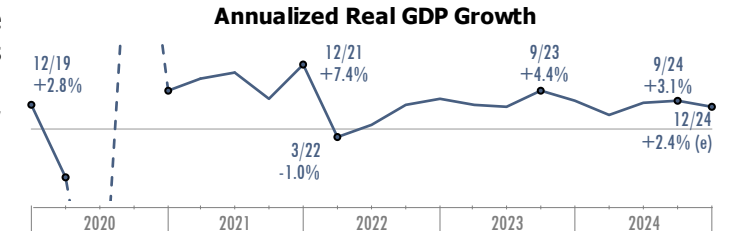


MARKET Recap

The US Economy: “Stubborn Growth, Sticky Inflation”

Economic growth continued at a relatively strong 3.1% pace for Q3, following a strong second quarter. The result reflects increases in consumer spending, exports, nonresidential fixed investment, and federal government spending. Imports grew more than exports, detracting from GDP growth. Incremental data available in late December suggest strong results for Q4.

Following its September decision to begin a cycle of easing, the Federal Open Market Committee delivered additional 25 basis point cuts in November and December, right on plan. However, the statement and projections that accompanied the December 18th decision were widely regarded as hawkish. Relative to the previous set of projections released in September, the December release anticipated a considerably slower

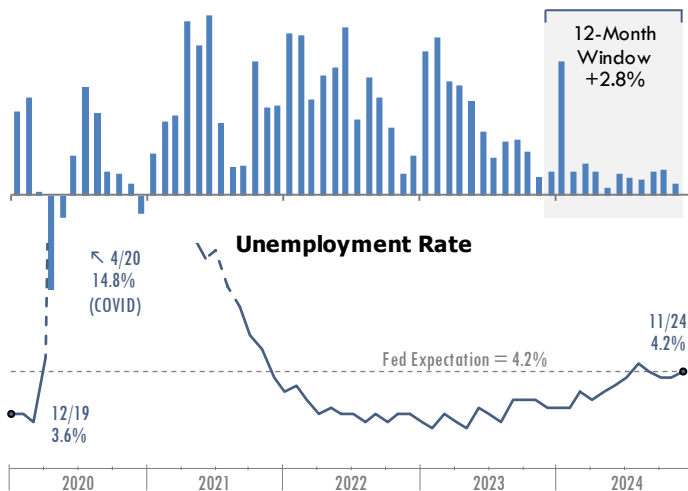


pace of rate cuts – only two in 2025, with an expected long-run rate of 3.0% (up from 2.9%). FOMC members cited a markedly increased level of concern for potential upside surprises to inflation.

While cautious, Chairman Powell did not cite a specific reason. Rather, he accurately described inflation as moving “side-ways” at a level much lower than peak, but above the 2.0% target. Through November the Fed’s preferred inflation gauge was running at 2.8% (2.6% if you adjust out the anomalous spike in January 2024). He also emphasized that economic growth remains robust, quipping “... most forecasters have been calling for a slowdown in growth for a very long time, and it keeps not happening.”

The labor market, which was a major factor pushing prices higher, has moderated considerably. The Fed expects unemployment to rise a bit above current levels, yet not enough to create a need for faster easing.

Monthly Change in Core Personal Consumption Expenditures Price Index



So, why the sudden concern? It is tempting to presume that the November election results have altered policymakers’ expectations. Chairman Powell demurred on the subject, but didn’t exactly deny it: “the way I’d say it is this, some people did take a very preliminary step and start to incorporate highly conditional estimates of economic effects of policies into their forecast at this meeting and said so in the meeting. Some people said they didn’t do so, and some people didn’t say whether they did or not.” It does seem more likely to us than the alternative offered, that higher inflation prints in September and October drove the concerns.

How inflationary the new administration’s policies turn out to be remains to be seen. Clearly the American public remains very sensitive to price levels they perceive to be too high, and any additional upward pressure carries the risk of a popular backlash. However, it is difficult to identify any stated policy goal of the administration that is not inflationary. Maintaining price stability would likely require renegeing on loud and clear campaign promises. One sympathizes with the Fed as it’s forced to guess, something that is not in their nature.

12/24 Survey of Fed Board Members & Bank Presidents

	Median				Range			
	2025	2026	2027	Longer Run	2025	2026	2027	Longer Run
Change in Real GDP	2.1 ↑	2.0	1.9 ↓	1.8	1.6-2.5	1.4-2.5	1.5-2.5	1.7-2.5
Unemployment	4.3 ↓	4.3	4.3 ↑	4.2	4.2-4.5	3.9-4.6	3.8-4.5	3.5-4.5
PCE Inflation	2.5 ↑	2.1 ↑	2.0	2.0	2.1-2.9	2.0-2.6	2.0-2.4	2.0
Fed Funds Rate	3.9 ↑	3.4 ↑	3.1 ↑	3.0 ↑	3.1-4.4	2.4-3.9	2.4-3.9	2.4-3.9

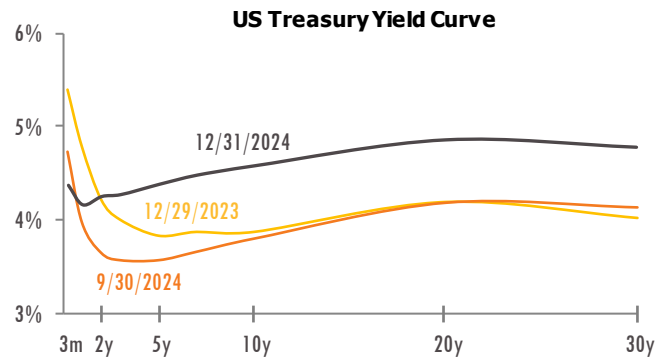
Arrows = change from September

Diffusion Index of Participant Risk Weightings



The US Bond Market

A sharp turn in near-term Fed monetary policy expectations drove a parallel shift up in rates. Treasury yields jumped approximately 60 to 80 basis points at the 2-year key rate and beyond. US Treasury bill yields were more stable as the Fed met immediate expectations for rate cuts in November and December of 25 basis points each. Fed Funds futures and the Fed’s own “dot plot” illustrate the course correction. More cuts are still on the table for 2025, but expectations have backed up to just 25-50 bps in cuts for the new year. While market-implied rates and Fed forecasts are healthily aligned for 2025, yields at the long end of the curve do not appear to mesh with the Fed’s 3% “long term” assertion.



The 2-year key rate is now the most puzzling part of the yield curve. At the end of the third quarter, the 2-year yielded 3.66%; now it yields 4.25%. The overnight target rate is already in a range of 4.25-4.50%, and expected to move to 4.00-4.25% around mid-2025. While the 2-year yield is not a simple average of anticipated overnight rates for the next 2 years, the two numbers are closely intertwined. At face value, the current 2-year yield could reasonably be interpreted to say the Fed will cut another 25 bps mid-2025, hold steady for around 1 year, and then raise rates by 25 bps mid-2026. Fed Funds futures support this narrative; however, the Fed’s “dot plot” anticipates approximately 50 bps of rate cuts in 2026.

US Bond Indices - Total Returns		
Bloomberg Idx	4Q24	2024
Aggregate	-3.06%	1.25%
Short Gov't	0.62%	4.72%
Interm. Gov't	-1.68%	2.44%
Long Gov't	-8.60%	-6.37%
TIPS	-2.88%	1.84%
Municipal	-1.22%	1.05%
Interm. Credit	-1.46%	4.01%
Long Credit	-6.26%	-2.01%
High Yield	0.17%	8.19%
(CS) Lev. Loan	2.29%	9.05%
MBS	-3.16%	1.20%

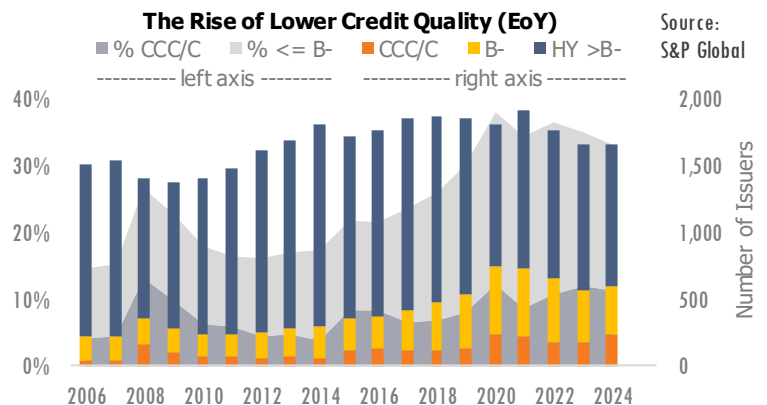
Fourth quarter US bond returns were dispersed but largely dictated by duration. Accordingly, leveraged loans led other categories. High yield was hampered by rising yields, but credit spreads cooperated enough to eke out a positive return for the quarter. Both categories approached, but fell short of, a double-digit return for 2024. Long duration lagged by a wide margin for the quarter and was the only segment to experience negative returns for the year.

Investment grade corporate yields followed Treasuries higher but dipped as appetite for credit surged. Demand supported \$240 billion of new issuance in Q4, pushing the 2024 total to \$1.56 trillion, the most active year on record after 2020. Notably, strong subscription levels often drove new issue concessions into negative territory, highlighting the extraordinary bid for IG debt. Looking ahead, with inflows continuing at a healthy pace and monetary easing still on the horizon, issuers are expected to tap the market into 2025, incentivized by low spreads despite the rise in yields.

Credit spreads continued their impressive rally through the fourth quarter of 2024, reaching fresh historical lows not seen since the late 1990s. November was a standout month; BBB option-adjusted spreads broke below the 100 bps mark following the presidential election and ended the year 14 bps lower at 102 bps. High yield spreads started the quarter at 303 bps and bottomed at 260 bps mid-November, but they widened back out to 292 bps at year-end.

Investors should remain vigilant as forces converge to test the resilience of corporate debt in 2025. With the new administration’s policies’ potential to promote inflation, the Fed may feel compelled to backpedal on rate cuts. The large volume of new issuance poised for next quarter could overwhelm demand if investors begin to doubt the attractiveness of credit risk at these valuations. And, speculative debt represents an increasing portion of investors’ portfolios.

The market’s confidence in corporate debt is at a high. Many companies have taken advantage of robust issuance windows throughout 2024 to lock in financing and address near-term maturities. This has strengthened balance sheets: a default spike, once a lurking threat, now seems a remote threat. S&P Global Ratings’ baseline view suggests that, while challenges remain, the overall environment has become more forgiving as the rate environment normalizes (incentivizing investors to reallocate into longer maturity bonds) and economic growth (though slower) remains resilient. These conditions remain supportive of M&A activity and a stable advance in corporate earnings.



Source: S&P Global

The US Stock Market

Strong returns in November carried the US stock market into the black for most major benchmark indices in Q4. Fed rate cuts (actual and expected) were a significant driver across market segments. Despite a difficult December, the S&P 500 marked its second straight year with a total return over 25%, its best back-to-back gains since the turn of this century. Cooling inflation, healthy consumer spending, and a solid job market inspired investor confidence that surged after Donald Trump was reelected in November.

US Stock Indices - Total Returns					
	4Q24	2024		4Q24	2024
Largecaps			Midcaps		
S&P 500	2.41%	25.02%	S&P Midcap 400	0.34%	13.93%
Russell 1000	2.75%	24.51%	Russell Midcap	0.62%	15.34%
Growth	7.07%	33.36%	Growth	8.14%	22.10%
Value	-1.98%	14.37%	Value	-1.75%	13.07%
Broad Markets			Smallcaps		
S&P 1500	2.22%	23.95%	S&P Smallcap 600	-0.58%	8.70%
Russell 3000	2.63%	23.81%	Russell 2000	0.33%	11.54%
Growth	6.82%	32.46%	Growth	1.70%	15.15%
Value	-1.94%	13.98%	Value	-1.06%	8.05%

Mag 7 - Total Returns		
	4Q24	2024
Alphabet (CI A)	14.26%	35.94%
Meta Platforms	2.37%	65.98%
Amazon.com	17.74%	44.39%
Tesla	54.36%	62.52%
Apple Inc	7.58%	30.58%
Microsoft	-1.85%	12.91%
NVIDIA Corp	10.59%	171.24%

Building on momentum from September, growth stocks retook the lead. The Russell 3000 Growth Index bested its value counterpart by almost 9%. The strong Q4 showing helped bring growth's outperformance over value for 2024 to 18% in the broad market.

Expectations are for strong Q4 earnings growth in the S&P 500 at 11.9% YoY. This is down from a projection of 14.5% at the beginning of the quarter. Even so, if the 11.9% forecast materializes, it will be the sixth consecutive quarter of YoY growth and the highest rate since Q4 of 2021. Financials are predicted to lead the other sectors, driven largely by increases in the banking industry which will benefit from comparisons to a

period of weaker GAAP earnings in Q4 2023 due to FDIC special assessments and other charges. Six sectors are expected to report double-digit earnings growth for the quarter, including the Mag 7 sectors (communications services, info tech, and consumer discretionary) [FactSet].

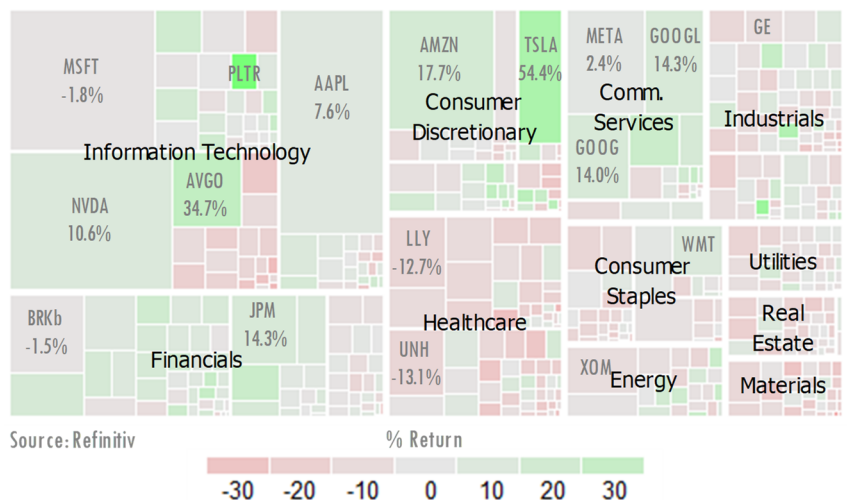
Across the capitalization spectrum, large firms ultimately outpaced their small- and midcap peers, but it was not a straight run. Falling interest rates can be a stronger tailwind to smaller firms because, collectively, they rely more heavily on external financing than larger companies. Not a surprise then, that small- and midcaps outperformed their largecap counterparts in November (when it still seemed possible that the Fed would stick to its rate cut schedule) but lost that lead in December as projections of a much slower pace of cuts emerged and drove markets sharply lower.

S&P 500 Sector Components Total Returns		
Sector	4Q24	2024
Consumer Discr	14.25%	30.14%
Comm Services	8.87%	40.23%
Financials	7.09%	30.56%
Info Tech	4.84%	36.61%
Industrials	-2.27%	17.47%
Energy	-2.44%	5.72%
Consumer Stpls	-3.26%	14.87%
Utilities	-5.51%	23.43%
Real Estate	-7.94%	5.23%
Health Care	-10.30%	2.58%
Materials	-12.42%	-0.04%

Dispersion across market sectors continued its climb to almost 27% in Q4. Returns in the Magnificent 7 again diverged. NVIDIA, Amazon, and Alphabet continued their recovery from the August AI meltdown with double-digit gains for Q4, but Apple and Meta lagged. Microsoft was the only giant to post a negative return, not quite recovering from a weak Q3 earnings report. In contrast, Tesla posted a record high share price in mid-December after surging on Musk's connections to President-elect Trump. The range of returns in the market giants was broader for the year as a whole. Positioning versus benchmark in these names continues to factor into performance by active managers.

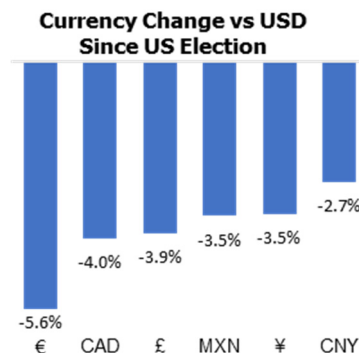
Led by Tesla and Amazon, consumer discretionary was the top sector in the S&P 500. Increased holiday spending also helped in the final weeks of the year. The materials sector was the worst performer in Q4 and the only sector to post a negative return for the year. Encompassing metals and mining, construction materials, and chemical companies, the sector tends to be heavily impacted by global economic conditions. The slowdown in China and higher interest rates globally have kept the sector under pressure. Health care also trailed for the quarter, with firms owning some of the largest pharmacy benefit managers potentially seeing a negative impact on profits by recent transparency efforts to eliminate their rebate- and spread-based pricing benefits.

4Q 2024 Returns in S&P 500 Companies



International Markets

Performance was negative for the quarter across developed and emerging markets, but most finished in positive territory for the year. According to the IMF, global growth is expected to end the year at 3.2% and hold steady at that level through the end of 2025. The outcome of the US election (tariffs) and continued geopolitical tensions (China, Russia) introduced potential risks which weighed on performance. The specter of tariffs pushed the US dollar higher against other currencies. Dollar strength has been driven by investors betting that companies will relocate production to the US or make other changes to avoid tariffs. In either case, currency is expected to move from overseas to the US. The prospect of tariffs weighed on non-US stocks in the quarter, particularly exporting countries like China, Mexico, Korea and others where equity markets fell more than 7%.



Asia

After the People’s Bank of China announced a slate of economic stimuli, the MSCI China Index ended the 3rd quarter 23.5% higher and advanced 29.3% for the year. Soon after, the markets tumbled as released economic data suggested the efforts to boost the economy were struggling to gain traction. At the end of November, worries about future tariffs led to an additional drop in the markets. The MSCI China index closed the 4th quarter down -7.67% but still up 19.42% for the year.

During the quarter, authorities cut policy rates, relaxed home-buying restrictions, pumped central bank funds into the financial system, and approved a \$1.4 trillion debt-swap program to ease local governments’ fiscal strains. They also promised more borrowing and easier credit to boost domestic consumption.

Unhedged Foreign Markets Indices - Total Returns					
MSCI Stocks	4Q24	2024	Bloomberg Bonds	4Q24	2024
ACWI ex-US	-7.60%	5.53%	Global Aggregate	-5.10%	-1.69%
EAFE (Developed)	-8.11%	3.82%	Pan-Euro	-7.41%	-3.87%
Emerging Markets	-8.01%	7.50%	Asian-Pacific	-6.28%	-4.47%
Europe	-9.74%	1.79%	Eurodollar	-0.74%	4.84%
Japan	-3.60%	8.31%	Other Currencies	-5.68%	-9.62%
China	-7.67%	19.42%			
Latin America	-15.84%	-26.38%			

Regardless of the efforts to increase consumer spending, retail sales growth slowed sharply in November, rising just 3% YoY compared with October’s 4.8% gain. However, the economy showed some signs of improvement in other areas. Industrial production gained 5.4%, and manufacturing PMI rebounded to 50.3, up from 49.8 at the end of Q3.

Nonmanufacturing PMI remained at the same levels. Urban unemployment also held steady at 5.0% in November. New home sales and new construction starts were both down more than 20%, although home prices in 70 major Chinese cities fell at a slower pace in November than in October, offering a glimmer of hope that support measures are starting to have some effect.

China reported Q3 GDP growth of 4.6%, and the country is on track to achieve the official growth target of around 5% this year. Next year may be much tougher. President-elect Trump has threatened to raise tariffs on Chinese imports to as high as 60%, which could potentially cripple the export engine China is relying on to overcome the weakness in spending at home. China has signaled that it, too, is getting ready for a trade fight.

Recently, Beijing launched a regulatory probe into US semiconductor company NVIDIA, threatened to blacklist a prominent American apparel maker, blocked the export of critical minerals to the US, and squeezed the supply chain for drones. The government has also been engaged in a trade war with the European Union, one of the country’s most important trade partners. It recently announced tariffs on imports of European brandy and said it was considering duties on imported petrol cars. The levies followed a vote by European Union leaders to tax imports of Chinese electric vehicles.

Japan's investment markets reflected mixed results due to economic and political shifts. The MSCI Japan Index fell -3.60% in Q4, driven by the Bank of Japan’s (BoJ) tighter monetary policy and a volatile currency. The BoJ maintained its policy rate at 0.25% in December after earlier hikes and ended its yield curve control, marking a departure from years of accommodative policies. These moves limited weakening of the yen versus the US dollar, impacting export-reliant industries, and contributed to underperformance in automobiles and energy sectors.

Japanese bonds underperformed due to the BoJ's policy shift, while equities struggled under global macro uncertainties and domestic political developments, including an unscheduled election. Despite short-term challenges, robust corporate earnings, buybacks, and improving economic fundamentals highlighted Japan’s transition from its deflationary decades.

Americas

Canadian markets fell in Q4, with the MSCI Canada Index dropping -1.8%. The Bank of Canada cut its policy rate by 50 basis points in October and again in December, with inflation running near 2%. Strong consumer spending offset weaker domestic demand, but rising unemployment and slowing economic activity highlighted ongoing vulnerabilities. Although Canada avoided a recession, its economy underperformed the US, reflecting persistent challenges in labor markets and domestic growth.

Latin American equities faced significant headwinds in Q4. In Brazil, the central bank raised the Selic rate to 11.25%, continuing its efforts to combat inflation. Inflation remained elevated, with October's year-on-year rate at 4.76%, driven by rising electricity prices. Brazil's fiscal outlook raised concerns as the Treasury projected that gross debt could reach 81.7% of GDP by 2026. The Brazilian real weakened further, prompting the central bank to increase its policy rate to 12.25% in December to stabilize inflation and the currency.

Mexico's equity market also declined in Q4, pressured by a weakening peso and economic slowdown. The central bank reduced its key interest rate to 10.25% in December, citing concerns over inflation and sluggish growth. Mexico's GDP growth for 2024 was revised down to 0.8%, the slowest in three years. The peso depreciated against the US dollar, and the central bank highlighted risks to economic stability, including geopolitical tensions and potential changes in US trade policy, which could further impact growth prospects.

In contrast, Argentina's market showed relative strength. The country's fiscal reforms, focused on inflation control and sustainable growth, bolstered investor confidence. With inflation under control and a more stable fiscal outlook, Argentina has emerged as an attractive investment destination, in stark contrast to Brazil's uncertain economic path.

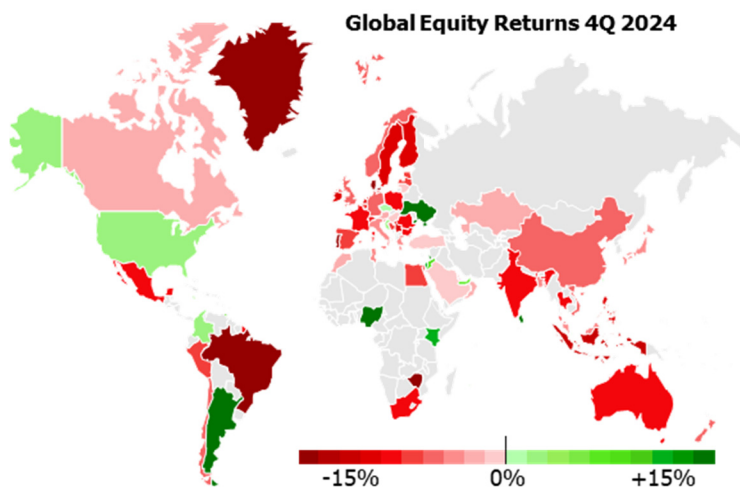
Europe

Driven by falling demand in the services industry, a downturn in European business activity may suggest that there is a growing chance of recession in the currency union. The Eurozone economy contracted by 0.1% in Q3 while the PMI reading from late October showed a fall to 46.5 from 47.2, the lowest reading since November 2020. The reading was the 5th consecutive monthly mark below 50, the level which separates economic growth from contraction. Preliminary expectations were for another GDP contraction in Q4.

In Germany, the Eurozone's largest economy, the stock market reached an all-time high in late December despite downbeat data on the overall economy. It finished up nearly 20% for the year. Narrowly averted in Q3, many analysts predict a recession is almost inevitable in 2025, given persistent inflation pressures that have constrained consumer spending and a reduction in industrial orders and output. The DAX index has remained resilient with many top German companies deriving a significant share of their revenues internationally. However, the DAX fell nearly 4.5% in Q4, weighed down by continued weakness in the automotive sector which has been challenged by rising competition from Chinese EV manufacturers. Volkswagen and Porsche each fell over 20% in the quarter.

In France, subdued economic growth along with high inflation weighed on the broader economy. The CAC 40 fell 3.3% for the quarter and 2.2% for the year. Heightened investor nervousness regarding domestic political stability, coupled with the potential imposition of tariffs, further dampened equity performance. The luxury sector, which constitutes a large portion of the CAC 40, was hit particularly hard. Global consumer demand softened, and China's shrinking appetite for high-end goods caused revenues at brands like LVMH and Kering (Saint Laurent and Gucci) to slump, with their shares sliding nearly 14% and 46%, respectively.

Eurozone government bond yields rose in December as investors continued to gauge the outlook for central bank rate cuts in 2025. Although the ECB cut rates to 3% in December, yields moved higher after President Christine Lagarde struck a slightly more hawkish note than anticipated, remarking that the fight against inflation was not yet over. Germany's 10-year bund yield edged up to around 2.3%, its highest point since mid-November, mirroring an uptick in US Treasury yields amid lingering uncertainty over monetary policy and the potential inflationary direction of a Trump presidency. Italy's 10-year yield advanced to 3.5%, leaving the spread versus German bunds at around 120 basis points.



Focus On: Should I Stay or Should I Go?

All institutional investors deal with the problem of asset manager underperformance. We hire active asset managers to continuously make important decisions under risk, based on inherently limited information in markets that can move very fast. Often the expected performance edge for an active manager is less than the anticipated tracking error, so we expect that they will frequently underperform their benchmarks by small to moderate amounts over short periods of time. Hopefully the experience, skill, and techniques they bring to bear will add value over longer periods of time; but even over longer cycles (e.g., 3-5 years) most managers will hit slow spots.

Often fiduciaries will elevate the level of analysis and formal documentation using tools such as a watch list. Occasionally, one discovers that there has been a significant unreported change, or that the manager has fundamentally violated the understanding formed upon initial selection as to how the fund would be managed. But in our experience, these situations are not common. More often, it is simply unclear as to why performance is deviating from expectations.

The tenor of meetings is different at this point – we’re no longer checking to see what’s going on, we are giving serious consideration to changing managers. But it’s common, in fact natural, to approach the decision cautiously and with significant hesitancy. No fiduciary wants to pull the trigger, only to have the manager suddenly outperform their benchmark (and the replacement manager we selected). The Clash summarized it well: “... If I go there will be trouble, and if I stay it will be double...” Fiduciaries can sympathize.

While long-term past performance can be an excellent indicator of trouble, alone it is not a good basis for making decisions. As a simple test, we examined the active performance of US largecap core equity managers in the eVestment universe and

Consecutive Out/Underperformance Periods

	1-Year Periods	3-Year Periods	5-Year Periods
+/+ or -/- Benchmark	51.8%	53.1%	52.0%
+/- or -/+ Benchmark	48.2%	46.9%	48.0%

Source: eVestment, 471 US largecap core managers, 10/1990-9/2024

focused on how often positive or negative performance in one period persisted in the next. There appears to be a bit of “stickiness” to returns, but not much. Active return pairs are consistent barely over 50% of the time, and increasing the length of the time periods considered did not alter the results reliably. Deciding to keep or fire these managers based on active returns is not much better than a coin flip.

The most commonly quoted study on past performance was conducted by Morningstar in 2016, comparing the top and bottom quintile of performance across a number of asset classes. Their report concluded that “Over the long term, there is no meaningful relationship between past and future fund performance.” Reasons vary, but probably the most significant contributor to performance issues are cycles of factor dominance such as growth, value, momentum, and earnings quality. Increasingly, single names can have an outsized impact on benchmark performance. And one can’t rule out the impact of plain old “bad luck” – usually manifest as multiple unrelated events that move markets contrary to the manager’s approach.

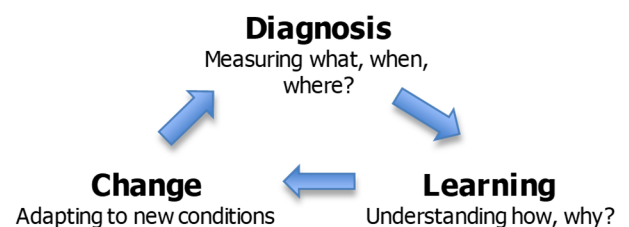
So if a simple performance-based “firing rule” is not the right approach, what should we look for to inform our decision? We look for evidence that the manager is adapting to market conditions. Are they aggressively looking for underlying causes of performance problems? Are they learning anything that could be useful? Are they making changes to their people and process that support expectations for improvement?

Diagnosis, Learning and Change

Over very short periods of time, underperformance of reasonable magnitude is probably best ignored. As the length of the underperformance period increases, it is decreasingly likely that “doing nothing” is best. Even if some combination of good luck or market cyclicity leads to better results in the short run, the same people running the same process might be likely to produce a similar period of underperformance in the future. Therefore, we take greater comfort in retaining managers that implement changes to improve their chances.

In short, we look for managers to go through a processing of discovery and response to underperformance that keeps them competitive and current. It starts with diagnosis – the process of figuring out what went wrong, and narrowing the focus to specific issues, trends, or market segments. In our experience, most managers are good at this, but a surprising number of managers stop there.

Learning is the process of understanding why the problem occurred. It often involves identifying some aspect of the organization, team, or investment process where there is a shortfall in knowledge or capability. That in turn can lead to change and improvement that can be measured over additional time. To be clear, it is not the role of a fiduciary to diagnosis



performance issues or initiate change -- that is the responsibility of the investment manager. Rather, our responsibility is to observe and ask questions to determine if the process is occurring.

Diagnostic Techniques and Learning

Although diagnosis is not the investor's responsibility, understanding the common techniques used to uncover specific problem areas can be very useful. Probably the most common diagnostic tool is the attribution report, which breaks down performance into specific market segments and distinguishes between allocation and selection effects. Allocation impact arises by investing more or less in a particular segment relative to benchmark, whereas selection impact arises by the investment decisions made within that segment.

Attribution can be run based on a variety of market decompositions. For equity funds the most common approaches are to decompose by industry or economic sector, or by geographic region (especially for international funds). For fixed income, the most common approach is to decompose by credit sector, followed by credit quality and duration. Attribution can also be drawn based on exposure to market factors.

Period: 1/1/2022 - 12/31/2024	Average Weight			Return Contribution		Active Return Contribution (bps)		
	Economic Sector	Portfolio	Benchmark	Active	Portfolio	Benchmark	Sector Allocation	Security Selection
Communication Services	12.0%	11.8%	0.2%	1.3%	1.4%	-4	2	-2
Consumer Discretionary	9.6%	16.3%	-6.7%	3.2%	3.0%	-67	15	-52
Consumer Staples	5.9%	6.9%	-1.0%	0.2%	0.6%	-10	-32	-41
Energy	4.5%	6.7%	-2.2%	-0.1%	0.0%	21	-7	14
Financials	15.9%	14.6%	1.3%	0.9%	2.3%	7	-151	-143
Health Care	6.1%	4.6%	1.5%	0.0%	0.7%	12	-15	-3
Industrials	9.7%	9.0%	0.7%	1.0%	0.5%	0	42	42
Information Technology	16.6%	15.2%	1.4%	-1.1%	-0.6%	-3	-74	-77
Materials	4.7%	8.9%	-4.2%	0.1%	0.4%	12	-5	6
Cash	3.8%	0.0%	3.8%	0.1%	0.0%	-2	4	2
Real Estate	4.9%	1.9%	3.0%	0.6%	0.2%	14	6	20
Utilities	6.2%	4.0%	2.3%	0.2%	0.3%	3	-29	-26
	100.0%	100.0%	0.0%	6.1%	8.7%	-15	-245	-260

For example, here we have attribution for a fictitious equity fund over the past 3 years. It shows that the three largest sources of underperformance were stock selection within the financials and technology sectors, and an overweight to the poorly-performing consumer discretionary sector. This tells you what happened and, to a certain extent, where it happened in the portfolio.

Turning a mosaic of diagnostic data into useful information and learning requires applying the data to the manager's organization and process. For example, who makes stock selection decisions within the financials sector – the portfolio manager, an analyst, or a quantitative algorithm? How are those decisions made? Are there checks and balances on their role? Have there been any changes that may have triggered the problem? If you look at other time periods, do the same issues appear to be persistent? Armed with diagnostic data, the manager can focus on specifically determining how or why the underperformance occurred. In the learning process, data is transformed into useful information.

You can always ask for attribution, it is a commonly-used approach. You can always use attribution to steer the discussion to a specific area. For investors, the most important question though is, "How much did you need to ask?" Recall that diagnosis and learning is the manager's responsibility, not the investor's. Our objective is to determine if the manager is on top of the problem, not to solve the problem for them.

Better managers will present their diagnosis and learning without much prompting, and will not need to do much original work in response to questions. In fact, better managers have useful diagnostic reports built into their processes. It is less common to see managers drive through to understanding. Second-guessing and learning should be a natural part of the investment process, even if re-underwriting does not lead to a sell decision.

Spectrum of Change Responses

Understanding why a problem occurred is of little use unless that knowledge leads to action. In physics, "work" is the product of the amount of force you apply to an object and the distance the object moves. In other words, it doesn't matter how hard you try, if nothing changes you haven't done any work! The most sound basis to have an expectation of better future results is to observe that the manager has implemented a change designed to address the problem. Physics also teaches us that resistance to change is natural. Newton must have known some asset managers, because in our experience the tendency to do nothing and hope for better results is amazingly strong among active investment managers.

Part of the reason is a presumption that, to be effective, change has to be dramatic. In fact, there is a broad spectrum of possible changes to investment organizations and processes, ranging from incremental to revolutionary.

Sticking with the example shown above, it may seem tempting to fire the analysts responsible for financials and technology. You might also slap on new limits so the portfolio manager cannot underweight an important sector like consumer discretionary so much. But these are big changes, and they can have serious unforeseen results. It may take time to recruit and train new analysts, and they may not turn out to approach stock selection the same way. Limiting sector bets can remove a potential source of added value.

A more incremental approach is to work on improving upon existing talent and processes. Does stock selection within technology show evidence of missing a key new trend? Perhaps the responsible analyst needs additional training – for example, by attending continuing education classes or industry conferences. Perhaps bringing in consulting resources focused on a particular aspect of IT might be helpful. Perhaps the financial models used to evaluate tech companies need to be adjusted, to make sure revenue projections and discount rates are in line with risk in the sector.

Similarly, there are potential incremental adjustments to asset allocation or, if applicable, quantitative processes that stop short of throwing the baby out with the bath water. For asset allocation, adjustments to capital markets assumptions and outlooks can be impactful. Considering new data sources for top-down market insights can also move the needle. Quant managers will often make second-order adjustments, making their processes more or less sensitive to the rate of change in an important factor rather than altering the factor itself.

These moves stand in contrast to revolutionary changes, such as adding quant processes to a fundamental stock-picking process or shifting to a new management team entirely. Dramatic changes are risky, and may well call into question the investor’s original thesis in selecting the fund.

The Limited Virtue of Patience

How should investors think about changes within investment organizations? Generally, incremental moves are welcome, and should appropriately be rewarded with patience. If an investment manager is properly diagnosing performance issues, learning about their people and processes, and making measured adjustments to improve performance, it seems prudent to wait and observe the results rather than take the risks involved with a manager change.

However, patience cannot be unlimited. If underperformance becomes protracted, we prefer to see a gradually increasing level of change response. If training or model adjustments aren’t effective, personnel adjustments may be required. But if the manager is continuing to make appropriate changes, patience is still prudent. In our experience, multiple cycles of diagnosis, learning, and change are acceptable as long as the cycle continues.

One reason for a fiduciary to be quick on the trigger is unexpected, dramatic change in the absence of incremental changes. Another, more common, reason to replace managers is if you detect that diagnosis, learning, and change are not, in fact, occurring within the manager’s organization. The frustration that tends to build after a series of unproductive meetings, where the manager seems unconcerned or unprepared and your questions are much better than their answers, is a strong signal it’s time to go.

Examples of Changes to...		
	People	Process
Incremental	<ul style="list-style-type: none"> • Adding junior analysts or programmers • Training focused on the problem area • Rotating coverage assignments • Adding or refining “devil’s advocate” role 	<ul style="list-style-type: none"> • Adding data sources • Improving data clean-up • Fine-tuning factor exposures • Adding second-order factors • Adjusting discount rates, limits, diversification rules
Dramatic	<ul style="list-style-type: none"> • Replacing analyst or portfolio manager • Adding new comanager or senior analyst • Merging funds 	<ul style="list-style-type: none"> • Changing fundamental investment objectives • Changing benchmarks • Changing management approach • Imposing new risk control techniques

