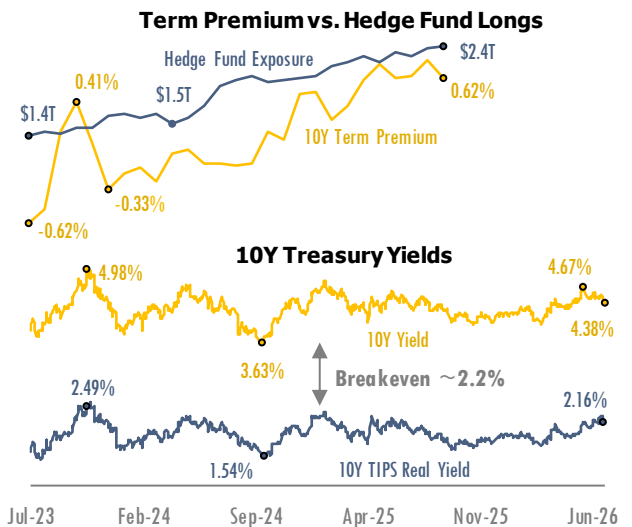
US Bond Index Returns	
Bloomberg Idx	2Q26
Aggregate	0.67%
Short Gov't	0.65%
Interm. Gov't	0.18%
Long Gov't	0.85%
TIPS	0.89%
Municipal	2.50%
Interm. Credit	0.91%
Long Credit	2.31%
High Yield	2.47%
Leveraged Loan	1.87%
MBS	0.58%

Returns were modest for most of the major US bond sectors but more than offset any negative returns experienced in the first quarter. Short duration, high quality paper lagged, but generated enough yield to deliver a positive return. The resumption of risk-on investment spurred stronger returns for municipal bonds, high yield debt, long duration credit, and leveraged loans.

High-yield spreads tightened 53 bps to end the quarter at 275 bps, after rebounding off of a near-term low approaching 260 bps mid-June. This was supported by speculative-grade default rates steady near 5%, though distressed exchanges and liability-management exercises may obscure some credit weakness, particularly in private markets. The largest corporate defaults for the quarter were moderate, isolated events. QVC Group filed for bankruptcy after declining viewership and sales left its shrinking earnings unable to support \$6.6 billion of debt and a \$2.9 billion credit-facility maturity due later this year. Dish DBS followed after delays to a spectrum sale left it unable to repay \$2 billion of secured notes within an \$8.8 billion wireless capital structure. RealTruck completed a distressed exchange involving roughly \$3.25 billion of debt.

The 30-year Treasury yield hit its highest level since 2007, peaking in May. The NY Fed's term premium model shows investors demanding compensation for fiscal and geopolitical risk, with marketable Treasury debt reaching \$31 trillion in May and 2026 issuance at \$13 trillion. Auction demand was adequate, but pushed yields above market levels to clear sales.

Who is absorbing this record supply? Foreign holdings have fallen to less than one-third of outstanding debt, versus 47% a decade ago. Foreign investors are still increasing their Treasury holdings, but not keeping up with the rapid pace of new issuance. The market has become reliant on hedge funds for liquidity. These funds have been buying cash Treasuries and short-selling Treasury futures as a hedge, utilizing roughly 50:1 leverage via the repo market. A recent Fed note estimated that hedge funds have amassed roughly \$830 billion in net basis-trade exposure. The bond auction weakness followed by the surging term premiums was safely absorbed by this highly-leveraged basis-trade position, but the market cannot rely on hedge funds for absorbing abundant Treasury issuance. The basis trade is a short-term play, typically 1-4 months, and aggregate hedge fund positions can quickly reverse their net exposure versus futures; such action prompted emergency Fed intervention in March 2020.



The 10-year yield has been volatile but rangebound for three years, only briefly escaping beyond a 4.0% to 4.5% corridor. Movements have mostly corresponded to the waxing and waning of inflation fears. Faith in the Fed has forged monetary policy into guardrails, keeping yields on track as less disciplined hands guide the wheel of fiscal policy. If Japan sells more of their \$1.2 trillion in US Treasury holdings, yields may endure; however, if many others follow suit, we may jump the rail.

## The US Stock Market

The US stock market largely shrugged off ongoing headwinds to hit solidly double-digit returns across the major benchmark indices. Challenges continued from prior quarters: geopolitical volatility, uncertainty around hyper-scaler AI investment profitability, and inflation. Despite this, the Nasdaq and the S&P 500 had their best quarters since 2020. For the Dow, it was the best quarter since 2022.

Mag 7 returns ranged from 24.4% for Google-parent Alphabet to -1.5% for Meta. As earlier enthusiasm for the hyper-scalers gave way, Dell, Micron Technology, and Advanced Micro Devices posted triple-digit returns with investors favoring their roles in the physical buildout of AI data centers. Intel also saw equally stellar performance as an AI accelerator, providing the specialized hardware designed to process artificial intelligence and machine learning workloads faster and more efficiently than general-purpose processors (i.e., standard CPUs).

After topping the sectors in Q1, energy was the worst-performing sector. As US bombing in Iran abated and traffic began to increase through the Strait of Hormuz, oil prices retreated. By the end of June, results for oil giants followed suit, with ExxonMobil, Chevron and ConocoPhillips returning -18.8%, -19.0% and -20.6%, respectively. Adjacent to the sector in industrials, fuel-cell provider Bloom Energy continued its multi-quarter, AI-driven run, returning 123.4%.

Continuing a 2026 resurgence in US public offerings, Q2 activity climbed to over \$105 billion, a level not seen since 2021. Ten of the 48 IPOs raised over \$1 billion, and deals featured firms in aerospace and defense, AI-related infrastructure, energy, and biotech [Renaissance Capital]. However, Space Exploration Technologies Corporation, aka SpaceX, grabbed all the headlines. The company's June 12 listing raised \$85 billion, more than three times the level of the previous record-holder. Still, a free float of approximately 5% means only a very small portion of its shares are circulating in the public markets until the 366-day lock-up period expires in mid-June of 2027.

Against the backdrop of the SpaceX launch and anticipated mega-cap IPOs from Anthropic and OpenAI, debate raged on the proper methodology for their incorporation into equity indexes. At the end of May, FTSE Russell approved a new IPO

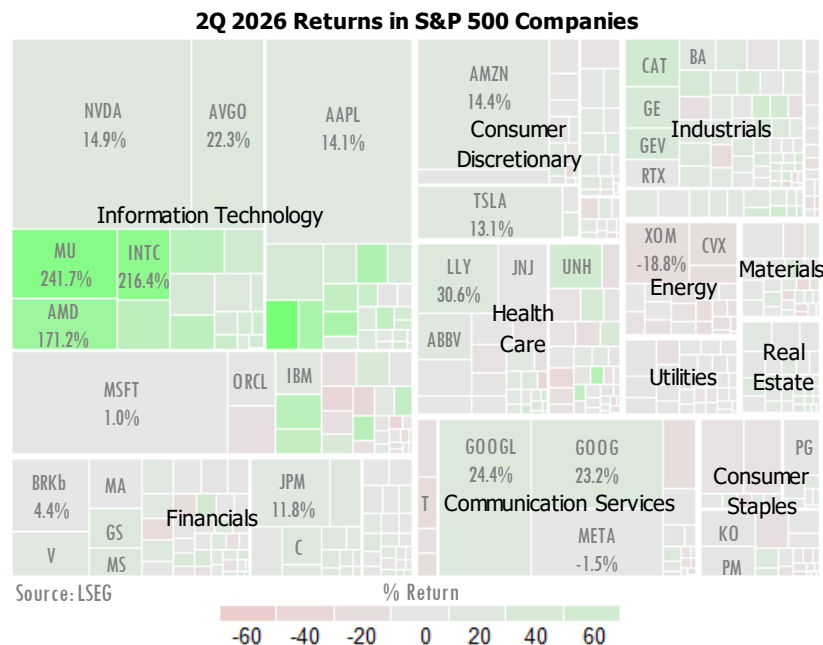
Sector	2026	Sector	2026
Info Tech	31.79%	Comm Services	8.32%
Industrials	14.85%	Materials	2.04%
Consumer Discr	9.27%	Consumer Stpls	0.33%
Financials	9.01%	Utilities	-0.53%
Health Care	8.78%	Energy	-13.45%
Real Estate	8.52%		

Fast Entry Rule for the Russell US equity indexes where eligible mega-cap IPOs are added after the close of the fifth day of trading. This stands in contrast to the rule maintained for S&P 500 inclusion where firms must wait until they meet public float thresholds and achieve sustained profitability under GAAP accounting standards. S&P also requires a minimum seasoning period of 12 months for the stock. Despite the lack of change to the S&P 500, S&P Dow Jones updated the methodologies for the S&P

Largecaps		2026		Midcaps		2026	
S&P 500	15.20%	S&P Midcap 400	14.47%				
Russell 1000	15.14%	Russell Midcap	13.83%				
Growth	16.74%	Growth	14.55%				
Value	13.87%	Value	13.40%				
Broad Markets		2026		Smallcaps		2026	
S&P 1500	15.28%	S&P Smallcap 600	19.70%				
Russell 3000	15.44%	Russell 2000	21.49%				
Growth	17.05%	Growth	25.71%				
Value	14.02%	Value	17.19%				

Total Market Index and the Dow Jones US Total Stock Market Index for relatively quick incorporation of mega-cap IPOs.

For now, the impact of the SpaceX IPO on US equity indexes is limited. Based on its float-adjusted market cap, it represents less than 0.2% of the Russell 1000. This should increase as various lock-up periods expire. Its IPO target valuation of \$1.75 trillion puts SpaceX between Meta and Amazon in a Mag 7 ranking by market cap. This means that if SpaceX reaches full float, it could have a potential weight of over 2.5% in the Russell 1000 Index. And zero in the S&P 500 Index.



The growing divergence in index methodologies warrants close attention by investment fiduciaries to assess the impact on their fund benchmarks. For more on this, see "Focus On: Benchmarking Your Benchmarks" in the June 2018 issue of our Market Recap newsletter.

## International Markets

International equity markets generally rebounded during the second quarter. Returns were strongest in Emerging Asia, where AI-related technology exposure drove performance, while commodity-sensitive regions lagged in US dollar terms. As oil prices retreated from earlier highs, investor sentiment improved, but regional performance remained differentiated.

Japan led developed markets, supported by corporate governance reforms, improving shareholder returns, semiconductor strength, and yen weakness. European equities gained despite softer economic data and persistent inflation weighing on the broader region. Emerging market performance was increasingly concentrated in Asia, with Taiwan and South Korea benefiting from strong semiconductor demand, while Latin America gave back part of its strong first-quarter gains as commodity prices moved lower.

Selected Exchange Rates vs US\$		
Currency	Exchange Rate	% Δ Qtr.
Chinese yuan (CNY)	6.798	+1.12%
Euro (€)	1.139	-1.82%
Japanese yen (¥)	162.570	-2.61%
British pound (£)	1.323	-0.69%
Brazilian real (B\$)	5.164	-0.10%
Canadian dollar (C\$)	1.420	-2.18%
Mexican Peso (M\$)	17.476	+2.16%
S. Korean Won (₩)	1543.800	-2.53%
Taiwan Dollar (NT\$)	31.790	+0.74%

ECB Reference Rates as of 6/30/26

Global fixed income markets saw a volatile Q2 as investors reassessed inflation, central bank policies, and geopolitical risks. Government bond yields initially spiked with energy prices but retraced as oil fell and inflation fears eased. In the euro area, sluggish growth and sticky services sector inflation prompted a 25-basis-point ECB rate hike in June. Ten-year German Bund yields finished modestly higher at 2.91%, while peripheral sovereign spreads remained contained. Additionally, investment-grade and high-yield corporate bonds outperformed government securities as improving risk sentiment tightened credit spreads.

### Asia

Emerging market equities had another strong quarter, driven largely by Asia. Taiwan and South Korea, which comprise nearly 40% of the MSCI EM Index, saw their indexes surge 48.5% and 87.6%, respectively, fueled by AI semiconductor demand. Tech leaders like Taiwan Semiconductor (+41%) and SK Hynix (+194%) thrived on record AI capex, improving earnings, and accelerating exports. SK Hynix capitalized on its nearly 60% share of the booming high-bandwidth memory market. Ultimately, this Asian tech rally more than offset declines in Latin America, which retreated due to moderating commodity prices and a stronger US dollar.

Japan was one of the strongest-performing developed equity markets in Q2. Semiconductor-related companies led gains as AI infrastructure investment accelerated. Tokyo Electron and other technology leaders benefited from robust demand for advanced semiconductor equipment, while industrial exporters benefited from improving global capital spending.

Beyond technology, Japan's market continued to benefit from corporate governance reforms, stronger shareholder returns, and gradual reflation of the domestic economy. The Bank of Japan raised its policy rate to 1.0% in June, its highest level in more than thirty years, and signaled that future moves would remain dependent on economic and inflation data.

Characterized by persistent downward pressure, the MSCI China Index exhibited continued weakness in Q2, as investors weighed resilient high-tech manufacturing data against a startling deterioration in domestic consumption. While early-quarter sentiment found some support in the global tech cycle driving semiconductor and electric vehicle exports, the index faced steep sell-offs throughout the spring, pushing year-to-date declines to 14.99% by the end of June. This underperformance signaled a deeply cautious market digesting increasingly lopsided economic data during the quarter.

Unhedged Foreign Markets Indices - Total Returns			
Stocks	2026	Bonds	2026
MSCI ACWI ex-US	14.49%	Global Aggregate	0.87%
EAFE (Developed)	10.82%	Pan-Euro	1.43%
Emerging Markets	24.05%	Asian-Pacific	0.30%
MSCI EM Asia	30.18%	Eurodollar	1.18%
Europe	10.93%	Other Currencies	7.42%
Japan	14.21%		
China	-6.63%		
Latin America	-3.59%		

Currency movements remained a defining feature of global investment performance. The US dollar was supported by relatively high US interest rates and demand for US assets, although performance varied by currency. Dollar strength was most evident against the yen, Canadian dollar, and Korean won, while the Mexican peso, Taiwan dollar, and Chinese yuan appreciated modestly.

The Japanese yen fell to its lowest level against the US dollar in roughly four decades. Although the Bank of Japan continued gradual policy normalization, large interest rate differentials kept pressure on the currency. Yen weakness supported Japanese exporters and earnings, but it increased concerns over potential foreign exchange intervention. Although constrained by slower growth and persistent inflation, the euro was relatively stable.

April and May 2026 economic data revealed a resilient supply side fueled by external demand. In May, industrial production grew 4.5% year-over-year (yoy), led by high-tech manufacturing. Exports surged 19.4% yoy, benefiting tech and green energy sectors. Despite this, the stock market failed to rally due to worsening domestic fundamentals. Retail sales contracted 0.6% yoy in May, reflecting a sharp consumer pullback as national subsidies faded. It was the first drop since December 2022. Additionally, real estate development continued its steep downturn. This property drag, combined with weak credit demand and historically low consumer confidence, weighed heavily on the broader index.



Ultimately, Q2 performance indicates that while export manufacturing provides a floor, a true market recovery is hampered by internal weakness compounded by Middle East conflicts. Despite China's efforts to insulate itself, prolonged energy disruptions are surfacing: May's producer price index (PPI) surged 3.9% yoy on rising fuel and import costs. These higher inputs and supply bottlenecks squeeze corporate profits and threaten the export-reliant economy. Furthermore, they risk dampening key trading partners' spending power just as U.S. and EU protectionism escalates.

### Europe

Economic activity across the Eurozone softened as higher energy costs earlier in the year and weaker consumer demand weighed on business confidence. PMI surveys remained in contraction territory, industrial production slowed, and household confidence was subdued. Markets looked through the softer data as lower oil prices and resilient earnings improved the outlook for the second half.

Inflation remained above the ECB's target, driven mainly by energy prices and resilient services sector inflation. The ECB raised policy rates by 25 basis points in June and reiterated that future decisions would remain data dependent.

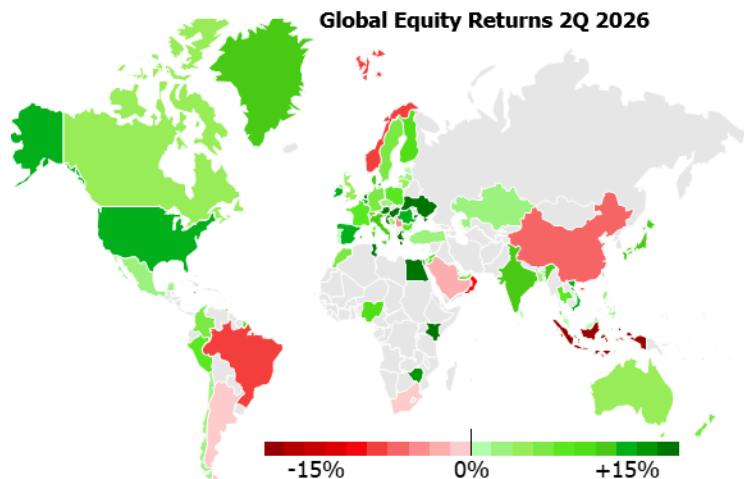
Germany faced the greatest challenges within the Eurozone as higher energy costs and weak manufacturing activity led to lower growth expectations. Nevertheless, the MSCI Germany Index rose 8.1%, supported by defense, industrials, infrastructure, and financials. Autos lagged amid weaker global demand and competitive pressure.

French equities also rose despite slowing domestic growth. Industrials, luxury goods manufacturers, and financials benefited from robust earnings and improving investor sentiment. The MSCI France Index gained 8.7%.

### Americas

Brazilian equities gave back a portion of their strong first-quarter gains. The MSCI Brazil Index declined 8.2% as falling oil prices, weaker iron ore prices, profit-taking, and a stronger US dollar weighed on performance. Although the central bank cut the Selic rate to 14.25% late in the quarter, policy remained restrictive and investors continued to focus on inflation, fiscal discipline, and global commodity demand.

Canada's economy showed early signs of stabilization after a sluggish first quarter. April GDP rose 0.5%, led by mining, energy, manufacturing, and construction, while unemployment remained relatively stable. The Bank of Canada held its policy rate at 2.25%, balancing softer growth against inflation risks.



The MSCI Canada Index advanced 6.0% during the quarter, supported by energy, financials, and industrials. Investors remained constructive on Canada's exposure to critical minerals, energy production, and infrastructure investment, though US trade policy and the upcoming USMCA review remained important headwinds.

Mexico's economy remained soft, but long-term nearshoring and North American supply chain integration continued to drive investment. The MSCI Mexico Index generated positive returns as manufacturing investment remained resilient. Banxico cut its policy rate to 6.50% in May and held it there in June; inflation moderated but remained above target. US trade policy and the upcoming USMCA review continued to temper investor enthusiasm.

## Focus On: The Rise of Robo Advisory

We live in an age of unprecedented technological advance, vastly improving productivity and the quality of life for many. But how many of us feel overburdened by the onslaught of decisions needed to keep our ever-more-sophisticated lives on track? Walt Disney's Carousel of Progress, created for the 1964-65 NY World's Fair, captured a prototypical middle-aged American marveling at the conveniences of modern technology while expressing bemused concern over the emerging "rat race" of lengthy daily commutes. Since the pandemic, technology has freed some of us from this race, at least on Fridays.

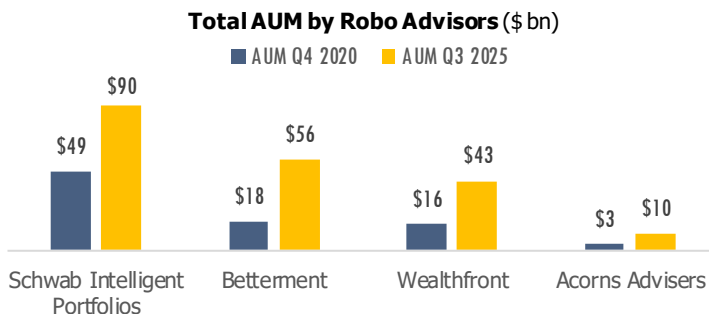
For those still sharing a highway "...crowded with fellow rats doing the same thing," technology has also eased their burden. While some people are reluctant to stop using the enduring manual transmission, most are eager to trade up. These two people might visit two very different dealerships. One might offer an established luxury vehicle that is fun to drive and includes all of the desired creature comforts to create an isolated environment where they can peacefully enjoy their favorite podcast, all while supported by a 16-way adjustable seat finished in supple virgin leather handcrafted from Wagyu calves massaged daily by monks. The second might be presented with a self-driving electric vehicle that will ease the stress of the commute in a different way, decreasing the mental burden while increasing efficiency and lowering cost.

Modern innovation leads to new solutions but they may or may not be better than refined, traditional solutions. Robo advisors, which use algorithms to allocate portfolios based on user input, are making inroads by leveraging technological automation. They are eating into an industry dominated by traditional face-to-face Registered Investment Advisors (RIAs) and Target-Date Funds (TDFs). Robo Advisors leverage automation to offer a value proposition distinct from traditional, expensive, high-touch RIA managed accounts and manual allocation to cheap but effective passively managed TDFs.

### Value Proposition

Digital advisors offer a suite of financial skills at a relatively low cost: automated portfolio construction, asset allocation, rebalancing, and sometimes financial planning or tax management. Morningstar reported that in 2024, the median advisory fee for robo advisors was roughly 0.25%. However, their more obvious defining trait is a low reliance on human interaction.

Digital advice platforms build cost-effective portfolios by using information input by the user to dictate allocations, largely to passive index funds. For example, Betterment's Core portfolio only includes one actively managed fund. The other 14 funds are passively managed and target different regions and asset classes. Passive strategies help robo advisors adhere to programmatic allocations. Clients can see their investments, though they may not know why the weights are what they are.



Perhaps the biggest advantage robo advisors have at their disposal is their ease of use, particularly for younger investors who are eager to deal with apps over phone calls or, especially, a face-to-face. The ease of use extends, in some cases, to agentic operations where the mechanism will log into the user's account to make investment re-allocations.

### Objective, Mathematical Algorithms

The financial modeling behind automated advice relies on the same mean-variance optimization employed by sophisticated RIAs or established managed-account providers such as Edelman Financial Engines and Morningstar Managed Accounts. These services generally use capital-market assumptions, diversification models, and risk constraints to translate investor information into an asset allocation, then automate implementation, monitoring and rebalancing. Retail digital advisors have primarily distinguished themselves by delivering this familiar process through a lower-cost, standardized digital interface.

An important distinction is the scale and variety of inputs. Morningstar and Financial Engines leverage retirement plan data to allocate among the investment options within a defined contribution plan. More sophisticated RIAs may also incorporate outside assets, pensions, taxes, spending needs and direct conversations with the client. Retail robo advisors commonly map responses from a relatively short questionnaire to a curated set of model portfolios. Some can include linked outside accounts for external balances and asset allocations, but they typically rely on simple fund categorizations rather than analyzing funds as a more thorough RIA might.

Most robo advisors follow a five-step process:

1. Define the (fund) investment universe
2. Incorporate user questionnaire
3. Allocate assets optimally
4. Rebalance/adjust positions; harvest tax losses
5. Report performance

Source: Beketov et al.

## Hidden Costs

While robo advisory firms rely on optimized model portfolios, in some cases cash holding stipulations have produced sub-optimal results. Charles Schwab and Ally have, in some cases, set cash weight to 30%. Schwab has been criticized for using this rule to make quiet profits off of clients by placing cash with an affiliate bank, only to loan the cash back and pocket the spread. Ally was found performing a similar sleight of hand where the cash went to Ally's broker-dealer and affiliated bank. Both were fined by the Securities and Exchange Commission (SEC). Ally was also accused of making investment allocations conflicting with its financial models, in violation of the Advisers Act.

Even when allocations are working well, investors may be exposed to hidden direct costs, indirect costs, and opportunity costs, regardless of whether the service is promoted as a cost-free tool. Underlying Exchange-Traded Funds (ETFs) are often proprietary, presenting a potential conflict of interest. A sample 70% stock portfolio of Schwab Intelligent Portfolios (IP) has 11 of 15 ETFs managed by Charles Schwab. Under the Investment Adviser Act, proprietary funds from the Registered Investment Adviser can be deemed appropriate if the advisor has performed the necessary due diligence to determine that those funds are proper investments for its clients. While Schwab would have to provide documentation to the SEC showing this, Schwab does not provide prospective (or current) investors with any such reports.

A basic review of fees and 10-year total returns for Schwab IP underlying ETFs shows that many are competitive against prominent funds Schwab chooses to include as alternative choices for IP allocations, though there are exceptions. For example, Schwab's international small cap equity ETF's expense ratio is 10 bps vs. Vanguard's 7 bps, and its 10-year return lags by 4 bps per year. Schwab's US REIT fund has underperformed the iShares US Core REIT fund by 230 bps over the period. Schwab also uses several "Fundamental" equity ETFs, which track a smart beta index and tilt toward value. While there is added cost for Schwab to these ETFs, the fee delta is up to 22 bps over Schwab's passive funds in like categories.

Fidelity Go offers a more transparent fee arrangement and does offer virtually free service while the client's account balance is below \$25,000. While Fidelity limits investment options to its proprietary Flex funds, these are offered at a 0% expense ratio and there is no mandatory cash balance. Once the balance hits \$25,000 or more, a 0.35% annual advisory fee kicks in, and so does the tax-harvesting feature. Fidelity's fee structure is designed to attract investors when they aren't yet profitable clients, in hopes they will become ones later. Cross-selling and up-selling are common advisory platform fixtures.

## Alternatives

TDFs, robo advisors, and traditional RIAs form a spectrum from low to high in terms of cost, service, and features. While TDFs are closer in cost, RIAs are closer in feature set. This is because digital advisors are designed to be the low-cost, easy access point that feeds higher-cost, higher-touch advisory services. Some robo advisory firms such as Betterment have implemented hybrid plans that include a digital advisor and a financial professional in the same deal. While the portfolio is managed by the same algorithms as a pure robo advisor, hybrid plans offer similar benefits to an RIA. These advantages include a line of communication between the financial planner and the client. The human advisor is able to explain how the algorithm is allocating assets and why the portfolio outperforms or underperforms.

	<b>Target Date Index Funds</b>	<b>Robo Advisors</b>	<b>Retail RIA</b>
<b>Value Proposition</b>	One-stop investment	Automated portfolios	Human advisor
<b>Management Fee (Typical)</b>	0.12%	0.25%	0.95%
<b>Personalization</b>	Low	Moderate	High
<b>Human Interaction</b>	None	Premium plans only	High

Source: Morningstar, NerdWallet

This hybrid approach emulates but doesn't directly threaten well-established 401(k) managed account services such as Financial Engines and Morningstar. While it might seem easy to sign up for a digital advisor to save a few bps by letting the cheaper platform make your 401(k) allocations, limitations from both robo advisors and recordkeepers have prevented that.

Generally, direct-to-consumer robo advisors cannot select investments or rebalance assets held inside an unrelated employer's 401(k). Two notable Fintech platforms that addressed that limitation are Bloom, which was available direct to investors from October 2014 through November 2022, and Pontera, which began enabling advisor-directed management of held-away retirement accounts in 2018. Morgan Stanley acquired Bloom's technology after the consumer service closed but has not relaunched a comparable offering. However, advisor-paid Pontera continues to supply RIAs with account connection, trading and monitoring infrastructure. In 2024, Fidelity announced that it would restrict credential-based access occurring without plan-sponsor oversight. Our survey of recordkeepers found that most do not allow third-party access.

Although there are meaningful differences between these allocation-assisting alternatives, variation within each category on fees, capabilities, etc. defies strict comparisons. Also, as these alternatives evolve in competition with one another, becoming more similar in some ways (e.g., fees, inputs) and more different (e.g., target audience) in other ways over time.

There is one area though where robo advisory platforms appear to clearly outperform both TDFs and RIAs: tax harvesting. Target-date mutual funds are not tax-efficient vehicles, but this is not a factor when used inside a tax-qualified account like a 401(k). For far-dated vintages, underlying securities might throw off less than 2% in total distributions, including ordinary capital gains. Vintages near retirement age can exceed 4% in taxable annual gains. RIAs can advise on tax management and might assist in tax harvesting as frequently as every quarter. Robo advisors perform tax harvesting as often as daily.

Robo advisors have the capacity to be more flexible and comprehensive, but are often limited to a relatively short list of onboarding questions and curated investment options. Ideally, they would all be designed to allow users to quickly locate and analyze funds across all accounts in which they share an interest.

Artificial intelligence (AI) could be the key to this. Integrating a large-language model (LLM) trained on investments could help digital advisors or RIAs surpass their alternatives. Of 533 RIAs surveyed, 82% are already using AI tools [Schwab]. Or, LLMs could be the alternative to surpass robo advisors by beating them at their own game.

### LLMs: An Accidental Advisor

As LLMs have grown in capability, they are being applied to nearly every mentally taxing endeavor, and both robo advisors and RIAs are incorporating them into their operations. LLMs share some capabilities with digital advisory agents but work differently: robo advisors map standardized inputs to constrained portfolios, while LLM outputs can change with wording, context and information supplied by the user.

LLMs were not purposefully designed to be financial advisors. Even so, a study of 2,048 recommendations from 32 LLMs across 64 investor profiles found that most portfolios were implementable, responsive to risk tolerance and historically competitive with managed robo-advisor portfolios. Larger foundation models made fewer errors, although recommendations also exhibited home-country bias and the historical results are subject to potential look-ahead bias [Fieberg].

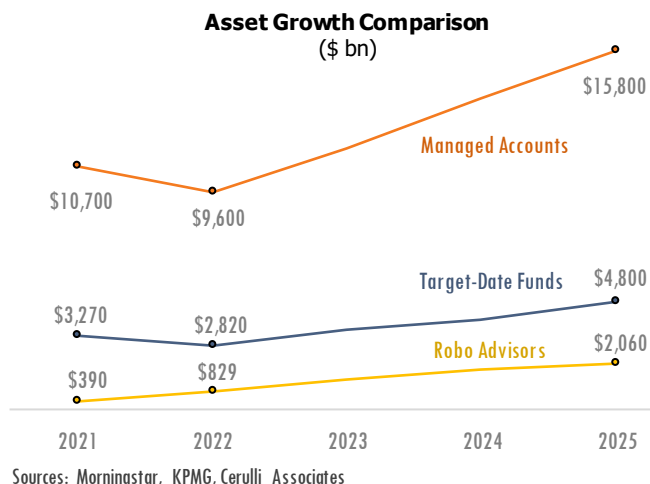
Other findings are less reassuring. Tests of ChatGPT, Gemini and Copilot found greater geographic and sector concentration, trend chasing, active allocations and fund expenses than a diversified benchmark; attempts to correct these biases through refined prompts helped partially [Winder]. In a separate test, directly prompted LLM portfolios also lagged explicit optimization, with the strongest LLM producing a 0.74 Sharpe ratio versus 1.36 for the leading optimized strategy [Mantshimuli].

For the foreseeable future, managed accounts are likely to continue their reign. LLMs may improve interviews, explanations and analysis, but fiduciary-grade advice still requires verified data, portfolio constraints, reproducible optimization, security and accountable oversight. Recordkeepers' walls around participant accounts are unlikely to disappear, but may be less effective at preventing LLMs with browser-enabled automated agents using participant credentials.

### Automation, Oversight, and the Road Ahead

With the rise of robo advisors and now LLMs, will these tools improve participant outcomes or introduce risks and costs that exceed their benefits? The technology is likely to advance quickly; to what extent is difficult to predict. Regardless, added competitive pressure will benefit participants. Expect managed account providers and recordkeepers to sharpen their pencils, invest in improved features, and refine user experience to avoid being displaced by self-driving digital advisors.

Consumer digital advisors may be useful to participants outside the plan, but allowing them access to plan accounts without approved controls could heighten risks yet to be studied. Although neither plan sponsors (nor recordkeepers) may be able to control whether these tools are used, they can re-examine whether existing investment options, advice services, and education provide sufficient, accessible, cost-effective guidance or frustrate participants into seeking unvetted help already at their fingertips.



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