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MACQUARIE ASSET MANAGEMENT

Actionable ideas for a volatile world

Outlook 2023

December 2022

In 2022, inflation accelerated across much of the world and reached its highest readings in decades. Demand was driven by prior fiscal and monetary stimulus and supply-chain disruptions worldwide. Markets were rocked as a result and policymakers moved aggressively to remove accommodation.

Volatility may remain in 2023, at least for a time. In this report we provide our outlook for the year ahead and five actionable ideas we believe can help investors navigate challenges and opportunities over the next 12 months.

5 actionable investing ideas for 2023

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Macroeconomic outlook

Key insights from Derek Hamilton, Managing Director, Economist

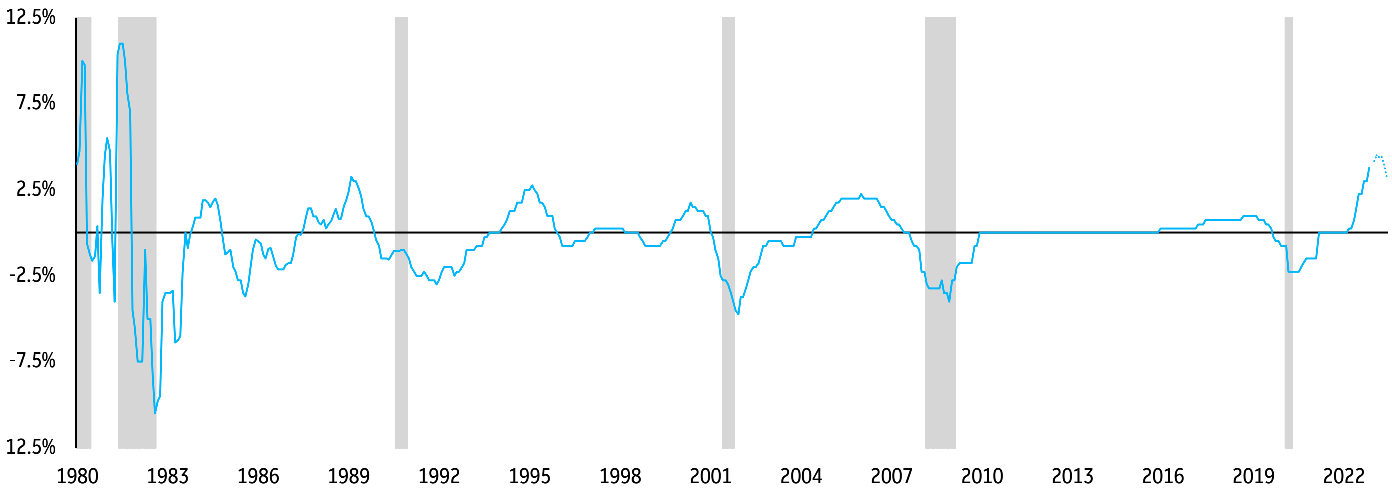
The economic environment in 2022 could be defined by one word: inflation. Inflation has accelerated across much of the world due to strong demand fueled by fiscal and monetary stimulus, as well as supply constraints driven by supply-chain disruptions. The Russian invasion of Ukraine further added to the price pressure, resulting in inflation readings that were the highest in decades. Policymakers' removal of accommodation rocked markets throughout the year. *We believe this volatility may remain with us in 2023, at least for a time.*

Likely US recession due to aggressive tightening

The US economy slowed throughout the course of 2022. While gross domestic product (GDP) growth declined in the first half of the year, this weakness was likely overstated by some one-off issues. We think this decline was not the start of a recession. Rather, we believe the economy will fall into a recession in 2023, mainly due to rapid tightening in monetary policy, as the US Federal Reserve raised interest rates at the fastest pace since Fed Chair Paul Volcker broke the back of inflation in the early 1980s (Figure 1).

The Fed has raised rates at the fastest pace since the early 1980s

Figure 1: US federal funds rate, year-over-year change (%)



Source: Macquarie, Macrobond, US Federal Reserve. Includes market-implied forecasts.

Economic cycles typically end when the Fed tightens policy too aggressively to combat inflation. We believe this time will be no different. However, the odds of a severe recession or crisis should be muted given that much of the excess liquidity has seemed to boost asset prices, rather than create overcapacity in parts of the economy that could cause a more severe downturn.

This time, the US consumer remains relatively healthy compared to other periods that preceded a recession. Consumer balance sheets appear to be relatively strong, with higher levels of savings than before the pandemic. However, inflation has been eroding consumer savings, with any "excess" amounts starting to decline. Lower-income consumers may have also spent any excess savings they built up during the pandemic. Even though a good portion of consumers still have higher levels of savings, we would expect consumption to weaken in a recession as job losses mount, putting pressure on aggregate income.

In addition, we think US housing should see significant weakness in 2023. The massive increase in mortgage rates, coupled with rapid housing price appreciation, has caused housing affordability to deteriorate to levels not seen in nearly 28 years. This would suggest housing activity and prices will fall significantly in 2023.

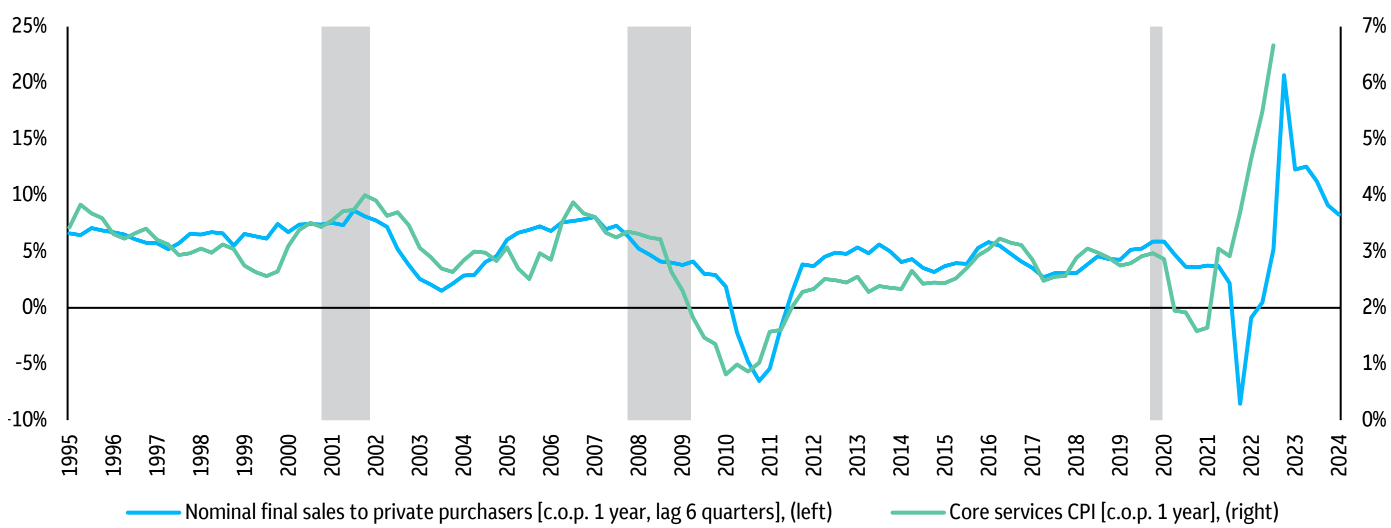
What does this mean for inflation?

Until now, inflation has been sticky, and we don't expect this to change much in early 2023. However, inflation tends to be cyclical unless it becomes embedded in inflation expectations. At this point, most measures of inflation expectations have not become unanchored. One area of importance is housing, which has been a strong contributor to inflation. Housing directly accounts for roughly 30% of the US Consumer Price Index (CPI) and 15% of the Personal Consumption Expenditures Price Index (PCE), which is the Fed's preferred measurement tool to determine inflation. The housing components used in the inflation data tend to lag actual housing price data by roughly 12 to 18 months. Given that housing and rental price inflation seem to have peaked in early 2022, the housing portion of inflation should move lower throughout 2023, in our view.

Outside of housing, we expect the combination of waning demand and improving supply to result in lower inflation later in 2023. Prices for services, excluding energy, tend to follow the direction of business and consumer demand. Core goods inflation, excluding food and energy, has already rolled over, while inflation for services has remained sticky. We think further weakness in spending by businesses and consumers should ultimately bring down inflation for services as well (Figure 2).

Historically, prices for services (excluding energy) follow demand

Figure 2: Nominal final sales to private domestic purchasers* and Core Services CPI



Source: Macquarie, Macrobond, US Bureau of Economic Analysis (BEA), US Bureau of Labor Statistics (BLS). c.o.p = change over period.
*Private GDP less foreign trade and inventories.

We believe the Fed will leave interest rates unchanged for much of 2023 after its aggressive rate hikes in 2022. However, it's possible a significant improvement in the inflation environment, coupled with falling demand, could allow for lower interest rates sometime in late 2023 or early 2024. Regardless, the Fed will likely be late to the party in cutting interest rates, just as it was in raising interest rates in 2022.

We believe that a recession in 2023 could cause further volatility in the markets. Earnings forecasts are still too high, and while the price-to-earnings (P/E) multiple for the S&P 500® Index has corrected to levels consistent with the current interest rate environment, it is not significantly below average. US equity markets may still have to digest an earnings downturn. At the same time, if a recession begins and inflation rolls over, history suggests that longer-dated US Treasury bond yields could move lower. This could help offset the potential spread widening in corporate bonds and may present potential opportunities within certain segments of the equity market.

International economies to struggle

We expect economies in the rest of the world to struggle as well. The Russian invasion of Ukraine has caused immense stress on Europe in the form of higher energy prices and reduced business and consumer confidence. The inflation shock of this situation alone should result in a recession throughout much of Europe, which likely began in the second half of 2022. We believe the recession could end around mid-2023. However, we are concerned that the energy crisis in Europe will be with us for a few years, which means a renewed confidence shock is possible as we head into the winter of 2023.

The outlook for China is becoming increasingly clouded. The government's commitment to its zero-COVID policy should continue the recent stop-and-go pattern exhibited in the Chinese economy. China's demographics look increasingly dire. In 2022, the United Nations revised its population outlook for China, now forecasting the Chinese population to decline as early as 2023 versus its previous estimate of 2031.

While demographics are not necessarily destiny, they do have an impact on a country's growth rate. In addition, China's leadership continues to seek a balance between moving away from debt-fueled growth and increasing per-capita income. Finally, Chinese President Xi Jinping has been "elected" to an unprecedented third term, with increasing concern around the role of government in the country's economy. China is likely to stimulate its economy in the short term, and an eventual move away from its zero-COVID policy should result in an acceleration in growth. Even so, the issues mentioned are concerning for China's long-term prospects.

Navigate an uncertain fixed income market with flexibility and agility

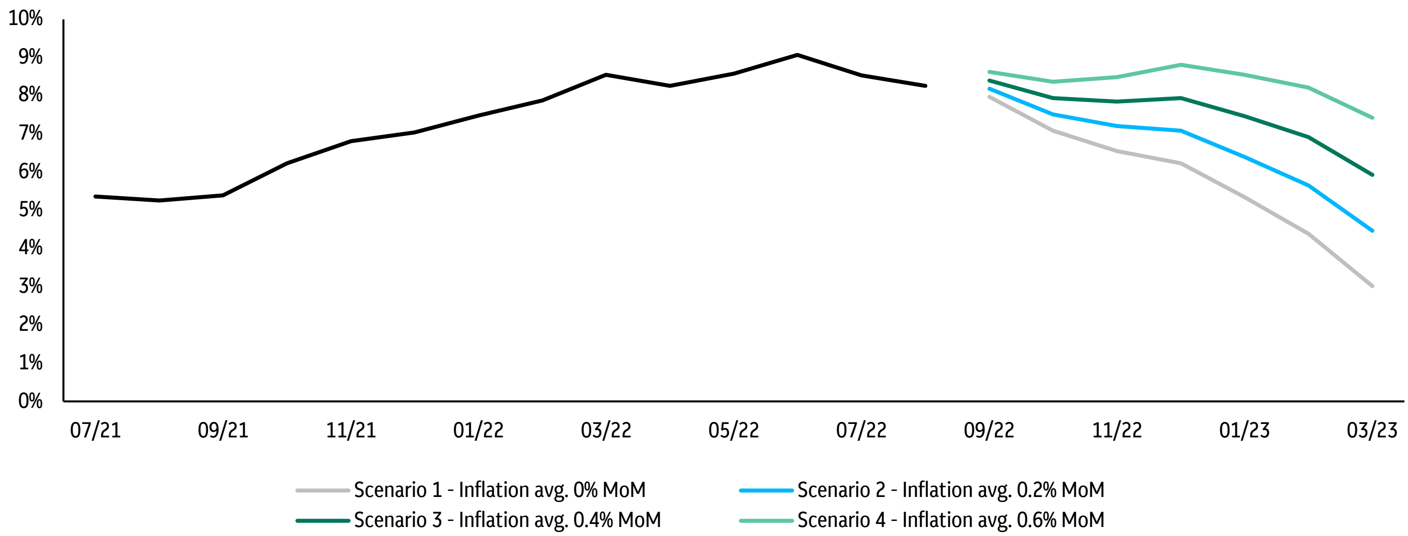
- US Federal Reserve policymakers are aggressively raising rates (monetary tightening) to engineer a contraction in 2023, accepting the risk of a hard landing and elevated unemployment as the cost of extinguishing inflation.
- In an effort to normalize its balance sheet and shrink its capital market footprint, the Fed is allowing its global financial crisis (GFC) and pandemic-related purchases of Treasurys and mortgages to run off (quantitative tightening), in the process draining global dollar reserves and exporting inflation and higher interest rates overseas.
- Fixed income markets face a rapidly changing rate, currency, and credit environment over the next 12 months, presenting both risks and total-return opportunities not seen in years. Deep analytical expertise and highly flexible portfolio management will be required to navigate this landscape.

Since the end of 2019, the financial landscape has been framed by the pandemic supply shock of 2020 and the commodity shock of early 2022. Compounded by a resurgent economy and massive fiscal stimulus, the resulting inflationary surge caught central bankers flatfooted, leading to one of the most aggressive tightening cycle in history. Concurrent quantitative tightening (QT) by the Fed is draining global dollar liquidity and contributing to a soaring dollar, prompting reciprocal currency-stabilizing rate hikes by foreign central banks, and stressing countries with high US-dollar debt service and import reliance on dollar-priced commodities. Year-over-year inflation figures (base effect) are likely to moderate toward year end and into early 2023, while much-feared longer-term inflationary pressures have not yet materialized. Markets are priced for a soft landing, but stagflationary periods and aggressive monetary tightening historically have led to more significant contractions. The wrenching regime shift from zero-bound rates and all-in Fed market support to an environment of normalized interest rates and aggressive inflation fighting will likely lead to a significant tightening of financial conditions and an unwinding of inflated asset prices.

The Fed's aggressive and ongoing policy response raises the question of how entrenched inflation really is and how responsive it will be to rate hikes. Inflation can be thought of as a function of near-term influences and longer-term expectations. Near-term influences, including energy costs, supply chain disruptions, and labor shortages, remain elevated versus pre-pandemic levels, but they are all improving, with oil prices (West Texas Intermediate) down 28% from their 2023 peak, key shipping congestion and order backlog metrics well off their 2021 highs, and employment (in aggregate) back to 2019 levels. Potential sources of future inflation include the higher cost of hardened supply chains, government-mandated shifts toward more expensive "green" energy sources, and the potential for new, inflationary government stimulus programs to subsidize cost-of-living increases. At present, future inflation expectations remain well anchored, and there is little evidence that they play a role in current inflation data. Consequently, as we look out over the next six months, we believe base effects alone (the monthly change over last year's inflation readings) will show that the US CPI can be expected to peak in the fourth quarter of 2022 and begin to moderate as we move into early 2023.

Inflation should moderate heading into 2023

Figure 1: Inflation scenarios, based on a range of average month-over-month (MoM) prints



Sources: Bloomberg, Macquarie, September 2022.

While raising policy rates can have an immediate impact on market rates and financial conditions, historically there is a long and variable lag before rate increases work their way into the real economy and fundamentally alter the spending and investing decisions of individuals and businesses. Current levels of consumer confidence, employment, discretionary income, savings rates, corporate leverage, and bank loan quality all influence how long the lag may be. Thus, if inflation is indeed on the cusp of moderating, then the Fed's real challenge is accurately assessing the future trajectory of economic growth, and deciding when to pause and potentially reverse course before all the evidence is in. If it overshoots, the economy could suffer a hard landing. If it undershoots, inflation remains entrenched.

We note that China is experiencing its slowest growth rate in a generation, while Europe is bracing for an acute energy crisis and probable contraction this winter. In the US, mortgage rates recently crossed 7% and the housing sector is in freefall; aggregate corporate and government spending are declining; hiring has flattened; and household wealth has taken a dramatic hit from falling stock and bond prices. Nevertheless, employment and consumer spending remain strong, and until the Fed sees unmistakable evidence of softening in those numbers, it is unlikely to pause.

Historically, stagflationary environments and Fed hiking cycles have tended to culminate in hard landings, even without considering the possibility of a global synchronized downturn. Nevertheless, the bulk of fixed income losses this year have resulted from the significant increase in rates across the yield curve rather than a dramatic revaluation of risk assets. For example, high yield bond spreads have certainly widened this year, but the extra yield they now offer over risk-free Treasurys implies a moderate increase in defaults next year that is more consistent with a soft landing than a hard landing. We believe risk assets are broadly overvalued, mispricing both the probable depth and duration of the downturn, and as importantly, the sea change in the interest rate environment and the Fed's new role in the markets. Post GFC, the ability to borrow at low or near-zero cost to buy risk assets helped inflate asset values globally, in some instances well beyond historical measures of fair value relative to the real economy. At the same time, the role of the Fed as a backstop for the global markets and guarantor of cheap money (and by extension inflated asset valuations) became ingrained in investor psychology as a permanent part of the investing landscape. Normalizing rates and tightening financial conditions removes, for now, a crucial valuation support, while the Fed's all-out assault on inflation and balance sheet reduction signals its intention to return to a normalized, and diminished, role in the capital markets.

Taxable fixed income asset class positioning

We believe the current fixed income environment offers an array of opportunities and risks. It requires flexibility and agility to navigate and take advantage of opportunities as they arise. Here are our thoughts on key areas of the market, as we head into 2023.

Rates	Against a backdrop of a determined, aggressive Fed, slowing global growth, and moderating inflation, we believe the rise in Treasury yields this year presents an attractive entry point to add duration with limited downside. While heightened volatility is likely to persist in the immediate term, we believe duration is offering an increasingly attractive opportunity for long-term investors, and we will be seeking to add it.
Credit	Credit metrics remain generally strong among both investment grade and high yield issuers, and given recent spread widening, valuations are becoming more attractive. However, rising input costs are pressuring operating margins now, while revenue pressure will emerge in 2023 as economic growth slows. Tightening financial conditions and restrictive capital markets will compound worsening operating metrics next year, leading to a rise in high yield defaults. Industry and issuer impacts will likely be varied, with the most acute risks to industries most exposed to consumer demand and interest rates. Against this backdrop, we believe a defensive positioning within credit is appropriate, with a preference for highly rated investment grade credit in defensive sectors.
Emerging markets debt (EMD)	We retain a cautious outlook for EMD, given a mixed picture for underlying fundamentals alongside varied region-specific impacts from the global macroeconomic environment. We maintain a risk-controlled approach within our EMD strategies, with highly selective exposures. For example, we favor energy exporters, and are avoiding food importers and, more generally, high-dollar-price high yield.
Structured	In the structured security market overall, fundamentals are stable but facing slower growth. Across most sectors, we are maintaining our current positioning.
Currency	The US dollar has continued to appreciate on the back of higher US policy rates, the anticipation of further hikes, and the withdrawal of dollar liquidity via QT. While valuations appear fundamentally stretched, we believe that, barring a dramatic shift in Fed policy and given the backdrop of weakening global growth, further upside remains likely.

Capitalize on a historic income opportunity with municipal bonds

- Entering the fourth quarter of 2022, the municipal bond market had experienced record outflows year to date stemming from the US Federal Reserve's aggressive rate hikes.
- The persistent outflows and underperformance in the municipal market has resulted in significantly higher yields across the maturity curve.
- This value in the market presents a compelling opportunity for long-term investors to earn significant tax-exempt income.

As we progress through the fourth quarter of 2022, the municipal bond market is on track to experience its worst year of performance on record. The long-term trend of lower-investment-grade and below-investment-grade quality credit, as well as the longer end of the maturity curve outperforming, has been completely turned upside down in the municipal market. The catalyst has been record outflows from tax-exempt bond funds (-$105 billion year to date through October 2022), stemming from the Fed's policy shift to aggressive rate hikes. This monetary tightening tool's objective is to mitigate the inflationary environment, which was driven primarily by supply chain issues and exacerbated by the war in Ukraine. The Fed has consistently stated its intent to assure that inflation does not become entrenched and, as a result, it has raised rates significantly in a short period of time to help anchor long-term inflation expectations. The Fed's use of monetary policy to address supply-side issues will ultimately succeed only if demand destruction occurs. As a result, there is a significant probability that the economy gets pushed into a recession. The Fed's task is a difficult one. The desired "soft landing," we believe, will prove elusive and a recession will occur.

The result of this has been significantly higher Treasury rates, and an inverted Treasury curve – a traditional harbinger of recessions. Municipal rates are highly correlated to US Treasury rates. The municipal market historically has experienced outflow cycles during periods of persistent rising rates, and roughly one-third of the market's inflows from the past three years exited the market in the first nine months of 2022. Due to the unique ownership structure in the asset class, persistent outflows normally cause the municipal markets to underperform excessively, which may result in significant opportunity for long-term investors. Historically, retail investors redeeming their bond fund shares continue to do so for a period after the municipal market has reached its bottom. The bottom will normally occur after the US Treasury market has at least stabilized, or created its own bottom.

A historic tax-exempt income opportunity

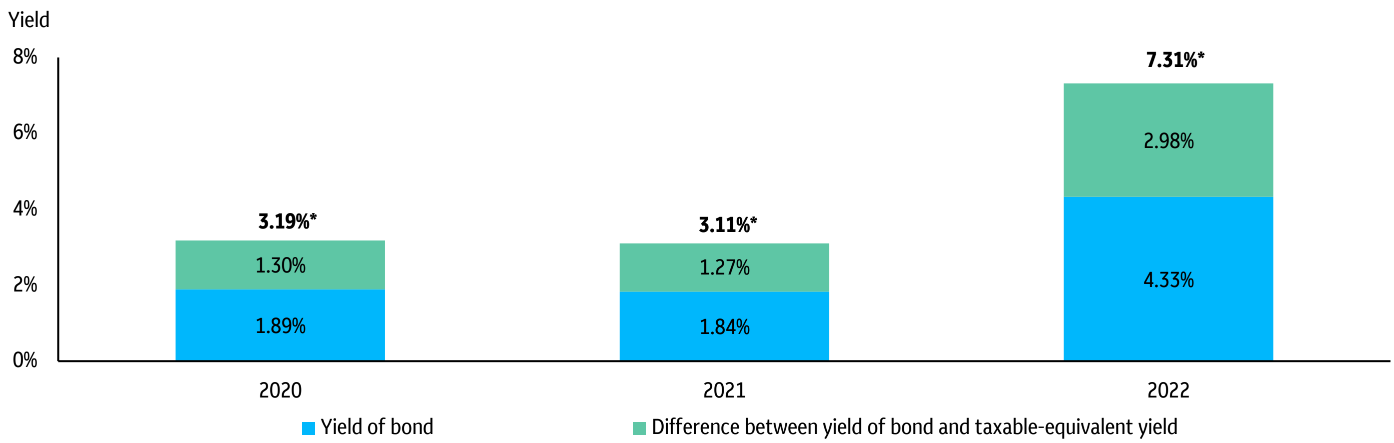
The net result of the Fed tightening cycle has been a significant increase in the yield available for investors who desire tax-exempt income. The market has reached yield levels not experienced in more than a decade. When one looks at taxable-equivalent yields for municipal securities (Figure 1), investors have an opportunity to earn significant income, from a historical perspective. What makes this opportunity so compelling, in our view, is that, from a credit perspective, this is occurring at a time when municipal credit generally is as strong as it has been in decades. The same could not be said for the short window of opportunity investors experienced during the COVID-19 selloff. Investors arguably were blind in the spring of 2020, with the pandemic in its infancy and the ultimate impact on credit unknown.

Municipal credit has outperformed the expectations of many investors since the start of the pandemic. Not only did states that opted to keep their economies open fare better than expected, but the unprecedented amount of fiscal stimulus provided by the federal government, either directly or indirectly to municipalities and sectors within them, helped most economies outperform expectations. This stimulus and the eventual reopening of economies has led to surpluses on the balance sheets of a significant number of state and local governments. The tailwind provided by fiscal stimulus has not been exhausted, as many states still have not spent all the funds provided. They must do so, in most cases, by the end of fiscal year 2024. Figure 1 shows the change in the taxable-equivalent yield for a AA-rated 30-year municipal bond, year over year from October 2020 to the end of October 2022.

While nobody knows exactly when the Fed will hit the brakes and markets will begin to price in the result of the steep increase in rates, economic data will be a key factor. Sectors such as housing have already started to see softening in some of the data. Labor should be monitored closely, as significant job cuts in the economy could alter the Fed's hawkish view.

Taxable-equivalent yields are more attractive than ever

Figure 1: Year-over-year taxable-equivalent yields for a AA-rated 30-year New York City water municipal bond



Sources: Municipal Market Data, Bloomberg, October 2022.
*Taxable-equivalent yield. The top federal income tax bracket of 37% plus 3.8% Medicare tax were used to calculate the taxable-equivalent yield of the bond.

A compelling entry point for munis

Historical analysis suggests that municipal markets typically bottom and experience significant gains sometime between the second-to-last and last rate hike in a cycle. While this may or may not happen this time around, the value in the market now represents a compelling opportunity for long-term investors. We advocate that investors can be early in adding to municipal allocations, and we believe that over the next two to three years this will prove to have been a wise choice. We caution investors attempting to pick the bottom that being late could cost significant performance and missed yield opportunity.

Find visibility by investing in high-quality growth

- With corporate profits at risk amid rising interest rates, and price-to-earnings (P/E) multiples down from market-cycle highs, identifying growth stories can seem challenging.
- Focusing on quality measures is one way equity investors can find some predictability and earnings consistency, when uncertainty and market volatility are high.
- We believe companies exhibiting profitability, competitive advantages, and durable pricing power are best suited for growth in this particular environment.

Navigating the equity market during periods of economic uncertainty can feel like walking in the dark. While you may carefully plan your next step to avoid tripping, you just can't see what's ahead. A number of issues are top of mind for investors:

Interest rates. What is normal and how do they affect portfolios?

Inflation. What is it and how long will it last?

War. How long could the economic impacts and heightened political uncertainty of the Russia-Ukraine conflict last and what are the potential long-term effects?

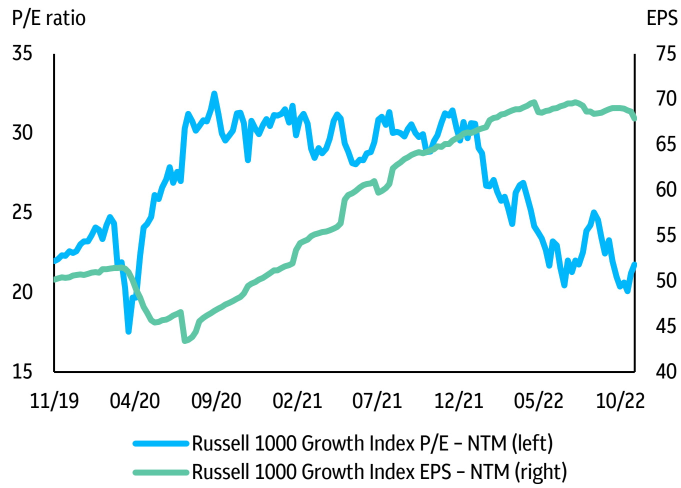
Market volatility. Extreme ups and downs have occurred over the past three years. Is this the new normal?

While many investors seek growth for their portfolios, finding it in today's market can be difficult. Market valuation multiples have normalized after elevated levels post-pandemic. Now, corporate profits and earnings are also at risk. Figure 1 shows the P/E ratio of the Russell 1000® Growth Index has dropped by more than 30% since January 2022. However, we haven't seen the same weakness relative to corporate earnings (as shown by the earnings per share (EPS) levels in Figure 1).

We believe the US Federal Reserve's resolve to slow consumer and business demand will eventually put a damper on earnings over the long term, and we will continue see the same level of market volatility we incurred in 2021.

Finding growth today can be difficult

Figure 1: Russell 1000 Growth Index P/E and EPS



Source: Frank Russell Company, September 2022. NTM = next 12 months.

Forward-looking analysis is becoming increasingly difficult to determine given the current economic challenges. We've recently seen many well-known, stable-quality companies revise their earnings expectations at mid-quarter to the downside. When companies with the most stable business models, led by some of the best minds in the world, have trouble forecasting their own earnings levels three months down the road, it should cause concern about an outsider's ability to predict earnings and growth for the next year.

Focus on quality first

We believe the best way to provide predictability and consistency for growth investing is to focus on a company's quality attributes. When investors focus on high quality first, they have the opportunity to pick from a subset of companies that don't require a specific ideal environment in order to grow. These are the companies believed to have the potential to outgrow their peers in a variety of economic circumstances, which is a positive given the volatility and unpredictability of current macroeconomic variables.

Here are three characteristics that reflect a company's level of quality. It is our belief that by evaluating these variables investors can invest for growth with some level of predictability and consistency.

Profitability. Companies with thin profit margins are playing with fire in a world with rising interest rates and expectations for slowing economic activity. A business running on thin margins is akin to a person living paycheck to paycheck in order to enjoy a higher standard of living. In this situation, it doesn't take much disruption to cause significant financial pain.

Competitive advantages. Competition erodes profitability. Some companies and/or industries have barriers in place to protect against competitive forces. Wide-moat companies have competitive advantages that can help protect their potential growth – not only for today but for the future. Some companies may have legal protections in place like patents, while others may operate in industries with high startup costs that prevent new competitors from entering the market. These are critical characteristics for a company's long-term growth potential.

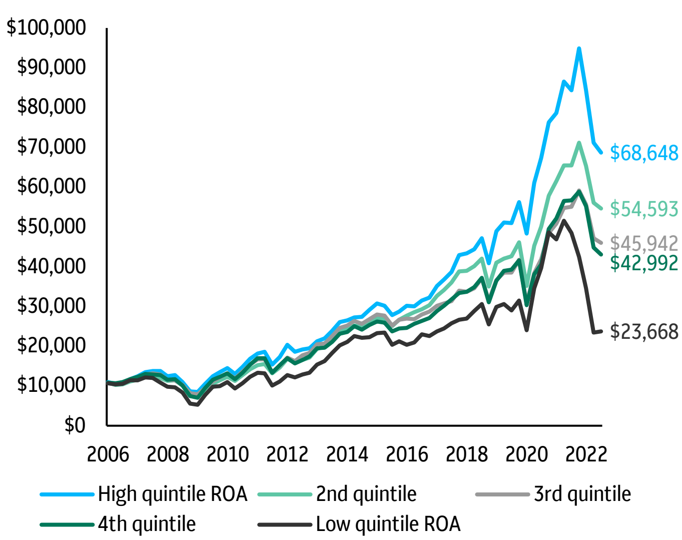
Durable pricing power. Many companies can raise prices during inflationary periods, but only the strongest businesses can consistently raise prices faster than their costs increase, without losing customers. Often, this is a result of a company's competitive advantage or a critical product or service it provides that is difficult to find elsewhere.

Standing the test of time

While investors appear to have a solid grasp on the issues affecting today's world, no one has a crystal ball that will predict the challenges and outcomes of tomorrow. Given this reality, we think it is prudent for growth investors to focus on high-quality companies. In Figures 2 and 3, we illustrate that high-quality, profitable companies, as measured by return on assets (ROA), have proven to stand the test of time, through good periods and difficult ones, to provide competitive total returns with lower downside volatility.

High quality outperforms in the long run…

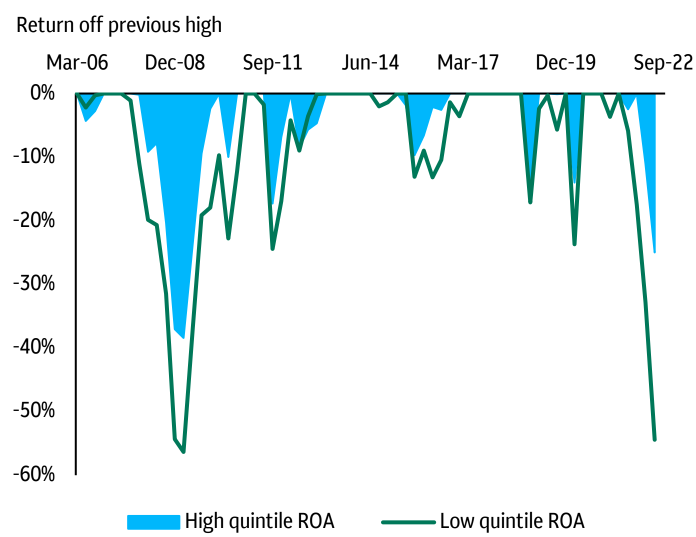
Figure 2: Growth of $10,000



Source: FactSet. Data as of September 30, 2022.

…with lower downside volatility

Figure 3: Drawdowns over last 15 years



Source: FactSet. Data as of September 30, 2022.

Leverage a broad and deep opportunity set for sustainable investing

- Opportunities for sustainable investment encompass a broad range, contrary to arguments that it's restrictive for public-market investors.
- One of the criticisms of sustainable investing is that it is exclusionary, but we believe that these claims are not accurate and that, in fact, attractive sustainable investment opportunities exist across all sectors.
- Meeting the United Nations' Sustainable Development Goals (SDGs) by 2030 could require $5 trillion to $7 trillion per year from the private sector, suggesting a massive impact on capital markets.
- A close look at the 17 SDGs shows their influence is widespread, addressing issues (and investments) related to poverty, health and education, inequality, and economic growth, in addition to the environment.

Many investors are seeking ways to achieve financial returns while promoting long-term environmental or social value, also known as sustainable investing. At the same time, sustainable investing has recently come under fire from many sides, with some claiming that environmental and social concerns should not be taken into consideration when making investment decisions, while others claim that investors are not doing enough to influence companies in taking action to address societal concerns. It is our belief that focusing on environmental and social issues can often lead to profitable investment opportunities. We also believe that directing investment toward companies offering solutions to societal problems can often spur companies to take action to address these issues.

One of the criticisms of sustainable investing is that it is exclusionary, oftentimes forbidding investment in certain segments of the market, especially fossil fuels. We believe that these claims are not accurate and that, in fact, attractive sustainable investment opportunities exist across all sectors. Even fossil fuel-related companies possess the expertise, capital, and willingness to tackle some of society's challenges.

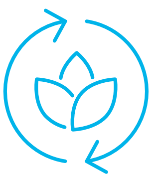
Leveraging the UN's Sustainable Development Goals

The UN's SDGs are often used to define the areas that need to be targeted for sustainable investments. The SDGs are a collection of 17 interlinked global goals designed to be a "blueprint to achieve a better and more sustainable future for all" that address a wide range of issues including poverty, health and education, inequality, economic growth, climate, and the environment. Underlying the goals are specific targets that have been set for each goal, as well as indicators that are used to measure progress in reaching the target. Companies have a role to play in fulfilling goals by acting responsibly as well as by pursuing opportunities to solve societal challenges through business innovation and collaboration.[1]

The United Nations Conference on Trade and Development (UNCTAD) estimates that meeting the SDGs by 2030 will require $5 trillion to $7 trillion per year from the private sector. Companies that work toward accomplishing the SDGs stand to be the beneficiaries of this investment.

1. United Nations Global Compact: Sustainable Development Goals (SDGs). https://www.unglobalcompact.org/sdgs/about

Case Study SDG 7: Affordable and Clean Energy



UN SDG 7: Affordable and Clean Energy Target 7.2

By 2030, increase substantially the share of renewable energy in the global energy mix

Indicator for target 7.2: 7.2.1

Renewable energy share in the total final energy consumption

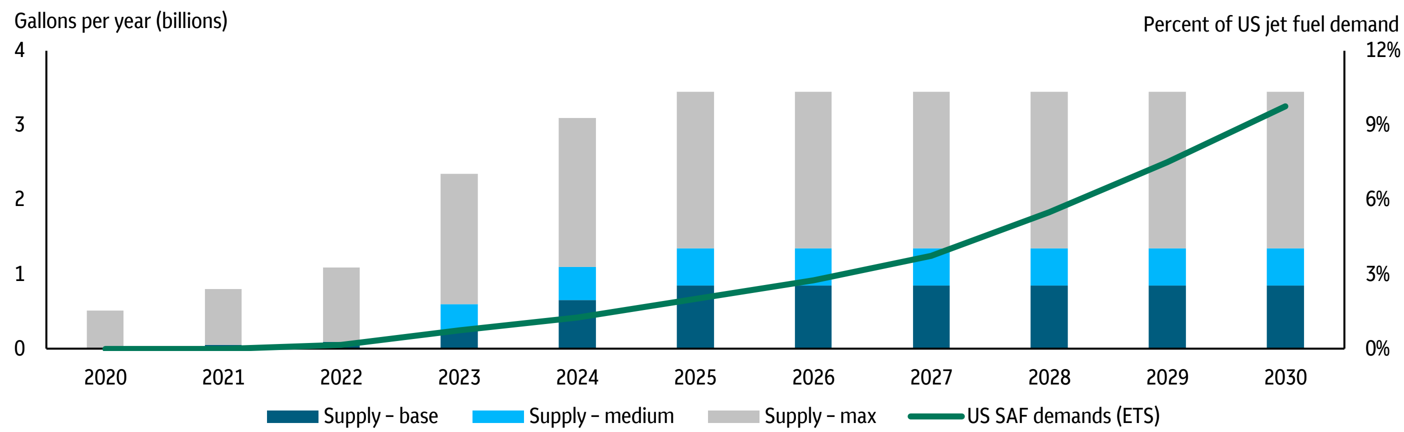
Source: United Nations Global Compact goal index page: Energy "Ensure access to affordable, reliable, sustainable and modern energy."

Meeting this target will require a substantial amount of capital investment to increase renewable energy's percentage of the global energy mix. This spending will need to come from multiple sources in the public and private sector, with energy companies possessing the capital to invest in renewable energy as well as the research and development capabilities to find viable solutions. BloombergNEF estimated that investment by the oil and gas sector in low-carbon assets totaled $21 billion in 2021, a 53% gain from 2020 levels, and represented an average of more than 6% of all capital expenditures in the sector.[2]

One example of ways that US energy companies are working to accomplish the goals of SDG 7 is in the sustainable aviation fuel (SAF) market. BloombergNEF estimates a strong demand trend over the coming decade, led by increased government mandates as well as a need for aviation companies to address their own greenhouse gas emission reduction targets.

Demand for sustainable aviation fuel is expected to strengthen over the next decade

Figure 1: US demand and supply scenarios



Source: Bloomberg NEF. ETS = economic transition scenario

Recognizing the financial opportunity that this demand presents, US energy companies have been making the capital investments needed to increase SAF supply and have recently announced positive developments along this front.[3] Energy companies have also contributed to other renewable energy areas such as geothermal energy,[4] and renewable and biodiesel fuels.[5]

2. BloombergNEF insight, https://www.bnef.com/insights/28115
3. Reuters: Exxon delivers first sustainable aviation fuel cargo to Singapore Changi Airport, July 2022.
   Chevron: Chevron, Gevo announce intent to pursue sustainable aviation fuel investment, September 2021.
   Phillips 66: British Airways, Phillips 66 Limited sign sustainable aviation fuel supply agreement, December 2021.
   Marathon Petroleum: Virent's BioForm® fuel component used in test flight of 100% sustainable aviation fuel, October 2021.
4. Schlumberger Limited: geothermal power information page, https://www.slb.com/geothermal
5. Valero renewable diesel page, https://www.valero.com/renewables/renewable-diesel

Case Study SDG 5: Gender Equality

Below is a target and indicators related to another of the UN goals, SDG 5, Gender Equality.

UN SDG 5: Gender Equality Target 5.5

Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic, and public life

Indicator for target 5.5: 5.5.1

Proportion of seats held by women in (a) national parliaments and (b) local governments

Indicator for target 5.5: 5.5.2

Proportion of women in managerial positions

Source: United Nations Global Compact goal index page: Gender equality and women's empowerment. "Achieve gender equality and empower all women and girls."

Credit Suisse Research conducted a study of share-price performance based on the percentage of women in management and found that companies with a higher percentage of women in management typically performed better than those with a lower percentage.[6]

The research also showed that the percentage of women in management positions is fairly consistent across sectors and increasing in each sector, indicating that the opportunity to invest in companies promoting SDG 5 should be available across all sectors.

Percentage of women in management positions across sectors

Sector	CEO	CFO	Strategy and IR	Shared services	Business management	Women in management (2021)	Women in management (2019)
Communication services	6%	16%	15%	39%	21%	23%	20%
Consumer discretionary	7%	16%	14%	33%	17%	19%	18%
Consumer staples	6%	13%	18%	33%	17%	21%	17%
Energy	3%	11%	18%	31%	14%	18%	15%
Financials	6%	16%	17%	32%	19%	21%	20%
Health care	8%	16%	21%	40%	22%	25%	20%
Industrials	3%	13%	15%	32%	12%	17%	15%
Information technology	3%	22%	17%	29%	13%	17%	15%
Materials	4%	14%	12%	34%	12%	17%	15%
Real estate	9%	28%	22%	42%	23%	25%	19%
Utilities	7%	16%	20%	35%	14%	22%	23%

Source: Credit Suisse Research, CS Gender 3000 Report 2021.

6. Credit Suisse Research, CS Gender 3000 Report 2021, Refinitiv.

Look beyond traditional investments by adding alternatives

- Investors are facing what can be described as the “perfect storm” of difficult market conditions.
- Complementing traditional investments with a strategic allocation to alternatives may improve a portfolio’s overall risk-return profile.
- Alternatives are a major driver of institutional investor performance but have been largely absent from high-net-worth investors’ portfolios.
- Structural innovations have led to greater access to institutional-quality alternatives for high-net-worth individuals.

Is it time to rethink your portfolio?

Investors are facing what many describe as the “perfect storm” of difficult market conditions: high inflation, increasing interest rates, market volatility, recession fears, a disrupted bond market, a simmering global pandemic, and geopolitical uncertainty.

This has led many financial advisors and their clients to consider opportunities for diversification and strategies that may preserve capital, reduce correlation, and help achieve portfolio objectives.

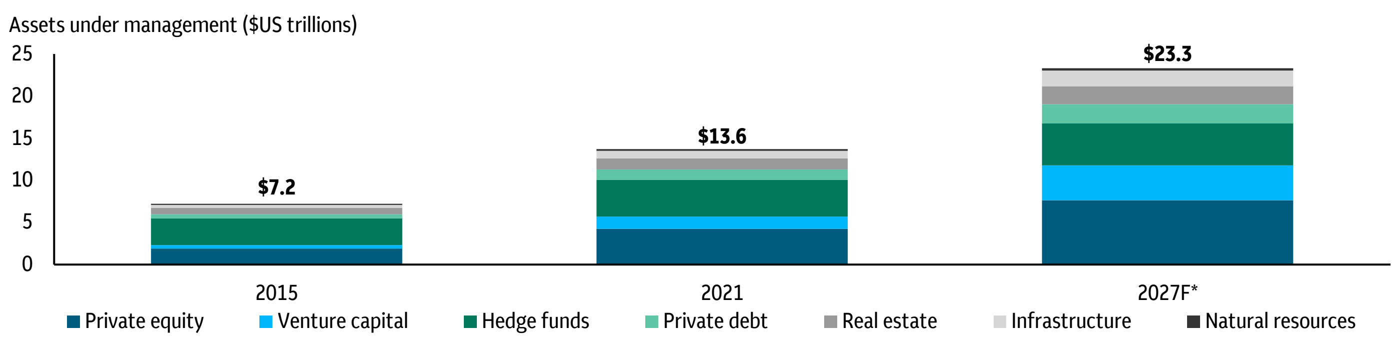
Alternative investments

Alternative investments generally comprise asset classes that can produce sources of returns differentiated from the performance of equities or fixed income.

Allocations to alternatives have grown exponentially in recent years. In 2015, alternative investment assets under management totaled $7.2 trillion. In 2021, it increased to $13.6 trillion, and it is anticipated to grow to $23 trillion in 2027.

Assets in alternatives continue to grow

Figure 1: Alternative allocations



Source: 2022 Preqin Global Alternatives Reports. * F= Forecast

Common alternative investments include:

Private equity. Actively managed funds that invest in established companies, with the goal of improving performance, or in young companies with growth potential.

Hedge funds. Actively managed investment vehicles that seek attractive risk-adjusted returns in all market conditions and aim to preserve capital during periods of market stress.

Private credit. Privately negotiated debt by non-bank lenders typically utilized when companies need capital but cannot access public credit markets.

Infrastructure. Investments in physical assets including bridges, roads, highways, and energy.

Opportunistic real estate. Funds that seek to create value by acquiring and/or developing properties, enhancing and repositioning underperforming or flawed real estate assets.

Energy. Historically investments in companies producing refined petroleum products, though increasingly, investors are pivoting from fossil fuel-based businesses to focus on clean energy and renewables.

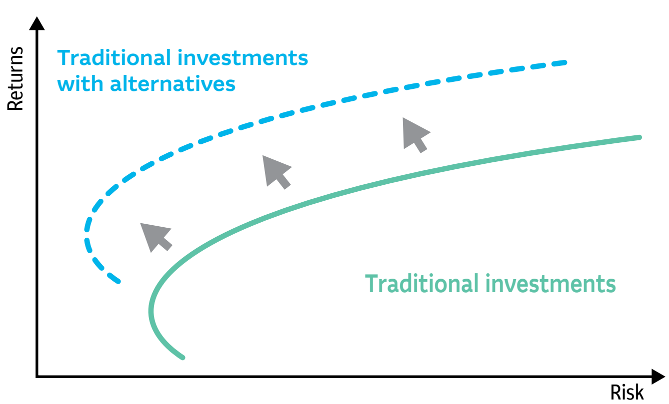
Benefits of alternative investments

Many alternative investments benefit from low correlation to traditional equity and fixed income investments and can be utilized to increase portfolio diversification. Some strategies seek returns greater than those typically available in the public markets, others may seek to protect capital when the market is down, while others may seek attractive returns in all markets.

In addition to diversification, complementing traditional investments with a strategic allocation to alternative investments may improve the overall risk-return profile of a portfolio of equities and fixed income.

Alternative investments may improve the risk-return profile of a traditional portfolio

Figure 2: Efficient frontier



Source: Macquarie, 2022. Chart is for illustrative purposes only.

Working in concert with traditional investments, an allocation to alternatives may provide the dual benefits of improved performance and reduced volatility.

Reducing volatility is important, as short-term declines can be detrimental to a portfolio. Recovering from losses can be a lengthy process, even with attractive rates of returns.

Recovering from losses takes time

Percent loss	Percent appreciation required to break even	Years required to break even at 6% annual return
20%	25.0%	3 years, 10 months
30%	42.9%	6 years, 2 months
40%	66.7%	8 years, 10 months
50%	100.0%	11 years, 11 months

Source: Macquarie, September 2022. This hypothetical illustration is based on mathematical principles and is not meant as a forecast of future events or as a statement that prior markets may be duplicated. For illustrative purposes only.

The inclusion of alternative investment strategies that can mitigate downside risk in a portfolio may help prevent negative compounding and substantial losses. Depending upon market conditions, losses may take years to recover (seen in the table above).

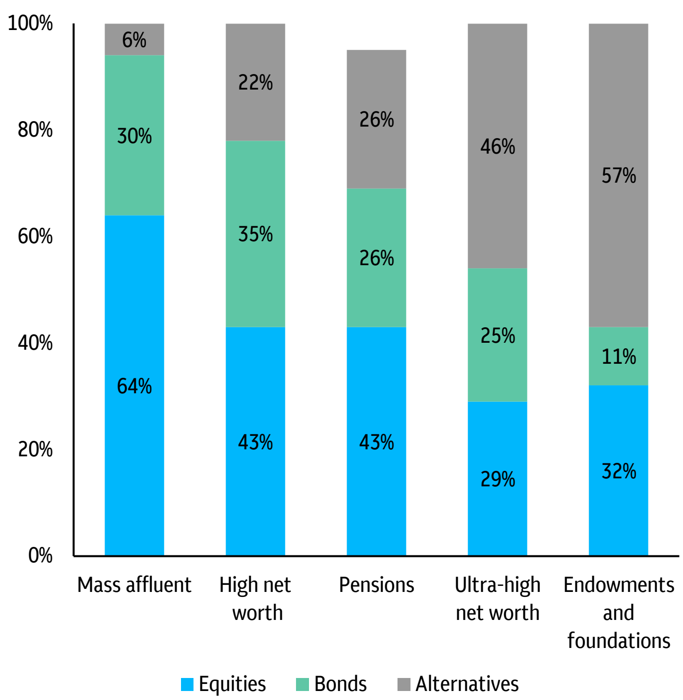
Although alternative investments have long been a major driver of institutional investor portfolio performance and a key allocation, they have been largely absent from individual investor portfolios (in the table below).

Until relatively recently, institutional-quality alternative investments were restricted to only the wealthiest and largest of investors. Substantial investment minimums (some as high as $20 million), steep qualification criteria, lack of industry relationships, and inadequate resources for conducting due diligence have historically prevented individual investors from accessing alternative investments.

An allocation to alternatives may potentially improve portfolio performance relative to traditional investments, and may also be beneficial in differentiating and enhancing an advisor's value proposition to potential and existing clients.

Alternative investments have been restricted to the largest and wealthiest investors

Figure 3: Investment allocations across asset classes by investor



Sources: Gridline, Personal Capital, KKR, Pew Charitable Trusts, National Association of College and University Business Officers (NACUBO).

Today, financial advisors recommend allocations to alternative investments with a number of goals in mind

Goal	Percent of advisors
Reduce exposure to public markets	69%
Volatility dampening/downside risk protection	66%
Income generation	59%
Portfolio diversification	52%
Growth/enhanced return opportunity	42%
Inflation hedge	31%
Demonstrate own advisory practice value proposition	22%
Client requests	19%

Source: Cerulli Associates and Blue Vault, July 2022.

Accessing alternatives

Structural innovations and increased interest by industry leading managers in high-net-worth capital has led to greater access to high-quality alternative investments for a broad range of investors.

“Access fund” structures enable high-net-worth individuals and smaller institutions to invest in alternative investments. These funds purchase interests in an institutional fund with capital aggregated from many investors and provide due diligence, capacity, education, client service, and operational support. They enable individual investors access to institutional strategies with reduced minimum commitments. Generally, investors must be qualified purchasers ($5 million in qualified investments for an individual; $25 million for an entity) and be able to commit capital to a long-term investment with limited to no liquidity.

More recently, investors have been able to access alternatives through registered single-manager funds and registered funds-of-funds. These structures enable participation by investors with a net worth of $1.0 million to $2.2 million (generally, for individuals excluding residence; $5 million for an entity). Registered funds may offer additional benefits, including limited liquidity, enhanced tax reporting, the ability to hold the fund in an IRA, and certain investor protections. Funds-of-funds typically offer active portfolio management and may focus on particular managers, strategies, or vintage years.

Business development companies (BDCs), real estate investment trusts (REITs), co-investment companies, and other structures are also utilized to enable high-net-worth investors access to alternative investments.

Investment considerations

While the benefits of alternative investments may be considerable, this asset class is not for everyone. As you consider your investment objectives in this challenging market environment, alternative investments may serve as an effective complement to your traditional allocations and provide an opportunity for potentially attractive risk-adjusted returns, reduced volatility, and greater portfolio diversification. Qualified investors who appreciate the risks and potential rewards of alternative investments may wish to consider an appropriate allocation.

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Inflation is the rate at which the general level of prices for goods and services is rising, and, subsequently, purchasing power is falling. Central banks attempt to stop severe inflation, along with severe deflation, in an attempt to keep the excessive growth of prices to a minimum.

Stagflation is a situation in which the inflation rate is high or increasing, the economic growth rate slows, and unemployment remains steadily high.

Tight monetary policy is an action undertaken by a central bank such as the Federal Reserve to slow down overheated economic growth.

Fiscal stimulus is a tool that policymakers can use to reduce the severity of recessions.

A hiking cycle is a cycle in which a central bank will hike rates and then pause to see how the economy is doing after absorbing a series of rate increases. They will only start to ease if they break something in the economy.

The global financial crisis (GFC) refers to the period of extreme stress in global financial markets and banking systems between mid-2007 and early 2009.

Quantitative tightening (QT) refers to when central banks raise the federal funds rate. In a tightening monetary policy environment, a reduction in the money supply is a factor that can significantly help to slow or keep the domestic currency from inflation.

Gross domestic product (GDP) is a measure of all goods and services produced by a nation in a year. It is a measure of economic activity.

Aggregate income is the total of all incomes in an economy without adjustments for inflation, taxation, or types of double counting. Aggregate income is a form of GDP that is equal to consumption expenditure plus net profits.

The price-to-earnings ratio (P/E ratio) is a valuation ratio of a company's current share price compared to its earnings per share. Generally, a high P/E ratio means that investors are anticipating higher growth in the future.

Return on assets (ROA) is a metric that indicates a company's profitability in relation to its total assets. ROA can be used by management, analysts, and investors to determine whether a company uses its assets efficiently to generate a profit. A company's ROA can be calculated by dividing its net income by its total assets.

A REIT fund's tax status as a regulated investment company could be jeopardized if it holds real estate directly, as a result of defaults, or receives rental income from real estate holdings.

A Treasury yield refers to the effective yearly interest rate the US government pays on money it borrows to raise capital through selling Treasury bonds, also referred to as Treasury notes or Treasury bills depending on maturity length.

The **Core US Consumer Price Index (Core CPI): Services** is a measure of inflation that is calculated by the US Department of Labor, representing changes in prices of all services, excluding those with high price volatility, such as food and energy, purchased for consumption by urban households.

The **Personal Consumption Expenditures Price Index (PCE)** is a measure of inflation that is calculated by the Bureau of Economic Analysis, representing changes in consumer spending on goods and services. It accounts for about two-thirds of domestic final spending.

The **Russell 1000 Growth Index** measures the performance of the large-cap growth segment of the US equity universe. It includes those Russell 1000 companies with higher price-to-book ratios and higher forecasted growth values.

The **S&P 500 Index** measures the performance of 500 mostly large-cap stocks weighted by market value, and is often used to represent performance of the US stock market.

The **US Consumer Price Index (CPI)** is a measure of inflation representing changes in prices of goods and services purchased for consumption by households.

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Alternative investments are speculative and involve substantial risks and conflicts of interest. An investor may lose some or all of their investment.

Alternative investments may not be appropriate for all investors. This document does not constitute an offer to purchase any securities or obtain investment advisory services. The risks associated with alternative investments arise from several factors, depending on the specific type of investment.

Some alternative investments:

- Use leverage and other speculative strategies that may increase the risk of loss
- Are impacted by fluctuations in interest rates, currency values or credit quality
- Do not provide periodic pricing or valuation information to investors
- May delay distribution of important tax information
- May charge high fees

Before investing in a fund, review the detailed explanation of risks as well as all other information in the offering materials. Central Park Group does not provide tax or legal advice. Please contact your tax and legal advisors regarding your specific situation.

There are risks associated with investing in alternatives. There is no assurance that objectives will be achieved or that an investment program will be successful. Investors in access funds bear an additional layer of fees and expenses. All investments in securities involve risk of the loss of capital. Alternative investments are sold to qualified investors only by a Confidential Offering Memorandum or Prospectus. Alternative investments provide limited liquidity and include, among other things, the risks inherent in investing in securities and derivatives, using leverage and engaging in short sales. An investment in an alternative investment fund is speculative, involves substantial risks and should not constitute a complete investment program. An alternative investment fund may be highly leveraged and the volatility of the price of its interests may be significant. Alternative investments may involve complex tax structures and there may be delays in distributing important tax information.

Alternative investment funds may not be subject to the same regulatory requirements as mutual funds, and their fees and expenses may be high. This summary is for informational purposes only and does not constitute an offer to sell or a solicitation of an offer to buy interests in any fund. Interests are not deposits or obligations of, or guaranteed or endorsed by, any bank or other insured depository institution, and are not federally insured by the Federal Deposit Insurance Corporation, the Federal Reserve Board or any other governmental agency.

Investors must have the financial ability, sophistication/experience, and willingness to bear the risks of an investment in private market securities. Such securities may be available only to qualified, sophisticated investors, may have liquidity constraints, and may bear the risk of investment in private markets securities.

Private market investments may entail a high degree of risk and investment results may vary substantially on a monthly, quarterly or annual basis. Among many risk factors, some are particularly notable. These include, without limitation, the general economic environment, the health of the housing market, employment levels, the availability of financing, the quality of servicing the assets backing the securities, the seniority and credit enhancement levels for structured securities, government actions or initiatives, and the impact of legal and regulatory developments. Additionally, private markets strategies may represent speculative investments and an investor could lose all or a substantial portion of his/her investment.

Investing involves risk, including the possible loss of principal.

Past performance does not guarantee future results.

Diversification may not protect against market risk.

Fixed income securities can lose value, and investors can lose principal as interest rates rise. They also may be affected by economic conditions that hinder an issuer's ability to make interest and principal payments on its debt. This includes prepayment risk, the risk that the principal of a bond that is held by a portfolio will be prepaid prior to maturity at the time when interest rates are lower than what the bond was paying. A portfolio may then have to reinvest that money at a lower interest rate.

High yielding, non-investment-grade bonds (junk bonds) involve higher risk than investment grade bonds. The high yield secondary market is particularly susceptible to liquidity problems when institutional investors, such as mutual funds and certain other financial institutions, temporarily stop buying bonds for regulatory, financial, or other reasons. In addition, a less liquid secondary market makes it more difficult to obtain precise valuations of the high yield securities.

Investments in small and/or medium-sized companies typically exhibit greater risk and higher volatility than larger, more established companies.

International investments entail risks including fluctuation in currency values, differences in accounting principles, or economic or political instability. Investing in emerging markets can be riskier than investing in established foreign markets due to increased volatility, lower trading volume, and higher risk of market closures. In many emerging markets, there is substantially less publicly available information and the available information may be incomplete or misleading. Legal claims are generally more difficult to pursue.

IBOR risk is the risk that changes related to the use of the London interbank offered rate (LIBOR) or similar rates (such as EONIA) could have adverse impacts on financial instruments that reference these rates. The abandonment of these rates and transition to alternative rates could affect the value and liquidity of instruments that reference them and could affect investment strategy performance.

The disruptions caused by natural disasters, pandemics, or similar events could prevent the Fund from executing advantageous investment decisions in a timely manner and could negatively impact the Fund's ability to achieve its investment objective and the value of the Fund's investments.

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