



The Global Edge

Financial Insights from WisdomTree

Volatility Remains a Market Constant

November 2022

An empowering blend of global financial research and analysis, insights and macro-commentary on a breadth of today's most compelling economic and investing developments, from an international team of WisdomTree thought leaders.

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As global investors stand weeks away from the end of 2022, it is interesting to note that some things just don't change. While the financial markets seem to be endlessly waiting for some type of 'Powell Pivot' from the Federal Reserve (Fed), global central banks remain in full-tilt tightening mode. The Bank of Japan is, of course, the notable exception in the developed world.

Another constant that remains an integral part of the investment landscape is inflation. Central bankers were surely hoping for some reprieve on the price pressure front by now. While recent inflation readings in the U.S. have provided a glimpse of a potential peak, price pressures remain elevated on a global scale. In fact, with winter quickly approaching and the Organization of the Petroleum Exporting Countries Plus (OPEC+) cutting oil output, a reasonable case can be made that inflation may remain 'sticky' before the widely anticipated deceleration some time in 2023.

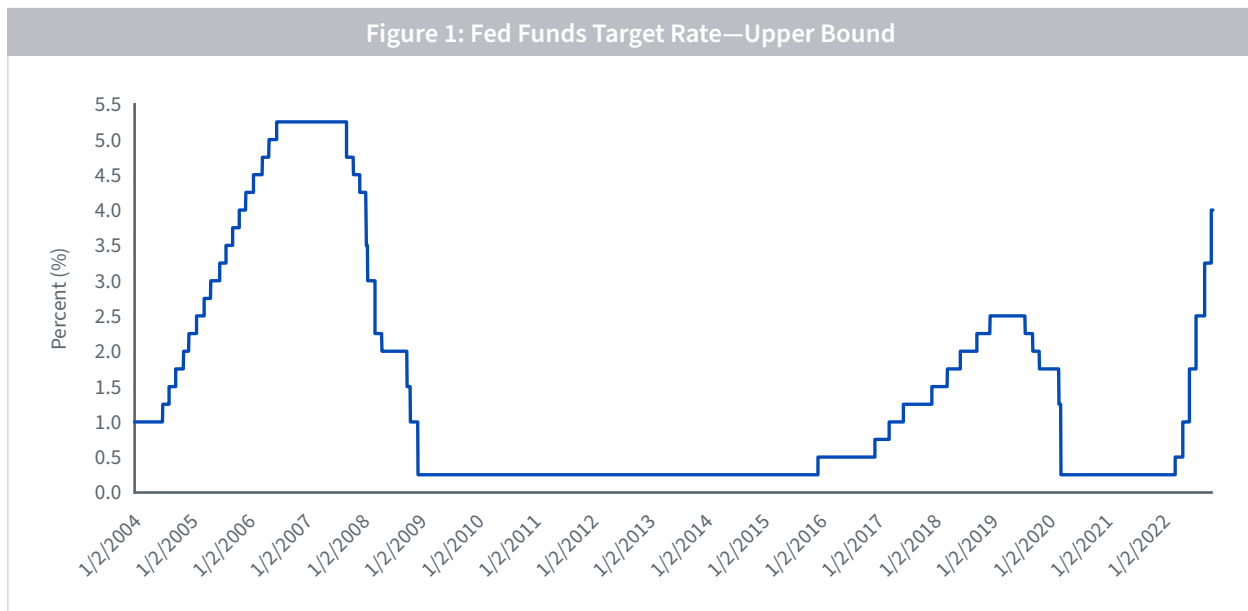
Against this backdrop, global investors continue to be confronted with a heightened degree of volatility in the equity, bond, commodities and currency arenas. The debate between fighting inflation and avoiding recession is poised to enter a new calendar year, but, for the financial markets, the answer may still prove to be elusive.

FED WATCH

As we highlighted in our prior ‘The Global Edge’ piece, [Navigating the Uncharted Waters Between Growth and Inflation](#), the Fed has been leading the charge on the tightening front within the developed market universe and has implemented the kind of rate hike cycle that investors haven’t seen since the Volcker years of the 1980s. With the most recent 75-basis points (bps) rate hike at the November Federal Open Market Committee (FOMC) meeting, the target range for Fed Funds was pushed up to 3.75%–4%.

With this latest move, the current Fed Funds target is now well above the 2.5% terminal rate of the prior rate hike cycle (2015–2018) and is at its highest level since early 2008. However, there is one enormous difference. Back in 2008, the Fed was cutting rates aggressively in response to the financial crisis and great recession, while the current rate hike regimen is attempting to fight 40-year high inflation.

Incredibly, the Volcker-esque increase this year has resulted in the Fed Funds target range going from a zero interest rate policy (ZIRP) as recently as March, to 4% in November, which is a total of 375 bps in rate hikes, as of this writing. Figure 1 highlights how this tightening cycle has compared to the prior two rate hike episodes. Although the increases of the 2004–2006 Greenspan/Bernanke era amounted to a total of 425 bps, the moves were more methodical, coming in 25-bps intervals at consecutive FOMC meetings. Powell’s first attempt at rate hikes (2015–2018) was also a deliberate approach, utilizing the quarter-point laddered tactic, but more spread out in nature.



Source: Bloomberg, as of 11/14/2022. **Historical performance is not an indication of future performance and any investments may go down in value.**

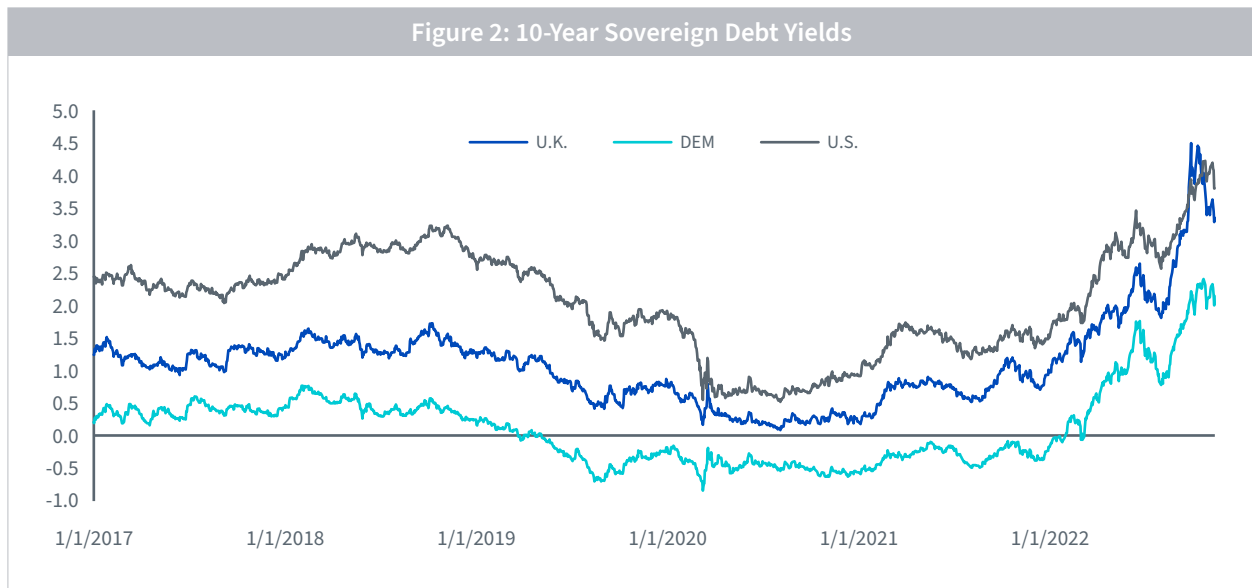
Back to the eagerly awaited Powell Pivot. For those who are unfamiliar, the phrase refers to the Fed chairman’s changing policy stance regarding inflation. First there was the shift from inflation is “transitory,” to we need to fight inflation at, essentially, all costs. With the November 75 bps-rate hike, there seems to be debate about whether the Fed could dial back their aggressive rate hike path due to economic and market-related concerns, and the fact that a lot of tightening has occurred in such a short period of time.

Monetary policy does act with a lag, so it would not be at all unreasonable to see Powell & Co. move to a less aggressive rate hike path going forward. It should be noted though that this debate centers on the Fed increasing rates by ‘only’ 50 bps, not 75 bps. In our opinion, it doesn’t make a huge difference. The focus should be on what the terminal rate is going to be and how long it will stay there. At the time of writing, Fed Funds Futures for both May and June 2023 were focused on a terminal Fed Funds target range of 4.75%-5.00%, or 100 bps above the current level. The next unknown will be whether the Fed goes into ‘raise and hold’ mode in 2023 or entertains rate cuts during the second half of next year. Based on recent Fed-speak, there seems to be a consensus at the present time to not reverse course too soon but, as we’ve seen, things can change quickly.

FIXED INCOME: THE NEXT GENERATION

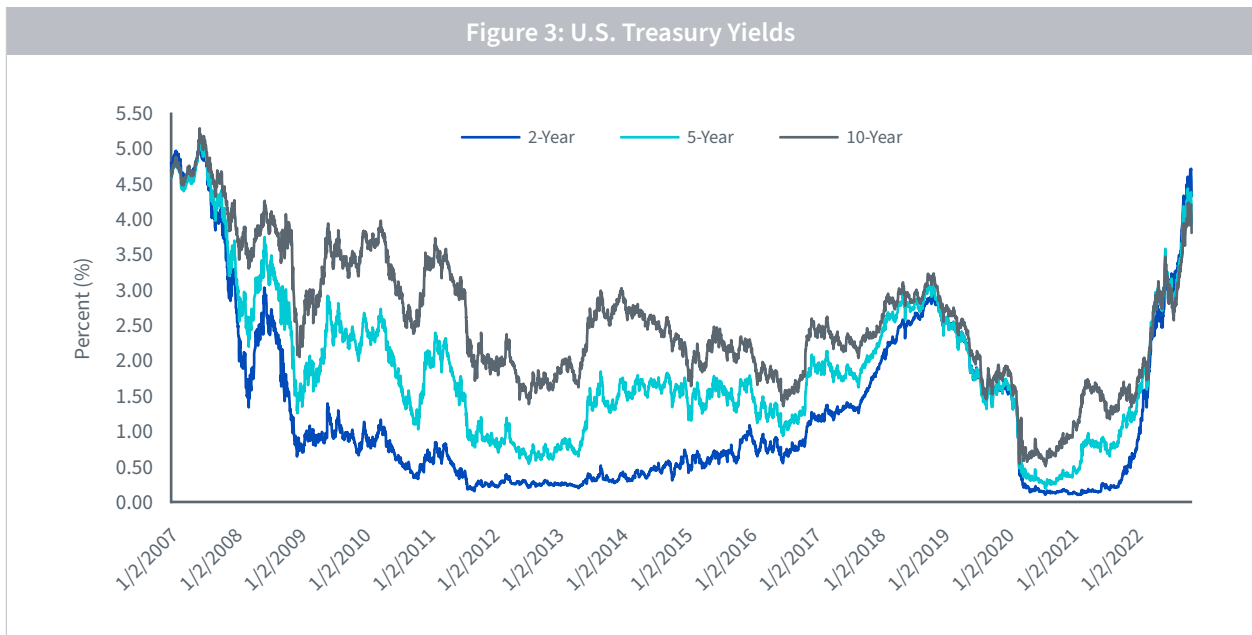
The global sovereign debt markets have arguably experienced their worst year on record. However, an interesting development has occurred in the process: the era of negative rates has seemingly drawn to a close. With the exception of Japan, government bond markets in the developed world have now seen yield levels move into positive territory for the key 2-, 5- and 10-year maturity sectors.

The closely followed 10-year sovereign debt markets for the U.S., Germany (DEM) and the U.K. have all witnessed huge rate increases in 2022, with gilt and Treasuries (UST) moving above the 4% threshold at one point and the bund yield flirting with the 2.5% mark.



Source: Bloomberg, as of 11/14/22. **Historical performance is not an indication of future performance and any investments may go down in value.**

This development has created an interesting phenomenon: income is back in fixed income. The recent rise in UST rates has brought yields to levels not seen since 2007–2008, or a period spanning roughly 15 years. In other words, there is a whole generation of investors who have never experienced UST yields at these elevated levels.



Source: Bloomberg, as of 11/14/22. **Historical performance is not an indication of future performance and any investments may go down in value.**

Is there more to come? In other words, can UST yields continue rising from here? Let’s put the answer in the context of future Fed policy. If the expectation, noted above, for a 4.75% to 5.00% Fed Funds terminal rate does come to fruition, Treasury yields will more than likely continue to rise, especially along the front end of the curve, as yields need to adjust to this potential higher Fed Funds Rate.

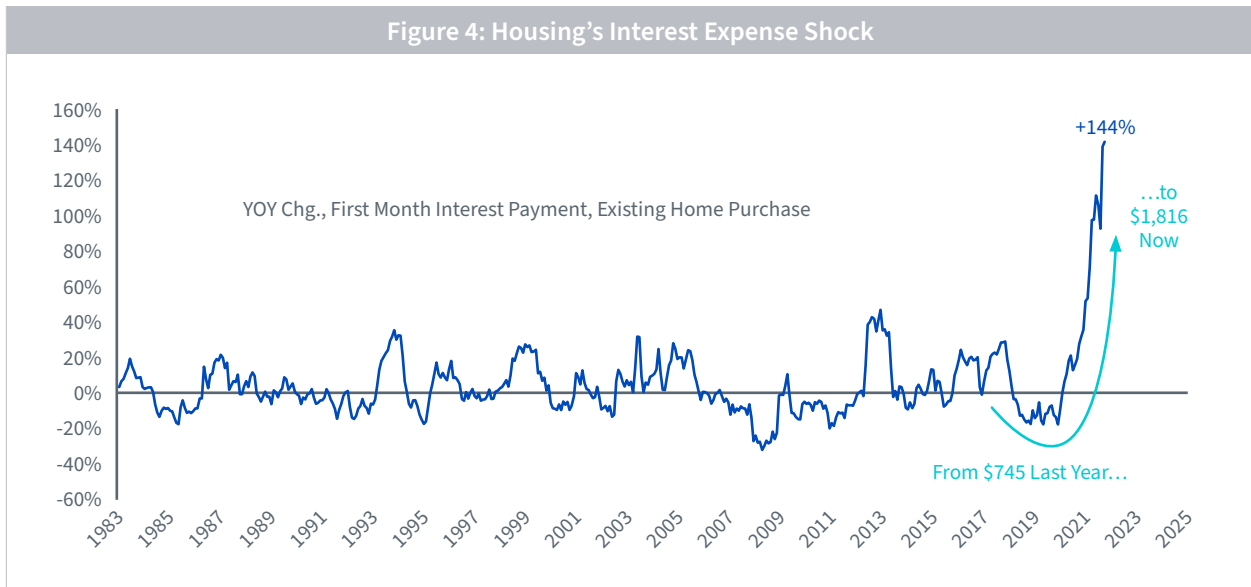
For investors, these higher UST yields, both currently and in 2023, are creating a scenario in fixed income that investors have not faced in a decade and a half. As a result, opportunity could be knocking on the door for bond investors in 2023.

U.S. EARNINGS OUTLOOK

The stock market needs to contend with the possibility that the consensus forecast for 2023 S&P 500 earnings growth fails to materialize. The culprit: housing.

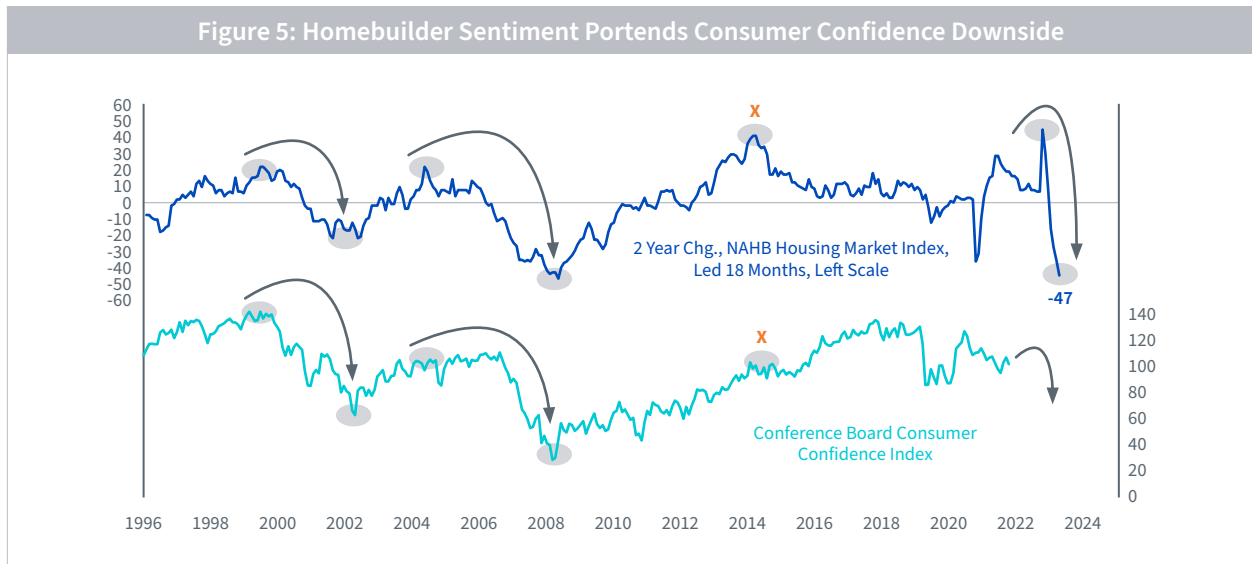
Consider the obstacle confronting the consumer’s psyche as the half-year-old housing slowdown turns into something that drones on, possibly for years.

The problem as we see it is that many on the Street still believe the top-to-bottom home price declines in this cycle will be measured in high single-digit percentages. Figure 4 is so eye-catching that you must entertain the possibility of something deeper.



Sources: Refinitiv, U.S. Census Bureau, National Association of Realtors, Freddie Mac. Interest payment assumes buyer puts a 20% down payment and takes on a 30-year conforming mortgage, using the median existing home price in September 2022. Mortgage rate as of 10/27/2022. **Forecasts are not an indicator of future performance.**

The National Association of Homebuilders (NAHB) Housing Market Index has tumbled, opening up the possibility of further deterioration in the Conference Board Consumer Confidence Index (Figure 5). The NAHB index leads the consumer index because homebuilding is extremely cyclical, and its respondents are professionals who think about economics every day. It takes a little time for the public to become more cynical as the forthcoming housing deterioration hits their consciousness.

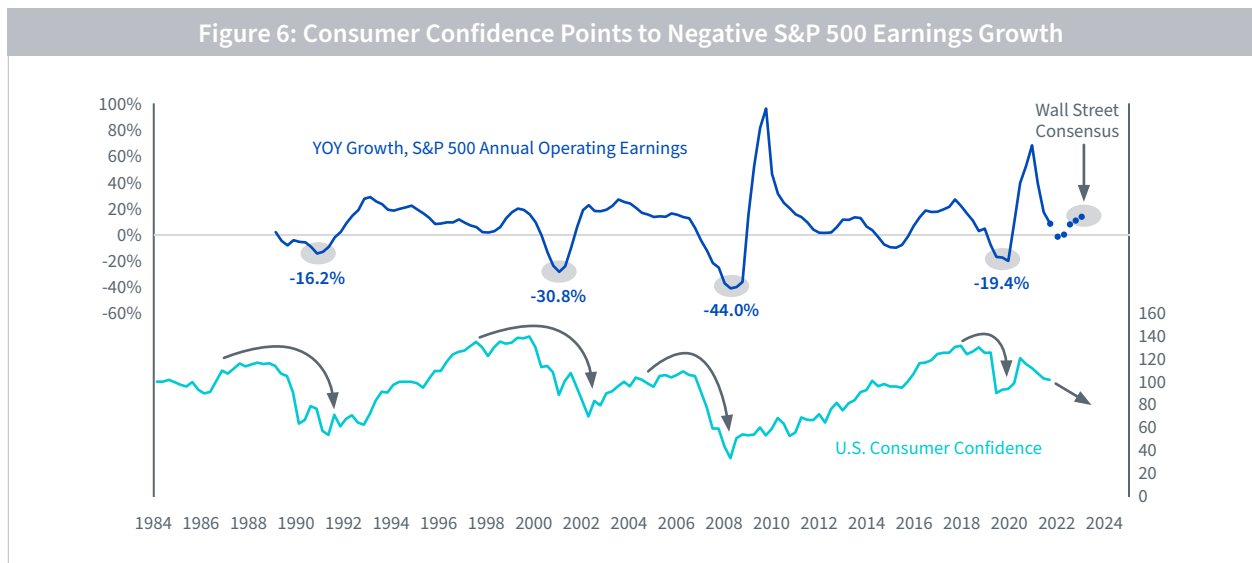


Sources: Refinitiv, National Association of Homebuilders, Conference Board, as of October 2022. **Forecasts are not an indicator of future performance.**

As consumer confidence wanes, Corporate America’s profit growth typically tags along (Figure 6). Yet the consensus is on the other side, anticipating that the \$205.55 in rolling four quarter S&P 500 earnings expected for the Q3 2022 earning season that just wrapped up will gallop along to \$232.86 for calendar 2023.

We suspect that the series may just go in the opposite direction. As the S&P’s downward revisions arrive, the market may continue to do what it has been doing: punishing growth stocks more than value stocks.

There’s an adage that may be apt: “The biggest winners in the bull market are the biggest losers in the bear market.” We suspect the housing market wants to have an uncomfortable conversation with the S&P 500 Growth Index.



Sources: Refinitiv, S&P Global, Conference Board, as of 10/26/2022 for S&P earnings, including Q3 2022 Street consensus. Consumer Confidence, as of October 2022. **Forecasts are not an indicator of future performance.**

As the broad market confronts a troubling earnings picture, another area of vulnerability appears to be indexes such as the Russell 2000. Even this deep into a yearlong bear market, the popular gauge of U.S. small caps still has 28% of its market capitalization in companies that operate in the red. This is not a market to be a hero in the industry groups that thrived during COVID-19, namely areas such as speculative biotech and the stay-at-home stocks that trounced our dividend concepts during the melt-up.

Like in small caps, investors have shunned groups such as tech and social media stocks in U.S. large cap. The primary reason for underperformance in these groups is the death of TINA and the birth of TARA.

“There Is No Alternative” to owning stocks in a world of zero-yielding bonds—TINA—was the market’s reality four percentage points ago. “There Are Reasonable Alternatives”—TARA—now that bonds throw off actual income, is why stocks that are known for high price-to-earnings (P/E) multiples and distant cash flows have struggled.

Companies that have provided respite in the form of downside capture encompass many of the sectors associated with underperformance in the multi-year bull market that ended on January 3. Energy, Utilities and Consumer Staples come to mind.

To us, a market that needs to come to terms with a housing malaise is not one that rewards pie-in-the-sky story stocks.

This is a market for dividends, for sobriety, for stable business models and for companies who are reporting profits right now. Promises of future riches worked fine when the Fed was holding rates in the basement. With overnight money threatening 4% and maybe 5%, promises don’t cut it anymore.

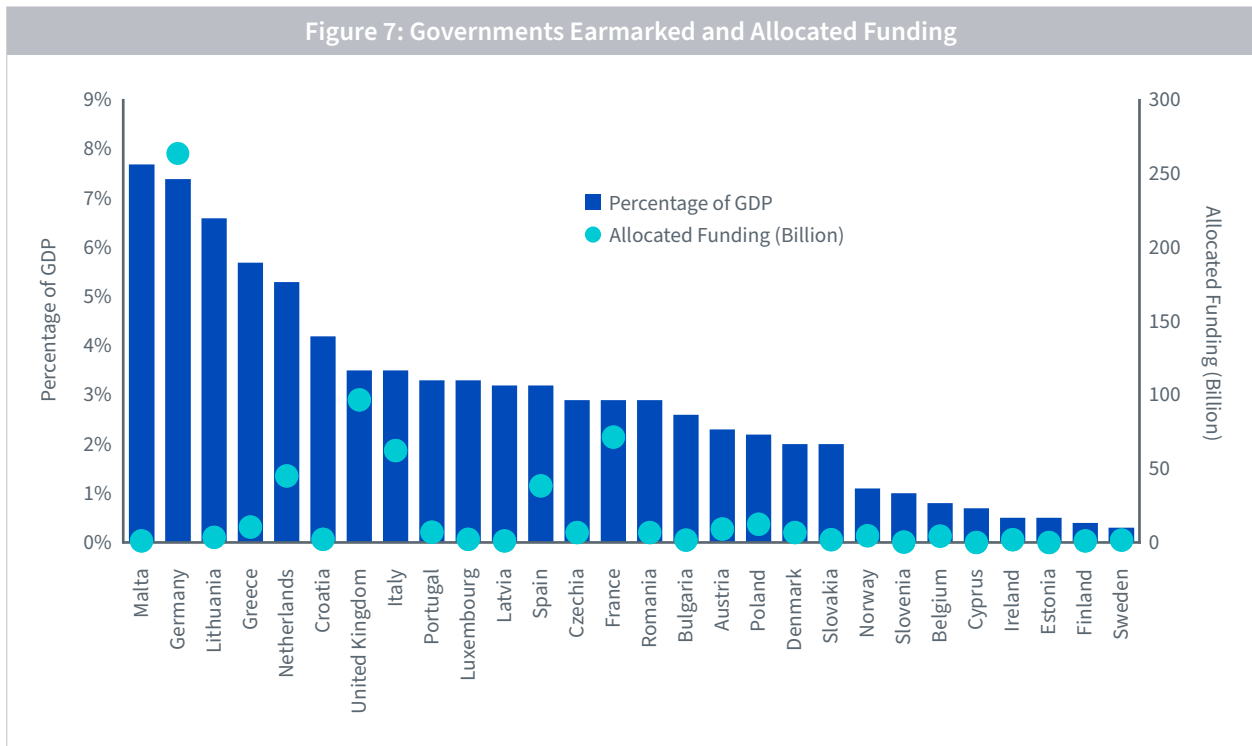
HARSH WINTER AHEAD FOR EUROPE

Europe is heading for a recession in response to a strong external shock. Gas flows from Russia to Europe have declined substantially to 10% of their 2021 levels, causing gas prices to spike. The Russian war in Ukraine is showing no signs of abating, with Russia deciding on a partial mobilization after a rather successful Ukrainian counter-offensive. These higher energy prices are squeezing consumers’ real disposable income and raising costs for corporates, causing further curtailment of output. The energy-driven surge in headline inflation to 10.7%, year on year,¹ has sent consumer confidence to a record low, leaving Europe in a bind.

¹ Source: Eurostat, as of 31 October 2022.

FISCAL POLICY IN FOCUS

The European Union (EU) aims to define the direction and speed of Europe’s energy policy restructuring through the REPowerEU strategy. However, crucial energy policy decisions have been taken by EU countries at the national level. In an effort to shield European consumers from rising energy costs, EU governments have earmarked €573Bn, of which €264Bn has been set aside by Germany alone. In most European countries, both energy regulation and levies are set at the national level. The chart below illustrates the funding allocated by selected EU countries to shield households and firms from rising energy prices and their consequences on the cost of living.



Sources: Bruegel, WisdomTree, as of 31 October 2022. **Historical performance is not an indication of future performance and any investments may go down in value.**

A STRONG UNITED POLICY RESPONSE COULD HELP AVERT A CRISIS

EU countries reached an agreement² on a voluntary reduction target of natural gas demand equal to 15%, compared to average consumption over the prior five years. The EU as a whole is broadly on track to meet this target, with gas demand destruction currently at -7%.³ Countries such as Germany, Belgium, Denmark, Sweden, Netherlands and Poland are enabling efforts to achieve this demand destruction, while France, Spain and Italy are still some way off in rationing energy demand.

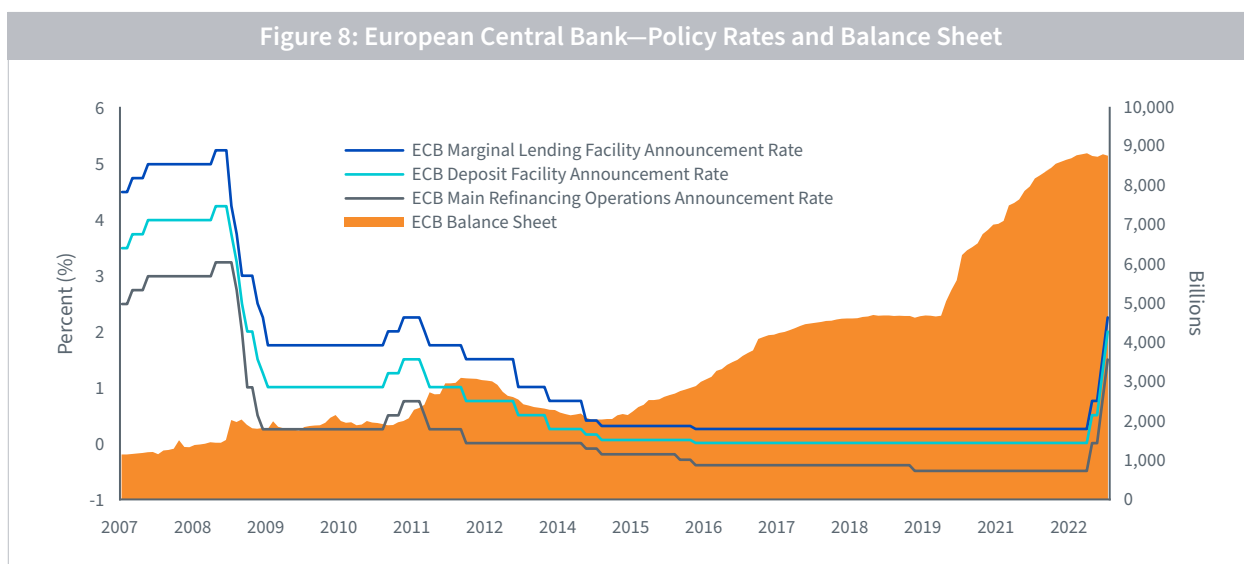
The EU allowed governments to cap profits and revenues of energy companies and funnel the proceeds to consumers. However, whether the bloc can come up with a cap on gas prices via a dynamic price corridor on the key Dutch Title Transfer Facility (TTF) and other hubs remains in the offing.

² On 26 July 2022.

³ Source: European gas demand tracker Bruegel, as of 31 October 2022.

NO PIVOT YET FROM THE ECB

We experienced a decade of almost no inflation and quantitative easing in Europe. We have now entered a phase in which the European Central Bank (ECB) has gone ahead with its third major policy rate⁴ increase in a row this year, thereby making substantial progress in withdrawing monetary policy accommodation. The ECB remains eager to have policy choices dominated by risks, rather than the base case, owing to which more rate hikes are coming. If eurozone inflation continues surprising to the upside, the ECB will have to continue raising rates and determine when to activate the Transmission Protection Instrument (TPI) to support the periphery. We expect the ECB to take the deposit rate to 2.5% by March as it continues to see risks to inflation tilted to the upside both in the short and long term.



Sources: Bloomberg, WisdomTree, as of 31 October 2022. **Historical performance is not an indication of future performance and any investments may go down in value.**

CHANGING TERMS OF REFINANCING OPERATION AND MINIMUM RESERVES

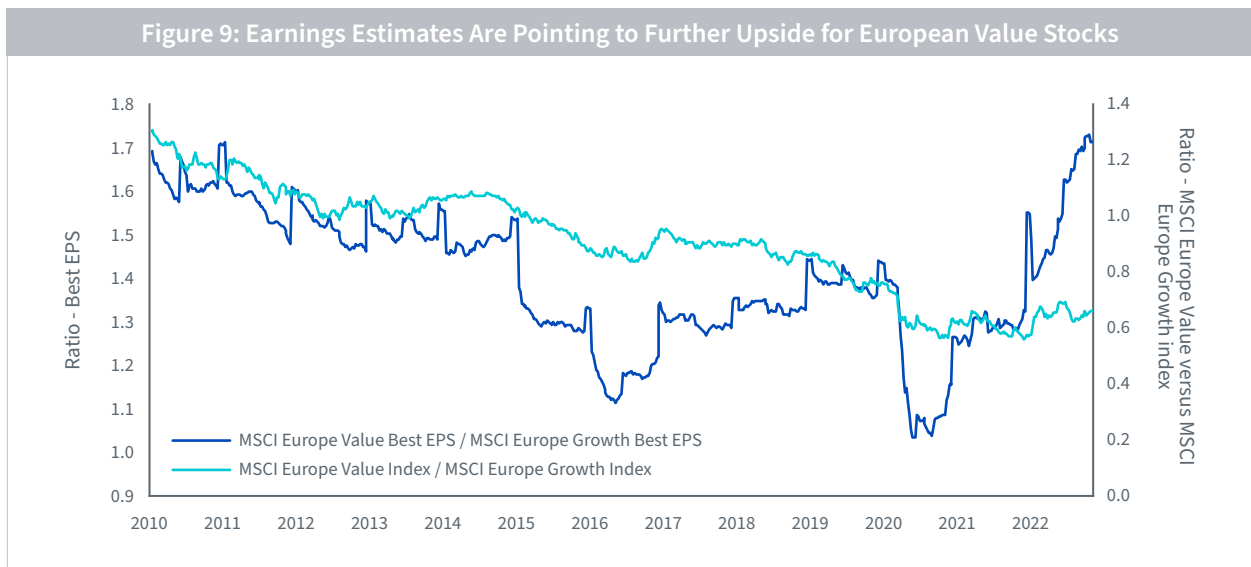
The ECB extended its policy tightening stance to money markets by increasing the rate it pays on minimum reserves to the deposit rate. It is also changing the terms of the Targeted Long Term Refinancing Operations (TLTRO III) so that “the interest rate on TLTRO III operations will be indexed to the average applicable key ECB interest rates over this period,” as of November 23. This marks a significant shift in the cost of this lending as these funds were initially offered at negative rates, which explains why the ECB announced it is allowing banks to repay these loans early. A €1.5trn repayment would imply banks taking their TLTRO borrowing down to pre-COVID-19 levels. A €1trn repayment, however, would imply banks keeping around 30% of the TLTROs borrowed since the COVID-19 shock. This should allow the ECB to shrink its balance sheet further, thereby removing some accommodation.

In addition, the ECB is heading for quantitative tightening (QT) at some time in early 2023. President Lagarde guided towards releasing further details when the new staff projections will be published in December. QT will be focused on reducing the ECB’s holdings of bonds under the Asset Purchase Program (APP) rather than the Pandemic Emergency Purchase Programme (PEPP).

⁴ As of 27 October 2022.

LARGE-CAP VALUE STOCKS FAVOURED IN THE CURRENT ENVIRONMENT

Europe so far has delivered a strong breadth of sales beats at 25.54% alongside EPS beats at 21.69%.⁵ Investors remain wary that expectations of corporate earnings will need further adjustment to fully reflect the uncertain economic outlook. That said, we do believe that this period of readjustment opens up the case for large-cap value stocks. Energy, Industrials and Utilities have posted the best results so far both in terms of breadth and size of EPS beats. Amidst a rising rate environment and higher energy prices, we expect the cheaper value stocks to outperform their growth peers, aided by their strong earnings momentum. The MSCI Europe Value Index has already outperformed its growth equivalent by 18⁶%, as surging bond yields hit the frothier part of the equity market amid concerns over future earnings.



Sources: Bloomberg, WisdomTree, as of 4 November 2022. **Historical performance is not an indication of future performance and any investments may go down in value.**

⁵ Sources: Bloomberg, EuroStoxx 600 Index, as of 11 November 2022 (82% of companies have reported Q3 earnings results).

⁶ Source: Bloomberg, Performance from 31 December 2021 to 4 November 2022.

CHALLENGES ABOUND FOR THE U.K. ECONOMY

The revolving door has remained in motion in U.K. politics. U.K. Prime Minister Liz Truss resigned after just 44 days in office and 105 days after her predecessor Boris Johnson left. The Truss government's 'mini budget,' of debt-funded tax cuts and spending to cap energy prices, led to a steep fall in the value of sterling and a spike in U.K. government bond yields. The political shuffling brought back memories of 'Bond Vigilantes' who used to intimidate profligate governments into fiscal restraint to prevent escalating borrowing costs.

FISCAL PIVOT RE-AFFIRMS U.K. INSTITUTIONAL CREDIBILITY

The U.K. is now taking a more targeted and temporary approach to fiscal support than under the original mini budget. This should help cushion the energy blow to private spending without blowing out budget deficits. On the flip side, the continued fiscal support still implies higher private spending and longer-term inflation pressures than if the full impact of the energy crisis were felt.

U.K. TO ENTER PROTRACTED RECESSION IN 2024

The economic outlook has deteriorated further in the U.K. The U.K.'s composite Purchasing Managers' Index (PMI) dropped to 47.2, marking its lowest level since March 2009.⁷ The decline was driven by a slowdown in the services PMI alongside the manufacturing PMI. The fall in PMI is consistent with U.K. growth currently declining at a 0.6% quarter-on-quarter pace. Households remain cautious in light of the deterioration of the economic outlook. In the U.K., households added £8.9Bn to their savings in September, above the average over this year so far at £6.1Bn. At the same time, households appear reluctant to accrue debt. This was evident as consumer credit rose by just £0.7Bn in September, far less than the average over this year at £1.3Bn. We expect households to continue to err on the side of caution as government support for energy bills ends in April 2023.

Judging by the recent comments, the Bank of England (BOE) is uneasy with the magnitude of tightening priced into financial market over the coming months. The monetary policy committee collectively forecast that CPI inflation will decline 2.2% in two years' time, if the bank rate is maintained at 3% indefinitely, but will fall to 1.4% if bank rate rises to 5.25% next year. Given the combination of fiscal retrenchment and the newfound collaboration between the BOE and Treasury we expect the bank rate to remain below 4%, and for the monetary policy committee to signal lower terminal rates.

⁷ S&P Global/CIPS flash PMI data, as of 25 October 2022.

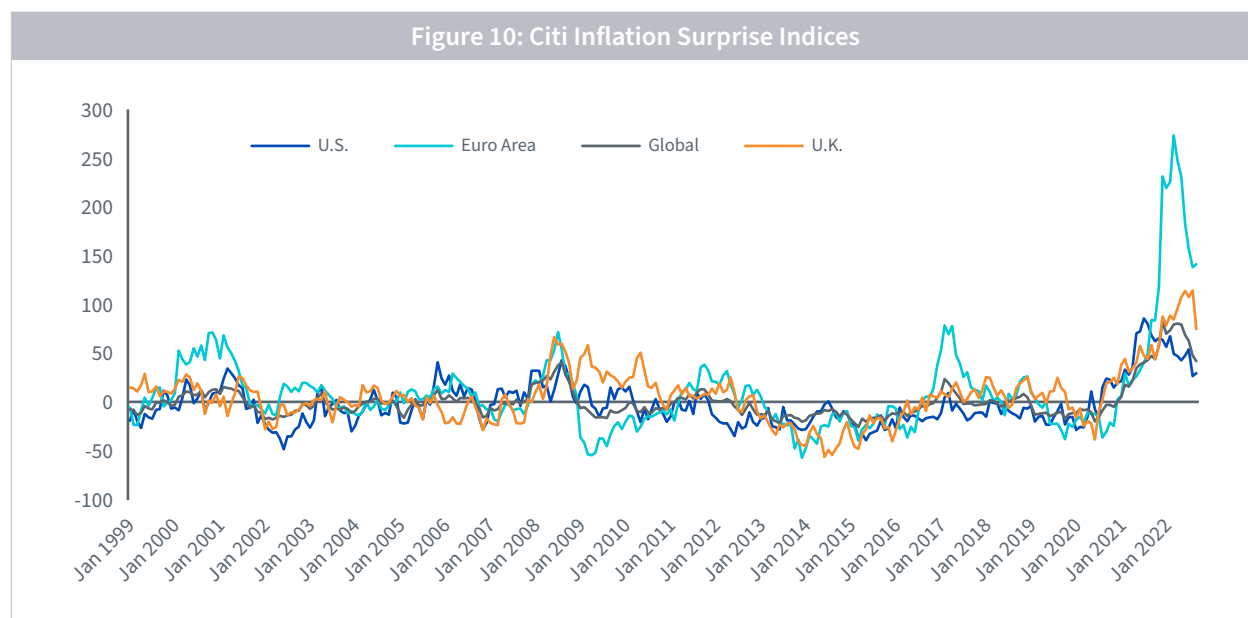
Commodities: Positioning in a World of Inflation that Is Higher for Longer

While the central bank fight against inflation is aggressive, policy makers may be underestimating the task ahead. Inflation increasingly may be generated from unusual sources. There may possibly be more supply shocks than they have been used to in the past four decades, and inflation may be structurally higher than in the recent past.

SECULAR INFLATION

Central banks are likely to front-load policy tightening in the hope of quelling demand-driven price pressures (see [Navigating the Uncharted Waters Between Growth and Inflation](#), September 2022).

For the past two years, we have been arguing that inflation will be elevated. Consensus, meanwhile, has expected inflation to decline. The October 2022 U.S. CPI inflation print was the first weaker-than-expected print in 27 months, but prior to that, consensus had been underestimating inflation. And so, inflation surprise indices have been elevated. We may be in a period of secular change, rendering inflation models calibrated on data from the past two decades less useful.



Sources: WisdomTree, Citi Group, Bloomberg, data from January 1999 to September 2022. They are defined as weighted historical standard deviations of inflation data surprises (actual releases vs Bloomberg survey median). A positive reading of the Inflation Surprise Index suggests that inflation releases have, on balance, been beating consensus. **Historical performance is not an indication of future performance and any investments may go down in value.**

For decades the world was a net beneficiary of an urbanising China that was integrating into the world economy, exporting the spoils of its cheap labour in finished goods. Today, China's desire to integrate into the world economy has waned. Its labour is no longer that cheap. Debt sustainability looks questionable in China, causing it to revise its "growth at all costs" strategy (although, at the moment, it is in stimulus mode). Environmental externalities of its production methods are (very slowly) being addressed, raising the costs of production. In other words, we cannot rely on China continuing to export disinflation.

Labour markets are getting tight everywhere. Approximately seven million people left the labour market in the U.S. following COVID-19. They don't show up in unemployment statistics as they completely left. They have either retired, are in ill health or simply found other things to do with their time. Tight labour markets keep wages high and raise input costs.

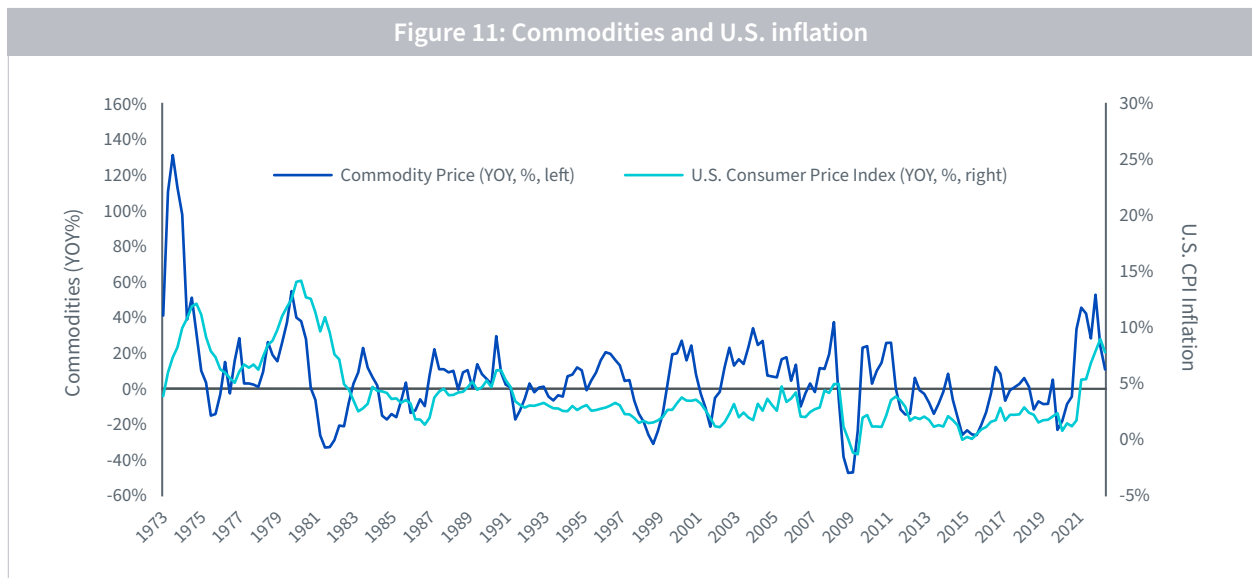
Demographic aging is aggressive in Europe. Replacing retiring workers will continue to be a challenge and costly old age care will continue to tilt the consumption basket towards higher priced goods and services.

It's not just China that has retrenched from global integration. Europe, U.S. and many parts of Asia are increasingly looking inward. Part of the motivation is to reduce the complications in global supply chains. But there is increasing evidence of broader protectionist measures being implemented as policy makers, initially paralysed by the energy and food price shock, resort to populist measures. For example, consider India's wheat export ban and Indonesia's nickel ore export ban. All the benefits of the Ricardian model of comparative advantage⁸ may be set to reverse if we maintain the current course. In other words, a loss of production efficiency could raise costs across the world.

With the war continuing to rage in Ukraine, and other geopolitical risks brewing in the background, supply disruptions could be the new normal. At a minimum, it will contribute to consumption basket price volatility, if not outright increases.

COMMODITIES AS AN INFLATION HEDGE

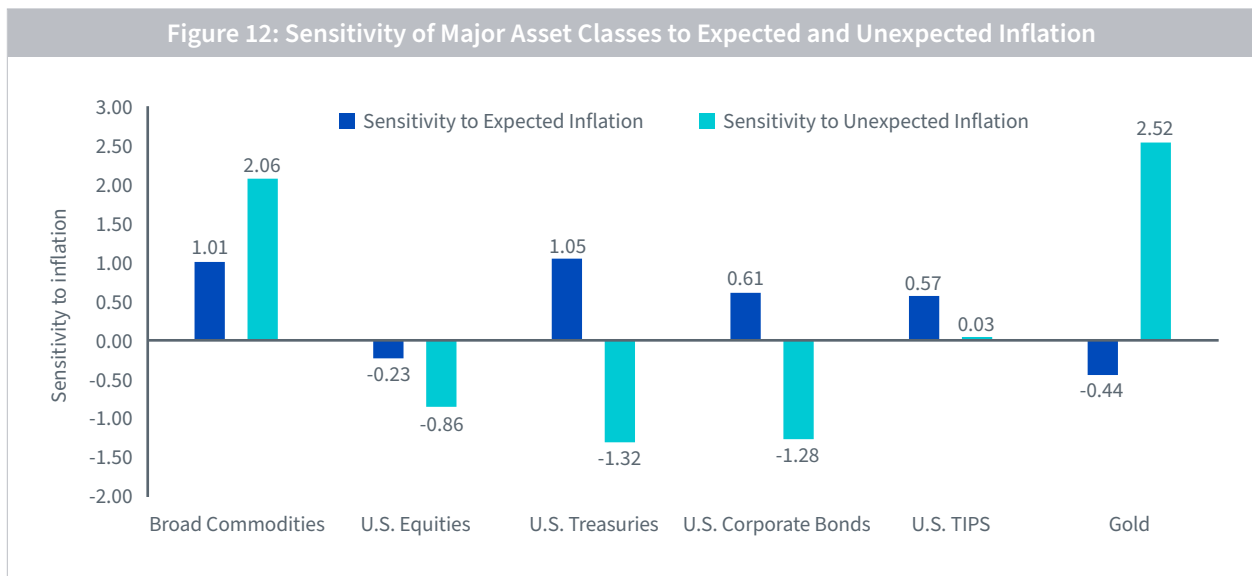
Commodities are arguably one of the best inflation hedges available. As you can see from Figure 11, commodities rose strongly in the 1970s when inflation was rampant. In 2022, commodities have been one of the few asset classes that have kept up with inflation.



Sources: WisdomTree, Bloomberg, Q1 1972–Q3 2022, quarterly data. Commodity price based on Bloomberg Commodity Total Returns Index. **Historical performance is not an indication of future performance and any investments may go down in value.**

⁸ Source: *On the Principles of Political Economy and Taxation*, 1817. David Ricardo articulated how specialisation and trade can help lower costs and enhance welfare on both sides of the trade.

In fact, looking at inflation sensitivity (asset class beta to inflation), commodities stand out. Not only do commodities have a high and positive beta to inflation (compared to equities, which are negative), its beta to unexpected inflation is even higher. We proxy the expected inflation using the T-bill interest rate. Unexpected inflation is the ‘realised inflation rate’ minus the T-bill rate. To stress, we are living in a world of inflation surprises. While Treasuries may have a positive beta to expected inflation, its beta to unexpected inflation is negative. Interestingly, gold has a negative beta to expected inflation, but its beta to unexpected inflation is the highest.



Sources: WisdomTree, Bloomberg, S&P. From January 1960 to June 2022. Calculations are based on monthly returns in USD. Broad commodities (Bloomberg Commodity Total Return Index) and U.S. equities (S&P 500 Gross Total Return Index) data started in January 1960. U.S. Treasuries (Bloomberg U.S. Treasury Total Return Unhedged USD Index) and U.S. corporate bonds (Bloomberg U.S. Corporate Total Return Unhedged USD Index) data started in January 1973. Gold (physical gold) data started in 1968. U.S. Treasury Inflation Protected Securities (TIPS) started in April 1997. Sensitivity is measured through the asset class beta with inflation (the higher the beta the more the asset tends to rise with inflation). In statistical terms, beta represents the slope of the line through a regression of the asset class returns and inflation. We proxy the expected inflation using the t-bill interest rate. Unexpected inflation is the ‘realised inflation rate’ minus the t-bill rate. **Historical performance is not an indication of future performance and any investments may go down in value.**

Appendix

Glossary

Asset Purchase Program (APP): The European Central Bank's APP is part of a package of non-standard monetary policy measures that also includes targeted, longer-term refinancing operations, and which was initiated in mid-2014 to support the monetary policy transmission mechanism and provide the amount of policy accommodation needed to ensure price stability. **Balance sheet:** Refers to the cash and cash equivalents part of the current assets on a firm's balance sheet and cash available for purchasing new position. **Basis point (bp):** 1/100th of 1%. **Bear market:** A sustained downturn in market prices, increasing the chances of negative portfolio returns. **Beta:** A measure of the volatility of a security or a portfolio in comparison to a benchmark. In general, a beta less than 1 indicates that the investment is less volatile than the benchmark, while a beta more than 1 indicates that the investment is more volatile than the benchmark. **Bull market:** A market in which share prices are rising, encouraging buying. **Bund:** A sovereign debt instrument issued by Germany's federal government to finance outgoing expenditures. **Cash flows:** A measure of how much cash a business generates after taking into account all the necessary expenses, including net capital expenditures. **Central bank:** A national bank that provides financial and banking services for its country's government and commercial banking system, as well as implementing the government's monetary policy and issuing currency. **Commodity:** A raw material or primary agricultural product that can be bought and sold. **Consumer confidence:** An economic indicator that measures the degree of optimism that consumers have regarding the overall state of a country's economy and their own financial situations. **Deposit rate:** The rate paid by commercial or similar banks for demand, time or savings deposits. **Developed market:** A country that is most developed in terms of its economy and capital markets. The country must be high income, but this also includes openness to foreign ownership, ease of capital movement and efficiency of market institutions. **Disinflation:** Term used to describe instances of slowing inflation, different from deflation in that price levels are still increasing overall, just at a slower rate. **Dividend:** A portion of corporate profits paid out to shareholders. **Downside capture:** Measure of an investment manager's overall performance in down-markets. **Dutch Title Transfer Facility (TTF):** A virtual trading point for natural gas in the Netherlands. **Earnings estimates:** Estimated compounded annual growth rate of the operating earnings per share (EPS) over the company's next business cycle. **Earnings growth:** The annual compound annual growth rate of earnings from investments. **Earnings per share:** Total earnings divided by the number of shares outstanding. Measured as a percentage change as of the annual Index screening date compared to the prior 12 months. Higher values indicate greater growth orientation. **European Central Bank (ECB):** The prime component of the euro system and the European System of Central Banks as well as one of seven institutions of the European Union. **Federal Funds (Fed Funds):** Excess reserves that commercial banks and other financial institutions deposit at regional Federal Reserve banks. **Federal Reserve (Fed):** The Federal Reserve System is the central banking system of the U.S. **Federal Open Market Committee (FOMC):** The branch of the Federal Reserve Board that determines the direction of monetary policy. **Gross domestic product (GDP):** The total of all goods and services produced across an economy. **Gilt:** Bonds issued by the U.K. government and generally considered to be low risk and the primary vehicle in which QE is carried out in the U.K. **Growth stocks:** Stocks whose share prices are higher relative to their earnings per share or dividends per share. Investors are willing to pay more because of their earnings or dividend growth expectations going forward. **Inflation:** Characterized by rising price levels. **Monetary policy:** Actions of a central bank or other regulatory committee that determine the size and rate of growth of the money supply, which in turn affects interest rates. **Maturity:** The amount of time until a loan is repaid. **Monetary policy:** Actions of a central bank or other regulatory committee that determine the size and rate of growth of the money supply, which in turn affects interest rates. **Organization of the Petroleum Exporting Countries Plus (OPEC+):** A loosely affiliated entity consisting of the 13 OPEC members and 10 of the world's major non-OPEC oil-exporting nations. **Operating earnings:** Earnings from continued, regular business operations that do not include certain one-time charges that may be unique to a particular quarter or period and are not repeatable. **Price-to-earnings (P/E) ratio:** Share price divided by earnings per share. Lower numbers indicate an ability to access greater amounts of earnings per unit of money invested. **Price-to-earnings (P/E) multiple:** A metric used to compare a company's market value (price) with its earnings. **Pandemic Emergency Purchase Program (PEPP):** A non-standard monetary policy measure initiated by the European Central Bank in March 2020 to counter the serious risks to the monetary policy transmission mechanism and the outlook for the euro area posed by the coronavirus (COVID-19) outbreak. **Quantitative tightening (QT):** Quantitative easing is a process whereby a central bank targets lowering longer-term interest rates by purchasing bonds and other securities to stimulate the economy. Quantitative tightening is the reverse process whereby securities are either sold or the proceeds of maturing securities are not reinvested with the goal of tightening economic conditions to prevent the economy from overheating. **Recession:** Two consecutive quarters of negative GDP growth, characterized generally by a slowing economy and higher unemployment. **REPowerEU:** A European Commission proposal to end reliance on Russian fossil fuels before 2030 in response to the 2022 Russian invasion of Ukraine. **Size capitalization:** A measure by which a company's size is classified. Large caps are usually classified as companies that have a market cap over \$10 billion. Mid-caps range from \$2 billion to \$10 billion. Small caps are typically new or relatively young companies and have a market cap between \$200 million and \$2 billion. **Sovereign bond:** A government bond or sovereign bond is a debt obligation issued by a national government to support government spending. It generally includes a commitment to pay periodic interest, called coupon payments and to repay the face value on the maturity date. **Secular inflation:** A prolonged period of gentle or mild price increases. **Sovereign debt:** Bonds issued by a national government in a foreign currency, in order to finance the issuing country's growth. **TARA:** TARA is an acronym for "there are reasonable alternatives." A term used when there are more attractive asset classes. **Targeted Long-Term Refinancing Operations (TLTRO III):** Eurosystem operations that provide financing to credit institutions. **Treasury Bill:** A Treasury Bill (t-bill) is a short-term debt obligation backed by the U.S. government with a maturity of one month (four weeks), three months (13 weeks) or six months (26 weeks). **Terminal rate:** The peak spot where the benchmark interest rate—the Federal Funds Rate—will come to rest before the central bank begins trimming it back. **TINA:** TINA is an acronym for "there is no alternative." It is often used by investors to justify a lackluster performance by stocks on the grounds that other asset classes offer even worse returns. **Transmission Protection Instrument (TPI):** A new financial instrument created by the European Central Bank in order to help protect the euro area from future economic shocks like high inflation. **Treasury (UST):** A debt obligation issued by the U.S. government with payments of principal and interest backed by the full faith and credit of the U.S. government. **Treasury Inflation-Protected Securities (TIPS):** Bonds issued by the U.S. government. TIPS provide protection against inflation. The principal of a TIPS increases with inflation and decreases with deflation, as measured by the Consumer Price Index. When a TIPS matures, you are paid the adjusted principal or original principal, whichever is greater. **Value:** Characterized by lower price levels relative to fundamentals, such as earnings or dividends. Prices are lower because investors are less certain of the performance of these fundamentals in the future. This term is also related to the value factor, which associates these stock characteristics with excess returns compared to the market over time. **Yield:** The income return on an investment. Refers to the interest or dividends received from a security that is typically expressed annually as a percentage of the market or face value. **Zero interest rate policy (ZIRP):** A macroeconomic concept describing conditions with a very low nominal interest rate. **Zero-yielding bond:** Zero coupon bonds are bonds that do not pay interest during the life of the bonds.

Index Definitions

Bloomberg Commodity Total Returns Index: A broadly diversified commodity price index distributed by Bloomberg Indexes that tracks prices of futures contracts on physical commodities on the commodity markets. **Bloomberg U.S. Corporate Total Return Unhedged USD Index:** Measures the investment grade, fixed-rate, taxable corporate bond market. **Bloomberg U.S. Treasury Total Return Unhedged USD Index:** Measures U.S. dollar-denominated, fixed-rate, nominal debt issued by the U.S. Treasury. **Citi Inflation Surprise Index:** An indicator of how actual economic data compares to analyst expectations. A downward trend means actual data has been trending below expectations, and an upward trend means actual data has been trending above expectations. **Conference Board Consumer Confidence Index:** The monthly Consumer Confidence Survey®, based on a probability-design random sample, is conducted for The Conference Board by Nielsen, a leading global provider

of information and analytics, around what consumers buy and watch. The Conference Board is a global, independent business membership and research association working in the public interest. **EuroStoxx 600 Index:** A stock index of European stocks designed by STOXX Ltd. **MSCI Europe Value Index:** Captures large- and mid-capitalization securities exhibiting overall value style characteristics across the 15 developed markets countries in Europe. **National Association of Homebuilders Housing Market index:** An index that rates the relative level of current and future single-family home sales. The data is compiled from a survey of around 900 home builders. A reading above 50 indicates a favorable outlook on home sales; below indicates a negative outlook. **Purchasing Managers' Index (PMI) (U.K.):** In the U.K., a purchasing managers' index produced by a company like IHS Markit is an economic indicator representing the rate of expansion or contraction of a specific sector—such as manufacturing, services or construction. **Purchasing Managers' Index (PMI):** Represents the health of the manufacturing sector based on new orders, inventory levels, production, supplier deliveries and the employment environment. A PMI above 50 signifies expansion while below 50 signifies contraction. (Also ISM Purchasing Managers' Index.) **Russell 2000 Index:** Measures the performance of the small-cap segment of the U.S. equity universe. The Russell 2000 is a subset of the Russell 3000 Index representing approximately 10% of the total market cap of that index. It includes approximately 2,000 of the smallest securities based on a combination of their market cap and current index membership. **S&P 500 Gross Total Return Index:** An unmanaged free-float cap-weighted index that measures the gross performance of 500 large-cap common stocks actively traded in the United States. **S&P 500 Growth Index:** A market cap-weighted benchmark designed to measure the growth segment of the S&P 500 Index. **S&P 500 Index:** A market cap-weighted benchmark of 500 stocks selected by the Standard & Poor's Index Committee, designed to represent the performance of the leading industries in the United States economy.

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