

TOP 10

Investor Questions

You asked, we're answering. This year, our Q&A speaks to the complexity of issues the market and investors are tackling.

TOP 10 INVESTOR QUESTIONS

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About this time every year, we answer some of the most frequently asked investor questions. There is no shortage of topics as geopolitical risk, inflation concerns and even the pandemic continue to be factors in financial market performance.

With global equities and multiple fixed income asset classes off to their worst start of the year since the 1970s, we address several concerns and highlight positive catalysts that we believe can propel markets higher.

As we turn to the second half of the year, we remain confident in the expectation for positive global growth in 2022. Recent market performance has certainly been at odds with fundamentals; however, the conclusions from our investment process continue to paint a brighter picture than performance suggests. Some of the developments we are watching include the:

- pace of monetary tightening from global central banks;
- unwinding supply chain bottlenecks;
- path of earnings revisions;
- stimulus measures in China; and
- ongoing labor market recovery.

In this edition of *Strategy Insights*, we address 10 key questions that investors may have on their minds currently. It is a wide-ranging list, which speaks volumes about the complexity of issues the market and investors are tackling this year. We hope you find this useful, timely and insightful.

The common theme across investor questions this year – inflation’s impact on the multi-asset universe.



DANIEL J. BRADY
Chief Investment Strategist

WE REMAIN CONFIDENT IN THE
EXPECTATION FOR POSITIVE
GLOBAL GROWTH IN 2022.

2022 MARKETS BY THE NUMBERS

8.6%

MAY 2022

Highest Consumer Price Index reading since 1981



3,248

JANUARY 2022

MSCI World Index all-time high



-23.4%

JUNE 2022

Largest MSCI World Index drawdown from all-time highs since 2015/2016



\$8.97T

JUNE 2022

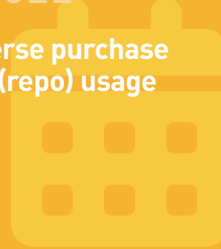
Largest Federal Reserve balance sheet



\$2.26T

JUNE 2022

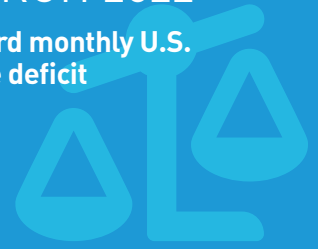
Record reverse purchase agreement (repo) usage



-\$108B

MARCH 2022

Record monthly U.S. trade deficit



75

BASIS POINTS

Largest Federal Reserve rate hike since 1994



67

DAYS

Longest stretch of bond market volatility (MOVE Index) above 100 since 2009



\$540

MARCH 2022

Highest price of UK natural gas on record (therms per contract)



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#1 WHERE ARE WE IN THE BUSINESS CYCLE?

Understanding where we are in the business cycle is a critical factor in making investment decisions. It provides a framework for determining which investment styles, factors or other drivers could potentially influence markets in the near term. As we entered 2022, we detected a shift was underway in the business cycle from a broad, accelerating market recovery toward a more narrowly driven decelerating expansion where economic growth was likely to slow but remain positive.

The decelerating expansion phase of the last business cycle ended abruptly in early 2020 as the pandemic drove economic shutdowns across the globe. While these lockdowns caused a severe economic contraction in the United States (and elsewhere), it only lasted three months, the shortest U.S. recession on record. The subsequent recovery in 2021 propelled markets toward one of their best years in history. However, lingering effects of the pandemic continue to disrupt supply chains. Combined with unprecedented levels of fiscal and monetary stimulus, these factors have pushed inflation to decade highs.

Investors have been keenly focused on the Federal Reserve's (Fed's) path toward tightening monetary policy to contain elevated inflation. We believe anticipation surrounding expected Fed actions has been the primary driver of recent heightened market volatility and has led to a sharp reversal in both the stock and bond markets this year. As economic growth moderates and monetary accommodations are removed, the escalating crisis in Ukraine has intensified inflationary pressures due to surging commodity prices, further complicating the Fed's quest to contain inflation.

While the May Consumer Price Index (CPI) reading increased to an annualized rate of 8.6%, the Fed has vowed to move aggressively to stabilize prices. The Fed has raised the fed funds rate by 150 basis points (bps) since March and has indicated an additional

75 bp increase is expected at the July Federal Open Market Committee meeting, with subsequent increases dependent on future economic data. Investors are increasingly speculating whether the Fed's monetary tightening efforts will severely weaken demand and push the economy into a recession. We continue to believe recession fears are premature given our business cycle analysis.

ANTICIPATION SURROUNDING EXPECTED FED ACTIONS HAS BEEN THE PRIMARY DRIVER OF RECENT HEIGHTENED MARKET VOLATILITY

Even with the headwinds facing investors, most of the leading indicators we track suggest continued global economic growth, albeit at a slower pace. According to revised International Monetary Fund forecasts, global GDP is now expected to slow from 6.1% in 2021 to 3.6% in 2022 versus previous estimates of 4.9%. The Russia-Ukraine war has set back the global economic recovery and fueled higher inflation. Consensus earnings growth estimates for the MSCI All Country World Index, representing approximately 85% of global equities, remains positive at 5.5% in 2022, following 47.5% growth in 2021.

In contrast to economic fundamentals, market-based indicators have been under significant pressure. Valuations have compressed rapidly this year due to the abrupt increase in interest rates, and technical indicators appear challenged. We believe much of the pullback in markets is due to the sudden shift in monetary policy and not to an imminent slowdown or impending recession.

Labor market strength continues to be a strong driver of the cycle. Jobs increased by 390,000 in the May payroll report, wages grew 5.2% year over year and the labor participation rate firmed to 62.3%. Although this was the lowest monthly job gain since April 2021, we are now 822,000 jobs away from reaching pre-pandemic

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levels. The unemployment rate is at the pre-pandemic low of 3.5%. We believe strong household savings and corporate balance sheets should help dampen the impact of higher prices and keep economic growth positive. Consumers have more than \$2 trillion in excess savings on hand, and corporations' leverage has been trending lower.

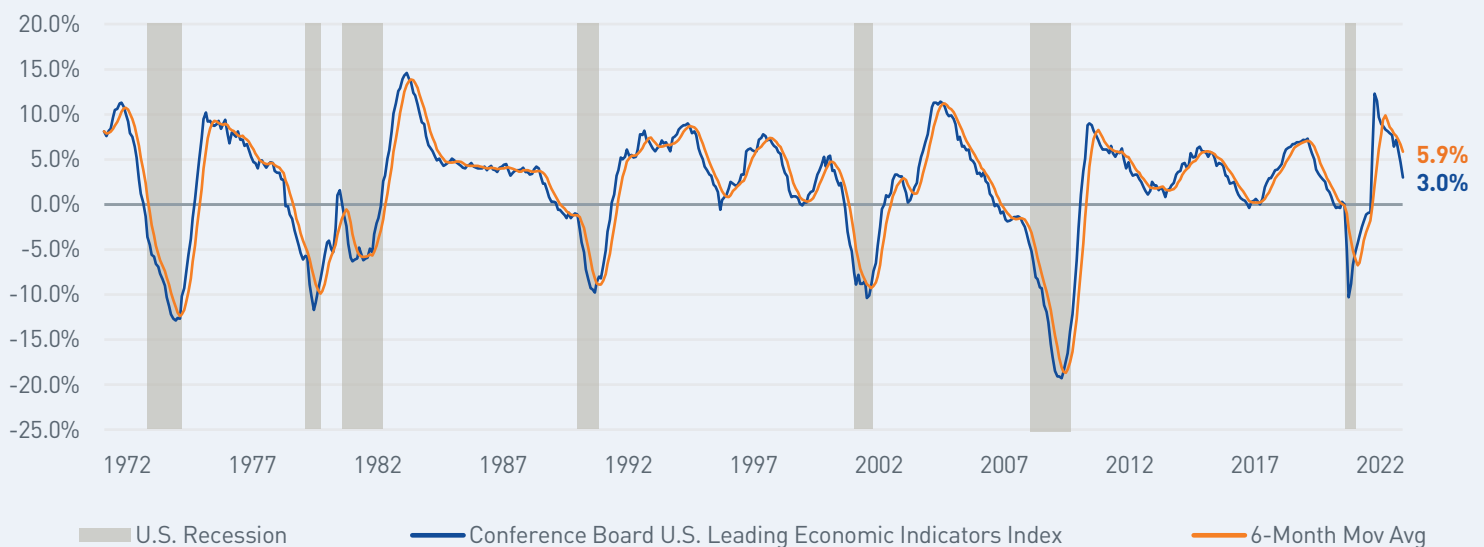
From a leading economic indicator (LEI) perspective, the Conference Board U.S. Leading Economic Indicators Index rolling six-month average remains positive (Figure 1). However, the index has been modestly declining since October 2021 after increasing every month for the previous 11 months. The index has benefited from improvements in jobless claims, consumer and manufacturing goods orders, and building permits, while consumer sentiment has continued to worsen to levels last seen during the financial crisis.

THE CONFERENCE BOARD U.S. LEADING ECONOMIC INDICATORS INDEX HAS BEEN MODESTLY DECLINING SINCE OCTOBER 2021

In our view, when growth begins to slow, market leadership tends to shift toward higher-quality companies that can grow earnings in a slowing environment. Companies with attractive profitability metrics and the size and scale to manage increasing costs and maintain margins are more likely to fare better in this environment, in our view. Given the broad-based drawdown in equity markets as valuations have adjusted to higher interest rates, we believe it is a favorable time to opportunistically rebalance portfolio exposures that may have drifted away from tactical asset allocation targets.

We continue to monitor the progress of the global recovery with an eye on earnings and the health of the job market. The global growth outlook has begun to moderate, and persistent levels of inflation have caused a dramatic shift in monetary policy as global central banks tighten financial conditions. However, many parts of the globe are still not fully recovered from the pandemic and resulting lockdowns. Key determinants for the path forward include supply chain normalization and easing inflation pressures.

Figure 1. Conference Board U.S. Leading Economic Indicators Index
Leading indicators remain positive but have begun to tick down



As of 5/31/2022. Source: Bloomberg, L.P.

#2 WHAT IMPACT COULD MIDTERM ELECTIONS HAVE ON MARKETS?

U.S. midterm elections are looming less than five months away. While we contend politics do not drive markets in the long run, we still believe it is important to dive into the political landscape to determine what is at stake.

After two years of a “blue wave” in Washington, D.C., it is widely expected voters will drive a return to a Republican majority in Congress, repeating trends of the 2014 election. Historically, the only time in the past 50 years that a first-term presidential party did not lose midterm congressional seats was in 2002 under President George W. Bush.

This year, Democrats also must contend with inflation at its highest level in 40 years, a global economy amid a slowing expansion, a war between Russia and Ukraine and gasoline prices at all-time highs. The correlation between presidential approval polls and gas prices over the past 30 years is greater than 0.80. As such, Democrats may find it challenging to maintain their majority for another two years. However, we believe Democrats have several options to rally support ahead of election day.

- **Revival of the Build Back Better plan** – The measure was passed by the House in November 2021 but has not been voted on by the Senate. If passed in its current form, the bill would include drug price savings and green energy subsidies along with approximately \$1 trillion in tax increases, all spread over a 10-year period. One of the bottlenecks in the Senate is on the details of the green energy subsidies; however, considering the Russia-Ukraine war, the focus on energy security may allow some compromise to get the bill passed.
- **Options to lower gasoline prices** – The national average price of regular unleaded gas a year ago was barely \$3.00 per gallon compared to \$4.95 as of June 21. Not surprisingly, consumer sentiment is at its worst level since 2011 when there were fears of a double-dip recession in the United States, and the European Union was on the brink as well. While the Biden Administration has sought to release significant amounts of the Strategic Petroleum Reserve, other measures could include permitting more Iranian oil into the global market or discussions with Saudi Arabia to increase production. As it stands, rising inflation is the top concern in consumer sentiment surveys, largely owing to rising fuel costs.



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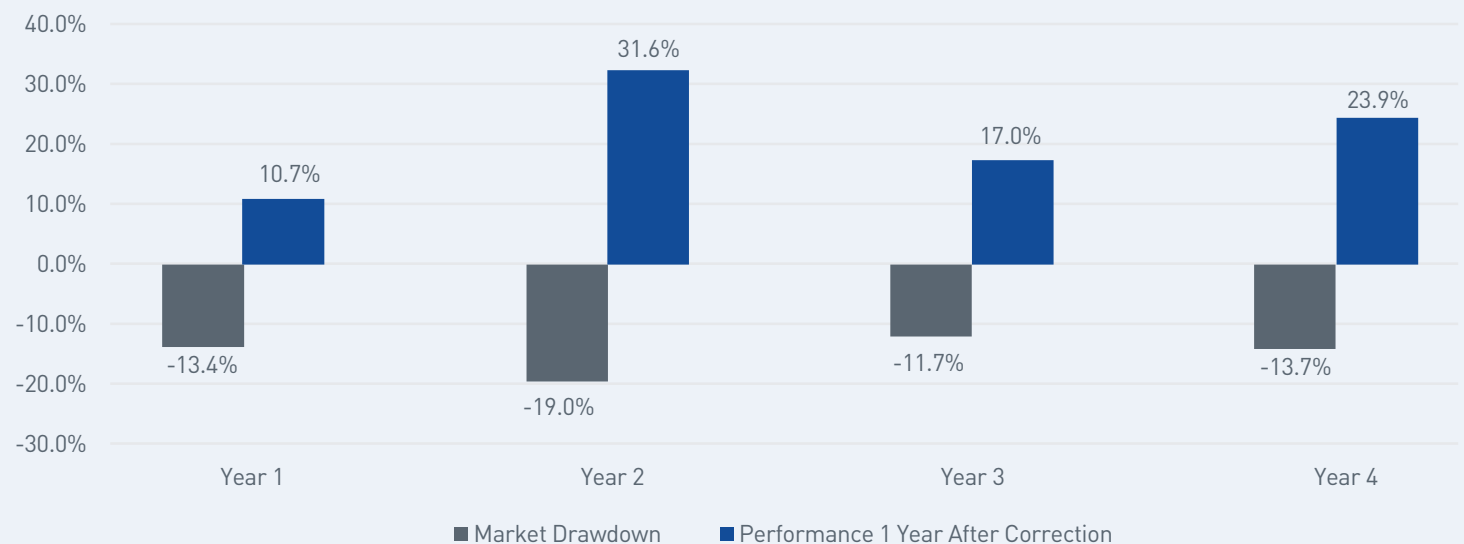
Given the high bar set by the 2020 congressional election, should Democrats come up short this year, we do not expect policies such as energy transition, drug price reforms or student lending support to become major agenda items over the next two years. Instead, it could lead to support for traditional fossil fuel infrastructure and defense spending, which would be tailwinds for the Energy, Materials and Industrials sectors. In addition, expectations for corporate tax increases would likely also diminish, which would benefit corporations with large cash positions overseas, especially in the Communication Services and Information Technology sectors.

From a market-based lens, performance for 2022 has tracked the average of other first-term presidencies. Since 1962, during the first year of a president's term that experienced a 10% or greater pullback, the following year had an average drawdown of 19%. This is very close to what the S&P 500® has returned this year, through June 21. Additionally, the year following those large drawdowns (year three) delivered average returns of 32% (Figure 2). Since 1946, there has never been a third year with negative returns, and the average return has been 15.1%.

Should the blue wave be undone during midterm elections, we believe there are positive factors on the horizon that could aid Democrats during the 2024 presidential election. First, the Fed should be done tightening monetary policy by 2023. In fact, as a result of Fed actions thus far, significant tightening of financial conditions has already occurred as equity valuations have compressed rapidly over the past few months. Second, inflation is expected to fall dramatically in the coming months, with consensus estimates for CPI averaging just 3.1% in 2023. Part of the expected decrease is simply due to year-over-year comparisons, but in our view the primary reason is due to the unwinding of supply chain bottlenecks from COVID-19.

FROM A MARKET-BASED LENS, S&P 500 PERFORMANCE FOR 2022 HAS TRACKED HISTORICAL ELECTION CYCLES.

Figure 2. S&P 500 Pullbacks and 1-Year Performance by Presidential Cycle (1962 - 2020)
2022 year-to-date performance is tracking historical patterns so far



As of 12/31/2020. Source: Strategas Research Partners Inc.

#3 WHAT IS THE OUTLOOK FOR GLOBAL EARNINGS AND EQUITY VALUATIONS?

While global growth has begun to moderate in some regions, and persistent levels of high inflation have caused a dramatic shift in monetary policy, fundamental investors may be baffled as earnings expectations have remained resilient in the face of many headwinds. No major asset class is expecting negative earnings growth in 2022 or 2023 (Figure 3). Profit margins are not expected to decline much this year either. Using the S&P 1500[®] as an example, even with inflation at 40-year highs in the United States, profit margins are only expected to contract modestly by approximately 50 bps in 2022, according to FactSet[®] data through June 21. In our view, much of the consensus expectation is based on elevated inflation fading throughout the rest of the year as supply chain bottlenecks improve and the pandemic fades.

One of the key reasons we maintain a positive outlook on earnings is due to the health of corporate balance sheets. Over the past 20 years, net leverage (net debt/EBITDA) has declined 75%, according to Bloomberg data. Furthermore, of the top-10 companies in the S&P 500 by market capitalization today, eight have cash in excess of liabilities.

While the earnings growth outlook remains solid, valuations have contracted as if the market was expecting a recession. We encourage investors to examine a variety of scenarios, based on both the trajectory of earnings estimates as well as a range of valuations. Figure 4 analyzes current next-12-month (NTM) earnings, a “mild” recession scenario of a 10% decline in estimates and a 25% drop, which is the average over the past three recessions, across various price-to-earnings (P/E) multiples. The analysis produces a wide range of outcomes, but note if the earnings outlook stays constant and multiples expand by even two turns, it would imply a meaningful increase in price. Inflation and earnings multiples have a negative correlation, therefore, much of the outcome for valuations depends on the path of inflation. Inflation surprises to the upside remain a risk to our outlook.

Valuations continued to compress across the market cap spectrum in June. The S&P 500 forward P/E of 15.8 times (x) is below pre-pandemic levels. Large cap, the S&P 400 MidCap[®] and the Russell 2000 continue to experience valuation compression below their long-term averages.

We believe the equity valuation adjustment in recent months has provided investors with an opportunity in several asset classes. We believe areas such as U.S. large cap equity and styles such as quality, where companies tend to have stronger balance sheets and profitability metrics, look attractive in this high-volatility environment where valuations have contracted relative to steady earnings expectations.

Figure 3. Consensus Earnings Growth Expectations (%)
Earnings expectations remain positive

	2022E	2023E
S&P 500	9.3	9.1
S&P Midcap 400	14.2	6.3
Russell 2000	33.2	19.6
MSCI World Ex USA	6.5	4.2
MSCI World Ex USA Small Cap	11.6	11.4
MSCI EM (ex Russia)	3.8	5.3

As of 6/21/2022. Source: FactSet[®]. FactSet[®] is a registered trademark of FactSet Research Systems Inc. and its affiliates

Figure 4. Implied S&P 500 Price Level Using EPS and P/E
Modest multiple expansion could lead to price upside

Hypothetical Scenario		Price to Earnings (P/E)				
EPS		12.0x	14.0x	15.5x	18.0x	20.0x
\$180	25% downside	2,160	2,520	2,790	3,240	3,600
\$216	10% downside	2,592	3,024	3,348	3,888	4,320
\$240	NTM consensus estimate	2,880	3,360	3,720	4,320	4,800
\$264	10% upside	3,168	3,696	4,092	4,752	5,280
\$300	25% upside	3,600	4,200	4,650	5,400	6,000

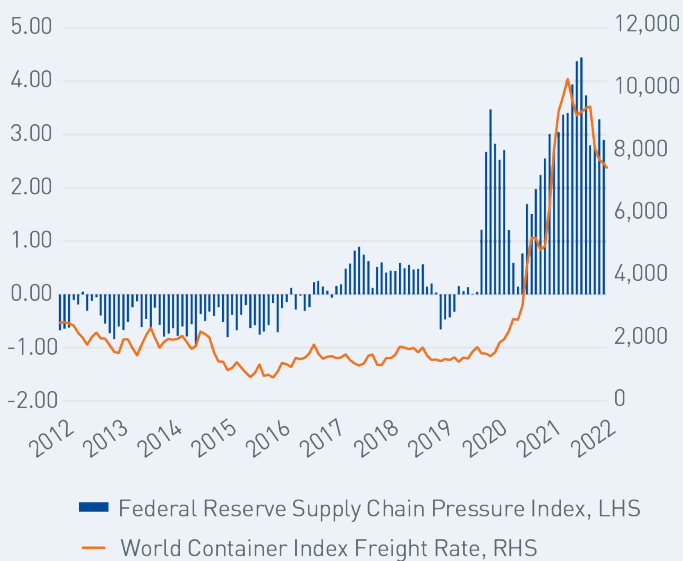
As of 6/21/2022. Source: FactSet[®], PNC

#4 WHAT SUPPLY CHAIN ACTIVITIES ARE YOU MONITORING FOR PEAK INFLATION?

More than two years after the onset of the pandemic, supply chain disruptions continue fanning the flames of inflation and remain a drag on economic growth. The war in Ukraine is further complicating global supply chain challenges. Against this backdrop, it is reasonable to wonder what the duration of these supply chain disruptions might be and to what extent are ongoing geopolitical tensions exacerbating this dynamic.

The World Container Index shows the cost of shipping goods has been abating since October 2021, falling by more than 25% from peak levels. Yet, despite declining container rates, costs remain five times higher compared to pre-pandemic levels. Consistent with shipping rates, the Federal Reserve Supply Chain Pressure Index, a more forward-looking indicator consisting of shipping, trucking, labor statistics and purchasing manager index survey data, is off its peak but remains elevated (Figure 5).

Figure 5. Supply Chain Indicators
Global supply chains improving, but far from normal

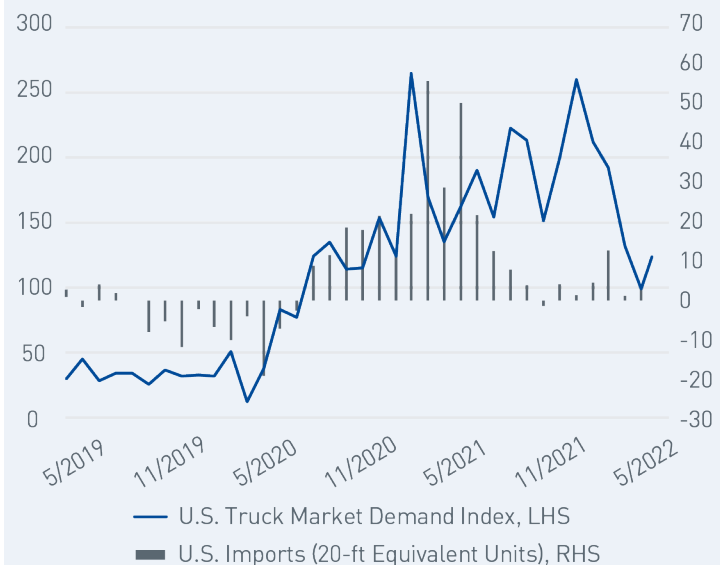


As of 6/21/2022. Source: Bloomberg, L.P.

U.S. household spending, which represents 15% of global GDP, was bolstered by \$2 trillion in excess savings and \$5.5 trillion in fiscal stimulus at the start of the pandemic. The bulk of that discretionary spending power was channeled into manufactured goods such as televisions, home appliances and automobiles, as service-based industries such as travel and live entertainment came to a halt. However, the just-in-time business inventory system could not keep pace due to uneven labor availability.

As COVID-19 eases in many regions and restrictions are lifted, we expect consumer spending on services to increase and potentially relieve demand — not to mention supply chain — stress from goods-based industries. For example, demand for commercial trucks in the United States surged during the pandemic due to low inventory levels and high consumer demand. According to Bloomberg data, it appears this pent-up demand has finally begun to normalize (Figure 6). As

Figure 6. Commercial Truck Supply & Demand
Pent-up demand for trucks finally appears to be easing



As of 5/20/2022. Source: Bloomberg, L.P.

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we move into summer, we expect demand-side stress on automotive supply chains to moderate further as consumers shift spending back to services. We saw a glimpse of this trend in the May CPI print, which showed monthly services inflation rising 0.6%, a year-over-year increase of 5.2%, the largest surge since 1991.

On the supply side, however, bottlenecks persist. From raw materials to semiconductors and finished consumer goods, there is either a shortage of products or they are not making their way to factories, showrooms and store shelves fast enough. As a result, this is making high prices stickier via cost-push inflation, which has yet to abate. We see three main reasons for persistent supply chain disruptions, none of which have easy or predictable fixes: the manufacturing environment in China, semiconductor shortages and the war in Ukraine.

China

China — the world's largest exporter with 14% of global exports — is experiencing a rocky recovery from the pandemic. The January Omicron outbreak triggered a tight lockdown of manufacturing hubs, leading to upward pressure on consumer prices and a slowdown in trade. For now, Chinese officials continue to adhere to their “dynamic zero” COVID-19 policy, meaning economic activity in an infected area can unpredictably cease, just as it did two years ago.

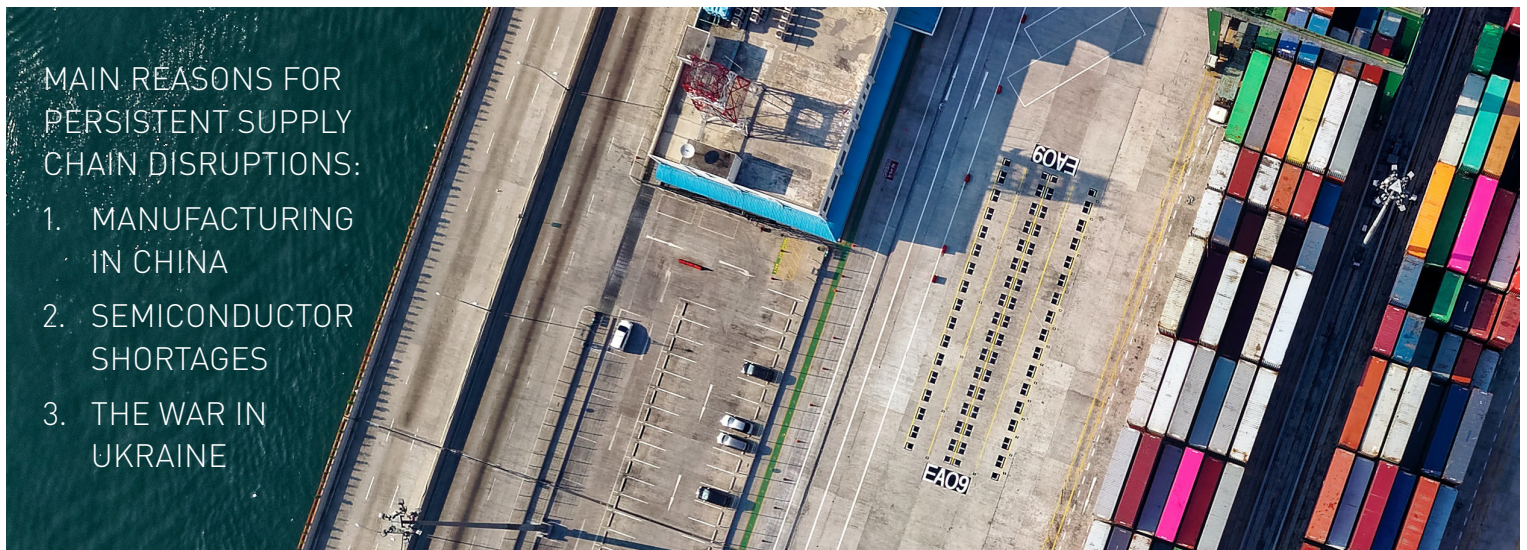
Semiconductors

Supply chains continue to be heavily impacted by the semiconductor shortage, a key input in everything from cars and factory machinery to dishwashers and medical devices. According to Bloomberg data, there is still a 27-week lead time for semiconductor manufacturing. In contrast, pre-pandemic, it was less than half that time. On the inventory side, the U.S. Department of Commerce released a survey in January showing chip makers have a median inventory of five days of supply compared to 40 days in 2019. Further pressure is coming from businesses' inventory management systems as many move from “just-in-time” to “just-in-case,” often doubling or tripling orders.

The question remains: when will we see an end to the chip shortage? We believe the recovery may come gradually as adding new capacity takes a significant amount of time. The Chief Financial Officer of NXP Semiconductors, a Dutch company that generates more than 50% of its revenue from selling chips to the auto industry, highlighted in a recent earnings call that the company is servicing only 20% of their order book. Furthermore, he expects the demand/supply mismatch to last beyond 2022, a view that has been echoed by industry peers. Companies from Taiwan Semiconductor to Samsung and Intel are upping their capital spending plans but have said it will take at least two to three years before new capacity comes online.

MAIN REASONS FOR PERSISTENT SUPPLY CHAIN DISRUPTIONS:

1. MANUFACTURING
IN CHINA
2. SEMICONDUCTOR
SHORTAGES
3. THE WAR IN
UKRAINE



The Russia-Ukraine War

From oil and natural gas to fertilizers, wheat and palladium, Russia and Ukraine are key commodity producers for the world. For example, Ukraine produces more than 50% of the world's semiconductor-grade neon, a gas critical for lasers used to make semiconductors. The war caused the country's entire neon production to shut down in March.

We expect supply disruptions across the commodity value chain to continue as the situation in Ukraine remains unpredictable. We believe the economic spillovers of the war will impact the European Union most, not only by virtue of geographic proximity, but also due to trade linkages as the region depends on Russia for 40% of its natural gas, 27% of its oil and 46% of its coal. From February 24, when the war began, to June 21, the MSCI Europe Index has trailed the S&P 500 by an annualized 401 bps.

The global inflation outlook remains volatile as geopolitical headwinds continue to pressure prices. While war and political crises — even those with broad and lasting real-world effects — often have shorter-term impacts on equity markets, it is important to frame our investment implications with a geopolitical risk premium in mind.

In an environment of volatile inflation, how should investors position their portfolios? We believe investors should remain invested and look to several asset classes that typically fare better during periods of high inflation.

Equities remain, in our view, the best hedge against inflation. We prefer real assets that pay a quality dividend such as real estate investment trusts (REITs) and emerging market equities given their exposure to commodities. Within private investments, real estate and infrastructure investments often have projects with contractual inflation adjustments built into their pricing. In fixed income, we believe slowing economic growth and rising macro uncertainties warrant credit exposure, especially with the flexibility of an unconstrained strategy. While uncertainty persists, we believe a tight labor market will continue to support consumer demand and the broader economy.

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WE EXPECT SUPPLY DISRUPTIONS
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#5 WHAT IS THE MARKET IMPLYING ABOUT FUTURE FED RATE HIKE AND BALANCE SHEET REDUCTIONS?

The “Fed Pivot,” as dubbed by many to explain the about-face in the Fed’s approach to monetary policy starting in late 2021, has been a key contributor to elevated volatility in markets this year. At the onset of the pandemic, the Fed quickly poured billions of dollars into the financial system through quantitative easing and a number of liquidity facilities to reassure investors during a period of unprecedented volatility. Now that the global health crisis has eased relative to March 2020, the market’s path forward depends largely on the Fed’s next steps regarding its plan for rate hikes and reducing its nearly \$9 trillion balance sheet through quantitative tightening or QT.

Over the past few months, markets have effectively priced in most expected rate hikes from the Fed, with the 10-year U.S. Treasury (UST) more than doubling from 1.50% at the start of 2022 to a high of 3.47% on June 21. Due to uncertainty about future monetary policy, in addition to numerous macro headwinds, investors remain unsure about the consequences of both active and passive reductions of USTs and mortgage-backed securities (MBS).

The markets had plenty of advance notice about the Fed’s monetary policy changes; however, the recent aggressive turn in the pace and magnitude of interest rate increases has taken markets by surprise. Last November, markets expected only two to three hikes in 2022. By January, it had increased to three to four. Then shortly thereafter, it jumped to eight to 10 hikes! In our view, the changing nature of fed funds expectations made it especially challenging to determine a terminal rate, and as a result, equity prices and valuations contracted rapidly.

For perspective, in the past 30 years, the only time a recession occurred shortly after the end of a tightening cycle was the 2001 recession (Figure 7). The average rate hike cycle took almost 18 months with an average percentage increase of 2.30%. From this cycle’s starting point of 0.25%, with the 25 bp

hike in March, the 50 bp hike in May and the 75 bp hike in June, that is already an increase of 1.75%. Should the Fed raise its rate another 75 bps in July as is widely expected, and possibly another 100 bps by year end, it would reach the historical average in less than a year.

Regarding QT, it is a recent phenomenon, having only been employed once — by the Fed from 2017-2019. Because QT decreases liquidity, it can create friction in fixed income and equity markets as well as the financial plumbing itself, which in our view is part of the cause of investor alarm. The Fed has tried to learn from past QT mistakes. For example, during the last QT period, declining liquidity levels caused overnight repo rates to spike dramatically, prompting emergency Fed intervention. As a result, the Fed established a permanent repo facility, and there are now more than \$2 trillion in repo assets, making a liquidity crunch far less likely.

Figure 7. Federal Reserve Rate Hike History
Hiking cycles do not always end in recession

Period	Starting Rate	Ending Rate	Number of Hikes	Recession in Next 12 Months?
Feb. 1993 - 1995	3.00%	6.00%	7	No
Mar 1997	5.25%	5.50%	1	No
June 1999 - May 2000	4.75%	6.50%	6	Yes
June 2004 - 2006	1.00%	5.25%	17	No
Dec. 2015 - 2018	0%	2.50%	9	No

Average duration: 1.4 years

Average number of hikes: 8

As of 6/21/2022. Source: Bloomberg, L.P.

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There are key similarities and differences between this QT and the last one. In 2017, the Fed's balance sheet was \$4.5 trillion, and the Fed shrank its balance sheet at a peak rate of \$50 billion per month, or 1.1%. The current QT rate is also expected to be 1.1%, but this time it is from a \$9 trillion base with an expected reduction of \$95 billion per month. Balance sheet composition, however, is starkly different. In 2019, the balance sheet was composed of 56% USTs, 40% MBS and a de minimis allocation in federal agencies and credit facilities. As of May 31, 2022, the Fed held 65% in USTs and only 30% in MBS. The run-off thresholds (known as caps) are also different. During the prior QT cycle, caps started at \$6 billion and \$4 billion for USTs and MBS, eventually reaching \$30 billion and \$20 billion, respectively. This cycle, caps will start at \$30 billion and \$17.5 billion and top out at \$60 billion and \$35 billion (Figure 8).

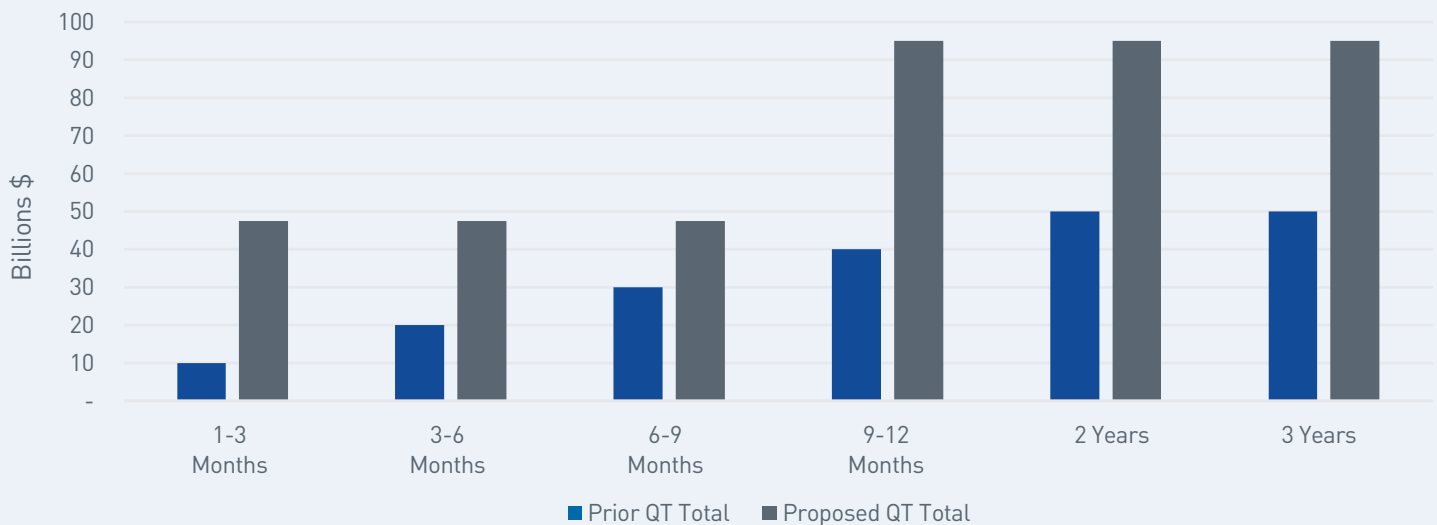
From an investment lens, we believe only an extreme scenario, such as the Fed actively selling securities, could pressure long-term UST rates higher. Fed Chair Powell has hinted this could be a potential issue for MBS, and with mortgage rates already at 14-year highs, it could prevent the housing market from attracting new first-time homebuyers.

From an equity market perspective, the comparison to the 2017-2019 period is mixed. While valuations contracted during the last QT period, markets today have already experienced a far greater valuation adjustment than what occurred previously. The other difference is that the U.S. dollar strengthened rapidly during 2018, creating a challenging period for global equities; however, this year, the dollar has not only strengthened rapidly, but also global equities have outperformed U.S. equities. Therefore, relying purely on the past is not an exact science. If the Fed becomes more aggressive in its balance sheet plans, it could create a material headwind for equities; however, we view this as an unlikely scenario.

FROM AN INVESTMENT LENS,
ONLY AN EXTREME SCENARIO
COULD PRESSURE LONG-TERM
UST RATES HIGHER.

Figure 8. Fed Balance Sheet Reduction Schedule

Run-off thresholds are higher than the prior QT cycle due to the larger balance sheet



As of 6/21/2022. Source: U.S. Federal Reserve, PNC

#6 IS THE HOUSING MARKET OVERHEATED?

As the economy began the road to recovery from the initial shock of the pandemic in mid-2020, one area that roared higher was housing. It is an important industry to gauge the health of consumers for several reasons. Not only is a home usually the largest purchase one will ever make (cumulative tuition payments aside!), but it is also about 33% of CPI. Additionally, “fixed residential investment” accounts for about 15% of GDP including the ancillary industries involved in building and maintaining a home.

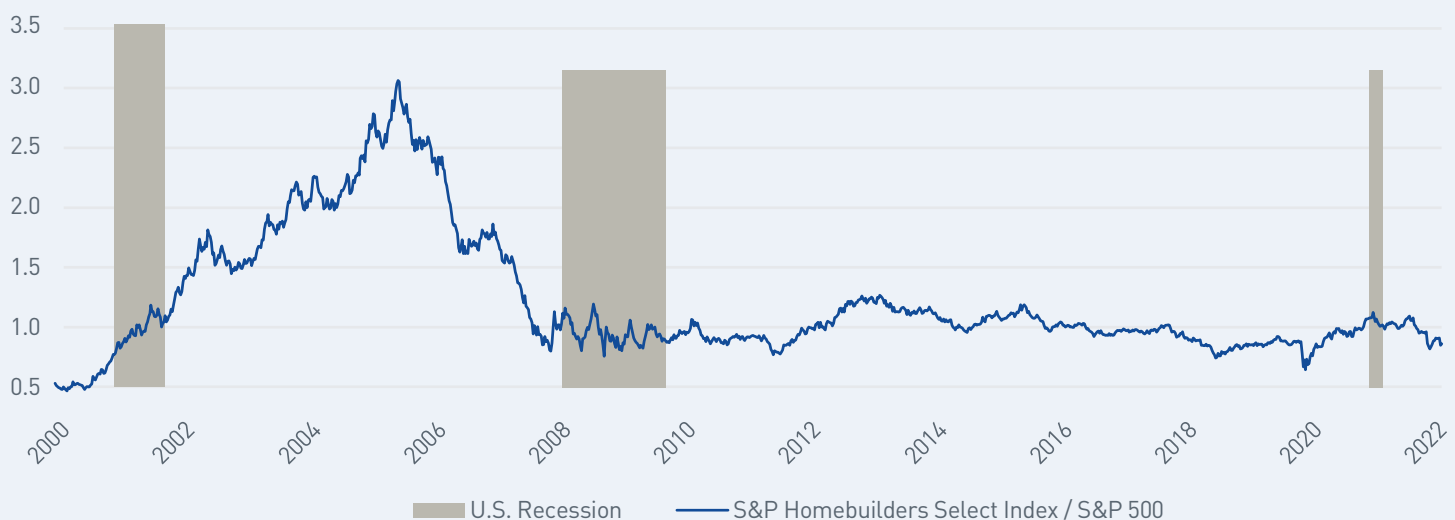
As a result, the S&P Homebuilder Select Index is a closely watched proxy for the health of the housing industry, composed of approximately 65% Consumer Discretionary stocks, 25% Industrials and 10% Materials. Despite the continued strength in consumer spending and decent health of corporate earnings, the Homebuilders Index is lagging the S&P 1500 by more than 1,797 bps this year through June 21 (Figure 9).

Homebuilders are a highly cyclical and volatile industry. The industry is typically a leader in the recovery and accelerating expansion phases of the business cycle, during which time it has historically outperformed. However, when the cycle slows or contracts, it typically lags. Given we are in the slowing expansion phase of the cycle, we are not surprised to see the industry underperform. However, recent underperformance appears to be causing concern among investors. With mortgage rates spiking to the highest level in more than 10 years and home prices near all-time highs, the concern is understandable.

In terms of indicators for the homebuilding industry, the National Association of Home Builders Market Index, a proxy for homebuilder confidence, recently fell to 67 in June, the lowest reading since June 2020. In addition, the Housing Affordability Index for First Time Homebuyers not only fell below 100 — implying housing is not affordable for a 10% down payment based on current salary and home price data — but it is also the lowest level since the fourth quarter of 2008, according to Bloomberg data.

Figure 9. S&P Homebuilders Select Index vs. S&P 500

Cyclical homebuilder stocks typically lag the market in a slowing expansion



As of 6/17/2022. Source: Bloomberg, L.P.

TOP 10 INVESTOR QUESTIONS

The cause of continued increases in home prices is akin to the oil market — inventories have been at extremely low levels for the last few years and unable to match demand. While anecdotally, some people are moving out of urban areas in favor of more space, and the rise of work-from-home is also allowing the flexibility to move to new regions altogether, we believe the primary driver of high home prices is the persistent lack of inventory. This dynamic had been building throughout much of the prior cycle and was compounded by the pandemic and economic lockdowns. For example, in recent months, new and existing home sales months of supply was at less than two months. However, the most recent monthly reading jumped to the highest level since 2019. While one month does not make a trend, it is an area of the housing market we are monitoring closely.

If first-time homebuyers are in a challenging position in this environment, it may suggest home purchase activity is coming from the existing pool of homeowners, given most have positive equity, as well as investors such as private equity and real estate firms. Even now, with mortgage rates at the highest level in more than 10 years, 33% of mortgage applications are for refinancing purposes through the end of May. In our view, this could suggest existing homeowners are using those funds for renovations to further increase their home's value.

Leading indicators are starting to show signs of fatigue. Building permits, an indicator of the intent to build for example, grew in May by 0.2% on a year-over-year basis, down from a 3.3% growth rate in April. Similarly, the housing starts reading in May was -3.5% versus 20.3% in April, the first negative print for the indicator since May 2020.

Despite the macro risks facing investors this year, we believe an overextended housing market is not one of them. Consumer leverage remains well below prior cycle levels, as seen by savings rates and debt burden levels. Rather we believe the lack of inventory has been driving prices higher recently, a supply/demand mix that may take some time to normalize.

DESPITE THE MACRO RISKS FACING
INVESTORS THIS YEAR, WE BELIEVE AN
OVEREXTENDED HOUSING MARKET IS
NOT ONE OF THEM



#7 IS ALTERNATIVE ENERGY MAKING PROGRESS AGAINST FOSSIL FUELS?

Fossil fuels, including coal, oil and natural gas, have been powering world economies for more than 150 years. In 2021, fossil fuels made up 87% of the world's primary energy consumption and 75% of its energy production. In contrast, low-carbon sources, including nuclear, hydropower, wind, solar and biomass, made up 21% of production, which has more than doubled over the last 40 years (Figure 10).

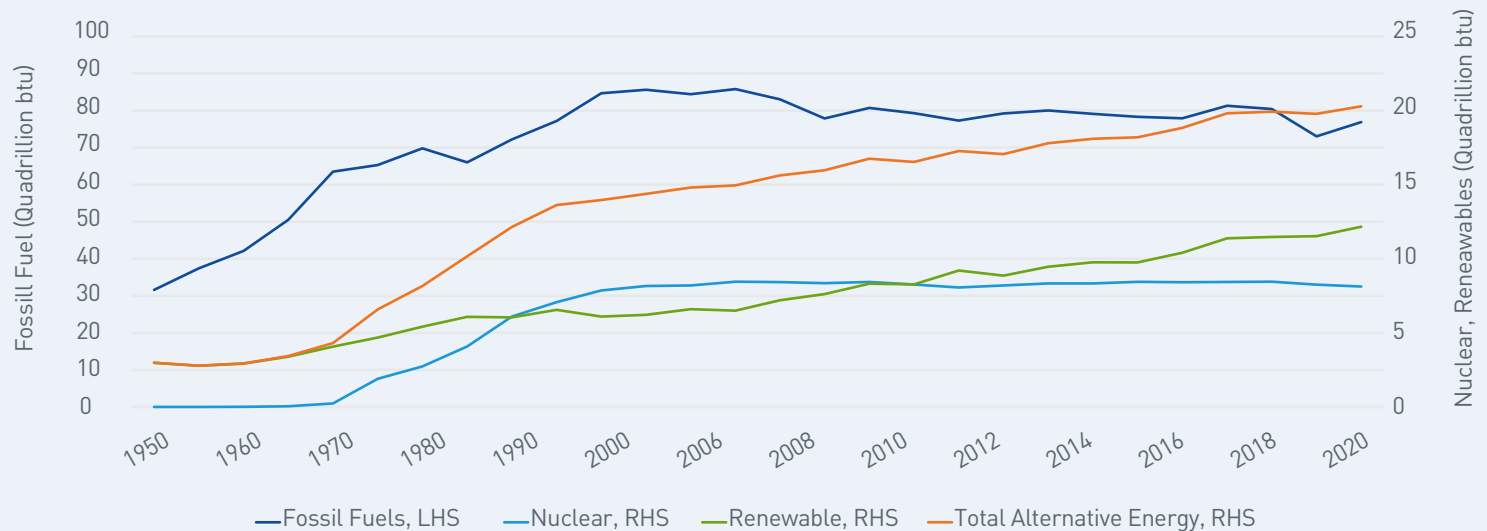
While fossil fuels still dominate, alternative energy sources are rapidly gaining ground, and the call from governments and investors for carbon neutrality is increasing. Of the 191 countries committed to the 2015 Paris Agreement, more than 150 have submitted new or updated "nationally determined contributions." These countries account for nearly 90% of current global emissions. The three largest emitters — China, the United States and India — are committed to net-zero carbon emissions by 2060, 2050 and 2070,

respectively. In addition, more than 130 countries have set or are considering a target to reach net-zero by around mid-century. Approximately two-thirds of companies in the S&P 500 have set targets to reduce greenhouse gas emissions as well, and more than 90% have published sustainability reports, up from 20% in 2011.

We view the global regulatory and corporate commitments to carbon neutrality as a secular tailwind for alternative energy. Efforts are already driving capital spending and technological innovation in this area. On the credit side alone, there is over \$2 trillion of corporate and government debt invested in alternative energy globally, up from \$600 billion 10 years ago. We believe further announcements from countries or companies could serve as positive catalysts in the medium to longer term.

Figure 10. Energy Consumption by Fuel Source

Alternative energies are still lagging fossil fuel but continue to gain momentum



As of 12/31/2022. Source: Bloomberg, L.P.

TOP 10 INVESTOR QUESTIONS

We expect continued growth in global renewable energy deployments, which are increasingly driven by economic decisions. Solar and wind have become profitable versus traditional power sources in many regions of the world. Furthermore, new storage technology has the potential to help renewables overcome intermittency challenges. The price of batteries for electric cars has also been plummeting much faster than expected. We view this as a crucial development as building cars that run on electricity instead of gasoline will be an important part of reaching carbon-neutral goals. Despite this progress, we believe the path to a renewables-powered energy economy will be lengthy for two main reasons: energy security and scalable economic feasibility.

The war in Ukraine and the potential weaponization of fossil fuel supplies by Russia has brought energy security into the mix of factors investors will have to contend with. From an economic standpoint, consumers prefer the most affordable, reliable and convenient energies. Mineral energies are dense and have built-in storage, while wind and solar are dilute and intermittent. There is no scalable substitute for oil and natural gas in terms of availability and efficiency. Although the supply

THE PATH TO A RENEWABLES-POWERED ENERGY ECONOMY WILL BE LENGTHY FOR TWO MAIN REASONS: ENERGY SECURITY AND SCALABLE ECONOMIC FEASIBILITY.

is finite, oil is plentiful and the technology to extract it continues to improve, making it ever-more economic to produce and use. The same is also largely true for natural gas.

Alternative energy is a critical component to a cleaner environment and a sustainable global economy, in our view. However, we believe understanding the replaceability aspects of fossil fuels and having realistic expectations about an orderly energy transition will continue to offer investment opportunities in both traditional and alternative energy.



#8 IS THIS THE END OF THE BOND BULL MARKET?

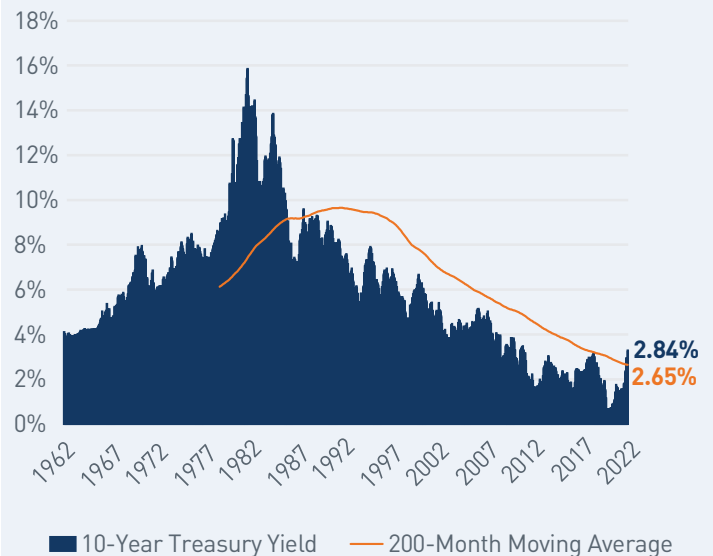
Markets have experienced major upheavals over the past six months with inflation at 40-year highs, heightened geopolitical conflicts, a continued global pandemic and layered supply chain disruptions — all of which are threatening to end a three-decade-long bull run for bond prices. Investors have become accustomed to lower interest rates for decades. The fed funds rate has remained near 0% for 11 of the past 14 years, 30-year mortgage rates have not seen double-digits since 1990 and the 10-year UST has been in a downward trend since 1989. For fixed income investors, lower yields have translated into higher prices, pushing bond valuations up.

Rates have surged so far in 2022, with many yields across the curve doubling in less than six months. The upward pressure on rates pushed the 10-year yield above its 200-month moving average in April, breaking a nearly 33-year-long downward trend (Figure 11). Despite this move, we do not believe this shift is indicative of a long-term shift higher in rates. First, as economic growth slows, interest rates in investment grade countries such as the United States tend to decline rather than move higher. Second, we believe there are other factors that will work to keep long-term rates from meaningfully increasing.

A key determinant of how high yields rise will stem from market expectations for the fed funds rate; the 2-year UST yield serves as a useful proxy. As of June 21, the 2-year yield was 3.21%, effectively signaling market expectations of a longer-term terminal yield around 3.25%. With the effective fed funds rate already sitting at 1.75% after just three increases, investors appear to doubt the sustainability of the Fed's aggressive tightening actions, implying only 150 basis points (bps) more of rate increases, which is less than the 175 bps the Fed signaled it will deliver in the next six months.

The narrow runway markets are granting the Fed regarding short-term rates also applies to longer-

Figure 11. 10-Year UST Yield
The end of an era? Decades-long trendline broken



As of 6/21/2022. Source: Bloomberg, L.P.

term rates, as the three-month correlation between the fed funds rate and the 10-year UST yield, and between the 2-year and 10-year UST yields is 0.93 and 0.98, respectively from January 1975 – May 2022. In our view, such strong correlations provide a guidepost for where long-term rates are likely to end up. And despite climbing higher in recent months, both the fed funds and 2-year UST yield remain low relative to history. If markets are correct and the fed funds rate reaches 3.25%, then this would imply most of the shock from future rate increases has already been absorbed by markets. We believe only unanticipated moves higher in the fed funds rate or a complete reversal in Fed guidance would push longer-term yields meaningfully higher from current levels.

The path of tightening, especially the frequency and magnitude of rate hikes, remains murky as economic data continues to suggest a tight labor market with high inflation and slowing manufacturing. Eurodollar

TOP 10 INVESTOR QUESTIONS

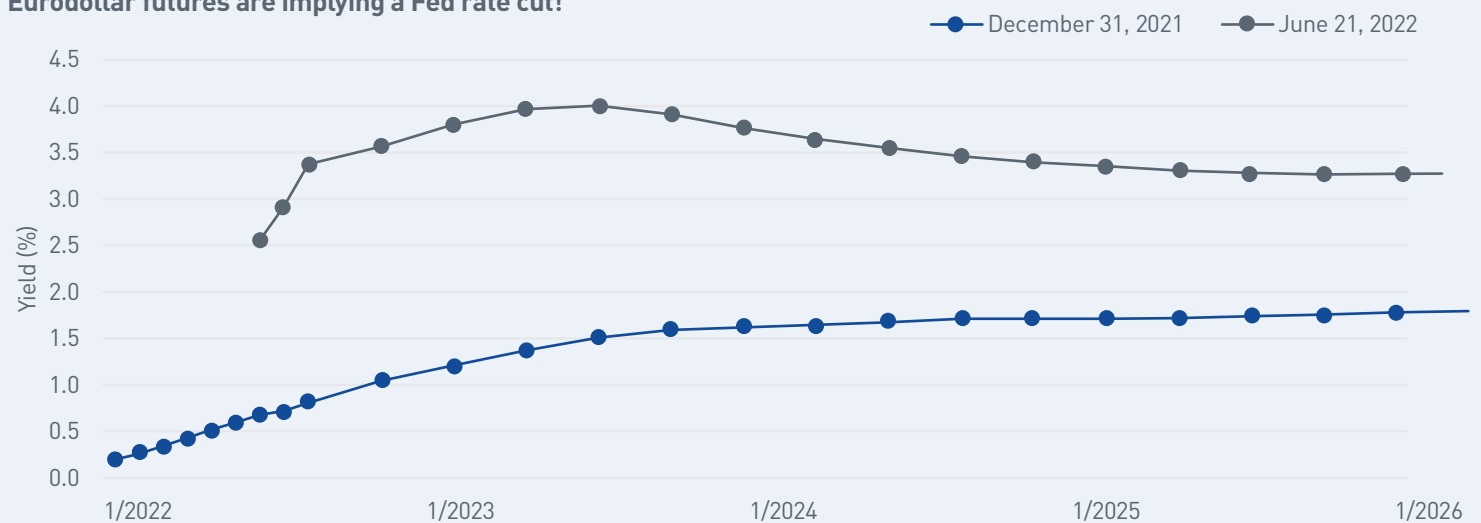
futures, which represent dollar-denominated deposits at banks outside the United States, are another gauge of market expectations for future interest rates. They gained prominence during the Cold War era and have become one of the largest short-term money markets in the world over the past 70 years. As of June 21, the Eurodollar futures market is implying a fed funds rate cut will take place in mid-2023 (Figure 12)! Given the prospects for aggressive Fed tightening followed by expectations for rate cuts in the next 12 months, we believe this is an additional indication the market is not giving the Fed much room to raise rates. This should help keep downward pressure on rates across the curve.

One component of fixed income yields is future expectations for inflation. Breakeven UST rates are a helpful tool in this regard as they represent consensus expectations for inflation over the next two, five and 10-year periods. For the past 20 years, longer-term inflation expectations, reflected in both five- and 10-year breakeven rates, have been anchored around 2%, consistent with the Fed's long-run estimates. Across all maturities, breakeven rates are at their highest levels since record-keeping began. They reached a peak at the end of March when oil prices soared, and supply chains faced further stress due to Russia's invasion of Ukraine.

Although higher breakevens imply nominal UST rates will need to move and stay higher to compensate investors, rates have come down after peaking at the end of March. The five- and 10-year breakeven rates have both dipped below 3%, at 2.86% and 2.60% as of June 21, respectively. In our view, falling breakeven rates are beginning to align more with long-term Fed inflation targets, a signal that inflation expectations have not become unanchored. This is a positive sign for bond yields suggesting they are not likely to move materially higher in the foreseeable future.

Based on our analysis, we do not believe the bond bull market is over. While yields have risen, the fundamentals supporting fixed income and the economy in general remain intact. The strong positive relationship between short-term and long-term yields, the rate cut implied by Eurodollar futures and decreasing breakeven rates all point to a market that has priced in future rate hikes and digested higher inflation levels. We believe fixed income remains a crucial part of a well-diversified portfolio as the asset class provides income generation as well as the potential for price appreciation. Opportunities abound in the asset class, and we continue to believe active management, especially in credit sectors, remains paramount as yields across qualities look attractive.

Figure 12. Eurodollar Futures
Eurodollar futures are implying a Fed rate cut!



As of 6/21/2022. Source: Bloomberg, L.P.

#9 GIVEN THE VOLATILITY IN PUBLIC MARKETS, ARE THERE OPPORTUNITIES IN PRIVATE MARKETS?

At a time when the expected returns of traditional, publicly traded asset classes are below historical norms and volatility remains elevated, we believe it has become increasingly important to consider the role of private alternatives in investment portfolios. In our view, alternative investments provide investors access to a broad opportunity set beyond what is typically available in public markets and have the potential to meaningfully enhance a portfolio's returns while diversifying its sources of risk. However, private investors must accept added liquidity risk in exchange for reduced market volatility risk and greater return potential.

In a growth- and yield-seeking world, private equity (including venture capital) and debt continue to provide value by offering excess return relative to public markets and alternative sources of yield. Private debt and real estate opportunities have offered attractive yield in the current environment in addition to higher expected total returns compared to fixed income. Even with rising interest rates in fixed income, the Bloomberg Aggregate Bond Index is yielding just 3.5%. Structured notes are another private investment option for investors looking to buffer volatility while maintaining public market exposure.

Private Debt

In volatile environments, private debt may offer relative stability with returns that have historically exceeded those of traditional fixed income. Additionally, private debt generally has a low correlation to other asset classes. Middle-market lending in the corporate sector is still quite constrained, creating opportunities for private debt investors. We continue to see favorable reward-risk dynamics as there is a substantial illiquidity premium for taking on unrated, smaller-sized loans.

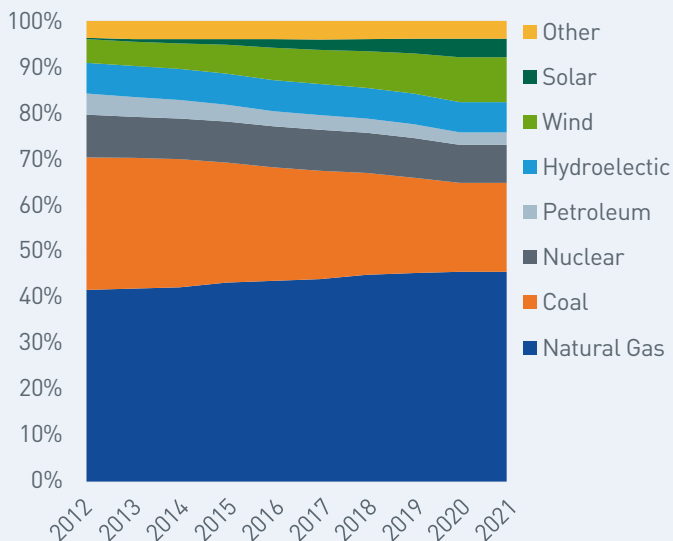
Private Real Estate

The pandemic created tailwinds for some real estate sectors, such as specialty and self-storage, but has posed tremendous headwinds to others, such as the office sector. We believe the pandemic-induced shake-up could ultimately present compelling opportunities for astute managers. Given the high degree of heterogeneity in private real estate, we prefer managers focused on opportunistic, value-added strategies as opposed to simply income generation.

Private Infrastructure

Private infrastructure offers an attractive hybrid investment structure with both fixed income and equity characteristics. This asset class has historically provided downside risk protection, and cash flows are typically indexed to inflation, allowing it to play a key defensive role in portfolios. We see increasing opportunities for private infrastructure as global project supply remains robust due to decades of low investment. For example, as new sources of energy gain traction and become more efficient, the entire energy grid is going to require an overhaul (Figure 13, p 21). In our view, this is not just a renewable energy story, as there is an urgent need to repair and upgrade systems and methods of transporting energy that rely on a complex supply chain. The Russia-Ukraine conflict has shown how much of the global economy remains dependent on outdated systems to deliver basic services such as electricity and fuel. We believe the evolution towards increasing renewable energy sources has created numerous opportunities.

Figure 13. Energy Consumption by Fuel Type
World energy consumption still relies on fossil fuels



As of 12/31/2021. Source: Bloomberg, L.P.

investment recommendations. We believe the use of structured notes has the potential to enhance portfolio returns, provide greater coupon income than traditional fixed income instruments and may provide downside protection to buffer heightened levels of market volatility.

The fundamental shifts in the investment landscape over the past several years have strengthened the environment for private investment opportunities and investor demand for alternatives. We believe leveraged investments, such as private alternatives, will continue to attract additional capital as interest rates remain at historical long-term lows. Additionally, increasing mergers, acquisitions, company buyout activity and heightened volatility across traditional asset classes may create new pockets of opportunity for their alternative investment counterparts. These themes underscore the critical role alternatives can play in helping investors meet their longer-term goals, as well as the importance of diversifying allocations to these asset classes across multiple vintage years and multiple strategies.

Hedge Funds

Given our expectations for sustained high market volatility, rising (yet historically low) interest rates and slowing expansion of the business cycle, certain hedge fund strategies may be able to capitalize on market inefficiencies. However, the market remains vulnerable to the influences of macro factors, namely from the pandemic and geopolitics, as well as from high stock correlations. Searching for uncorrelated returns remains a challenge when an entire asset class is moving in the same direction. This environment can prove challenging for active managers and niche hedge fund strategies where security selection drives excess returns. Encouragingly, the intra-stock correlation of S&P 500 constituents has fallen back to its longer-term average.

Structured Notes

Investors may also seek to incorporate non-traditional, derivative solutions such as options and structured notes to address certain portfolio goals. These derivative strategies can be used to hedge or monetize concentrated equity holdings, manage portfolio income or manage risk while implementing specific

THE FUNDAMENTAL SHIFT IN THE INVESTMENT LANDSCAPE OVER THE PAST SEVERAL YEARS HAS STRENGTHENED THE ENVIRONMENT FOR PRIVATE INVESTMENT OPPORTUNITIES AND INVESTOR DEMAND FOR ALTERNATIVES

#10 HAVE WE ENTERED A NEW “CRYPTO WINTER?”

With the Bloomberg Galaxy Crypto Index down 76% from its all-time high in November 2021 through June 21, 2022, many investors are wondering if this level of volatility is simply par for the course in cryptocurrency (crypto) markets or if the severe selloff is due to idiosyncratic risks.

For crypto investors, the phrase “crypto winter” describes the period following bitcoin’s meteoric rise and fall that led to depressed crypto prices from late 2017 to well into 2019. Many investors at the time expected digital assets would never recover to prior cycle highs. Crypto markets eventually more than recovered but have again fallen dramatically alongside the recent equity market pullback. We agree this could be the beginning of another crypto winter.

One of our relevant observations is that there has been a rising correlation between crypto prices and public equities, particularly growth stocks. This was not always the case earlier in the crypto lifecycle. As recently as February 2020, the Nasdaq 100 and bitcoin had a negative rolling-month correlation. However, the pair’s correlation has been positive since the start of the pandemic, reaching an all-time high in

mid-May of 0.86. Therefore, contrary to the widespread expectation that crypto should help diversify an investor’s portfolio, the selloff in public equities has worsened crypto’s recent performance, in our view.

We believe there are two other key causes of the crypto selloff that are specific to the asset class.

Stablecoins lose stability

Among the various types of crypto tokens, stablecoins usually get the least attention from investors because they are intended to maintain a pegged net asset value (NAV) rather than being subject to significant price swings. The popularity of stablecoins grew rapidly over the past year. In fact, one stablecoin, TerraUSD, reached a peak market capitalization of more than \$18 billion in early May.

Unfortunately, the recent fate of TerraUSD has cast a pall over stablecoins. TerraUSD is a slightly different breed of stablecoin compared to popular ones such as Tether and USD Coin as it is an “algorithmic” stablecoin. Instead of relying on currency reserves to maintain its \$1.00 NAV, its peg is maintained through financial engineering.

“CRYPTO WINTER” DESCRIBES THE PERIOD FOLLOWING BITCOIN’S METEORIC RISE AND FALL THAT LED TO DEPRESSED CRYPTO PRICES FROM LATE 2017 TO WELL INTO 2019.



TOP 10 INVESTOR QUESTIONS

In early May, a series of events caused the TerraUSD price to effectively “break the buck,” and the NAV plummeted to near zero within a matter of days. As a result, crypto investors using TerraUSD as collateral for leveraged positions in other investments became significantly impaired, causing forced selling to raise capital. Based on market performance during this period, we believe selling may have taken place across both cryptos and equities.

Celsius turns cold

Just as crypto markets were settling after the TerraUSD selloff, other cracks in the system appeared to form. One key event was related to the Celsius network, a popular crypto lending token offering high yields — much higher than traditional fixed income — on crypto deposits. It is important to note the yield calculation uses Celsius tokens as the base currency, not U.S. dollars, which is what enables such lofty yields. After the price of Celsius experienced two 50% declines within a two-month period, investors began to exit the network. While the network had a market capitalization of less than \$1 billion on June 1, its assets under management reached approximately \$20 billion according to glassnode.com, indicating substantial leverage. As investors rushed to exit the network, Celsius halted withdrawals. This left

many investors unable to unwind levered positions, once again leading to a broad crypto market pullback despite Celsius’s value equaling less than 0.3% of bitcoin’s market capitalization.

Where do crypto markets go from here?

We believe network effects drive value in crypto markets. Despite the pullback across the crypto ecosystem, it does not appear investors are leaving for less volatile pastures according to bitcoin hashrate data. In fact, the bitcoin hashrate is at an all-time high as of June 21, according to glassnode.com (Figure 14). A hashrate measures the aggregate computational power being used to process crypto transactions. We use this metric as a proxy for network activity because miners have a financial incentive to continue operating on the network. A declining hashrate would indicate investors are leaving the network, which is not currently the case.

While the healthy bitcoin hashrate is at odds with the prospect of a new crypto winter, we believe this indicates the recent crypto pullback has more to do with a few specific issues rather than a loss of investor confidence. Additionally, as some innovative projects emerged from learnings during the previous crypto winter (e.g., Uniswap, Compound and Chainlink to name a few) we would not be surprised to see additional innovation during the next crypto winter as well.

Figure 14. Bitcoin Hashrate vs. Price

Network activity has remained strong despite the sharp decline in price



As of 6/13/2022. Source: glassnode.com

For more information, please contact your PNC advisor.

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