

July 5, 2022

WHAT'S CAUSING TODAY'S HIGH INFLATION?

High inflation over the past year has many consumers, investors, and market commentators wondering about its causes. Is today's inflation a result of quantitative easing? Or is it perhaps due to the Biden administration's environmental policies, as claimed by lobbyists from the oil industry? Or are "excessive" profit margins to blame, as argued by President Biden in a recent letter to petroleum refiners?

The short answer is: It's complicated. Economics is not a discipline for those seeking easy, politically convenient answers. It's messy and, despite its heavy reliance on big data and quantitative analysis, it offers painfully few conclusive, black-and-white answers. But what it does offer is insight, insight into what's likely driving inflation (and, importantly, what isn't); whether the Fed's interest rate hikes will be successful in reigning it in; and the probability of the Fed, perhaps, changing course at some point in the future.

Two popular explanatory narratives for today's high inflation focus on the administration's environmental policies and, as claimed by the President, the "excessive" profit margins of oil refiners. In Part I we explore each of these narratives and evaluate the relative merit of their claims. In Part II, we explore what we believe to be the root causes of today's high inflation, including Russia's invasion of Ukraine, ongoing global supply chain disruptions, China's COVID-shutdowns, limited refinery capacity, and—to a lesser degree—Quantitative Easing ("QE")

and COVID-related stimulus spending in the United States. Finally, in Part III we explore the implications for Fed policy, interest rates, and GDP growth.

Part I: Political Narratives

Government policy

Some have suggested that U.S. government energy policy is primarily to blame for inflation, arguing the current "administration's policy agenda has shifted away from domestic oil and natural gas..."—presumably to one focused on encouraging the development of renewable energy and therefore resulting in constrained supplies of oil and gas.¹

However, this argument lacks credible evidence. For example, U.S. active rig counts have more than doubled since early 2021, suggesting drillers who want to drill can do so (subject of course to the same labor and supply constraints as everyone else) (See Exhibit A). Further, U.S. oil and gas production has expanded dramatically over the past decade, tripling from its 2008 lows, and is now projected to grow an additional 10.3% by the end of 2023—compared to only 1.3% growth for total global oil production (see Exhibit B).² Further, economists from Moody's Analytics recently explored a similar question³ and found no specific, identifiable environmental policy hindering U.S. energy production. None of this is to suggest that

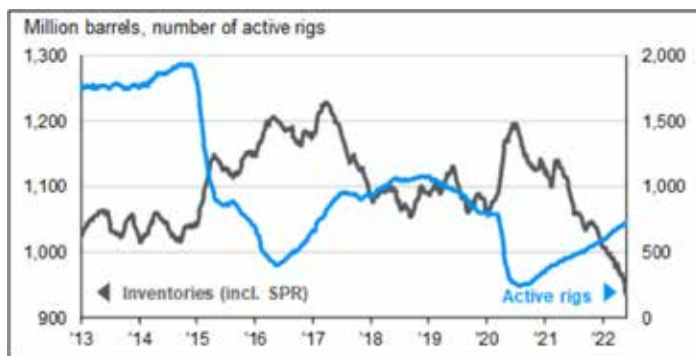
¹ Mike Sommers, president and CEO of the American Petroleum Institute, as quoted by CNBC on June 15, 2022 in "Biden tells oil companies in letter 'well above normal' refinery profit margins are 'not acceptable'".

² JP Morgan *Guide to the Markets*. June 16, 2022, slide 29.

³ See Moody's *Inside Economics: Lousy Inflation & Life Lessons* with Mark Zandi, Ryan Sweet, and Chris deRitis, June 11, 2022.

government policy doesn't influence business decisions or capital costs; of course they do. But the fact remains that U.S. energy production has expanded dramatically over the past decade, it continues to expand (despite allegations that government policy is discouraging investment), and there's no identifiable evidence at the moment that any U.S. government environmental policies are discouraging production or contributing to inflation.

Exhibit A: U.S. active rig counts (blue line) rise and fall in response oil prices. They've more than doubled since early 2021 (up from 351 at the end of 2020 to a current rig count of 740 as of June 17, 2022).⁴



A related view argues that environmental policies have somehow discouraged investment in expanding refinery capacity, the scarcity of which has rightly been identified as a major contributor to current inflation. But drawing a linear, cause-and-effect relationship between policy and scarcity is difficult at best. Between 1977 and 2019 no new refineries were built in the United States—not one. It doesn't seem logical that the environmental policies of the past 18 months, whatever they may be, would've discouraged investment in refinery capacity expansion over the past four *decades*—a period that of course witnessed administrations from both political parties. Any expansion in refinery capacity during that time came through increases in operational efficiencies and expansion of existing refineries. Yet even that was anemic. For example, between 2001–2022, refinery capacity in the United States grew at a rate of only 0.30% annually,

falling to -0.25% annually during the Trump administration. U.S. refinery capacity has now fallen to its lowest levels in 8 years.⁵ Therefore, rather than anything having to do with the current administration's environmental policies, it seems more plausible that powerful economic and natural forces—such as increased capital costs, increases in extreme weather, increasing efficiency gains, and perhaps better investment opportunities elsewhere (e.g., renewable energy)—discouraged investment in expanding refinery capacity over the past few decades.

Exhibit B: U.S. crude oil production has expanded significantly since 2008.⁶



"Excessive" profit margins

On June 15, the Biden administration sent a letter to several oil companies calling on them to produce more to help alleviate the burden of high gas prices on consumers. Both in the letter and publicly, the President alleged that refiners' profit margins had risen to "record levels", implying excessive profit margins were contributing to high inflation. But this argument is unconvincing for several reasons.

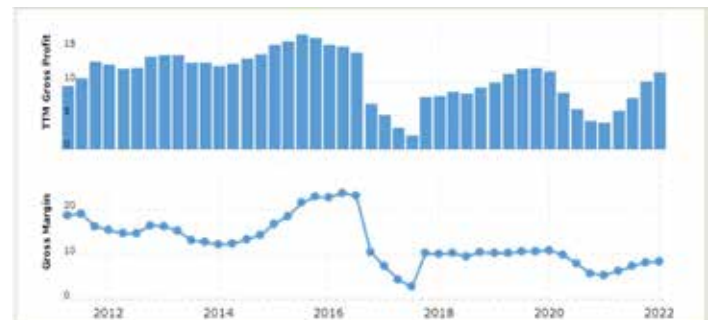
⁴ Source: Data from Baker Hughes; chart provided by JP Morgan Asset Management in Guide to the Markets, June 16, 2022. Slide 29.
⁵ US Energy Information Administration. See also, "US refining capacity falls to lowest mark in 8 years", S&P Global, June 21, 2022.
⁶ Source: Macrotrends: US Crude Oil Production (data from US Energy Information Administration).

First, neither profits nor profit margins are at all-time highs for refiners based on their Q1 2022 financials; it's simply not true to claim otherwise. For most refiners, profits peaked sometime between 2015–2016. Consider Marathon Petroleum, currently the largest U.S. refiner. Its profits peaked at \$16.92 billion in September 2015; its gross margin peaked at 23.77% in June 2016. As of March 31, 2022, the firm reported gross profit of \$11.34 billion with a gross margin of 8.38%, significantly less than its all-time highs.⁷ We see similar profit metrics across other petroleum refiners.

What is true is that petroleum refinery prices, profits, and profit margins have recovered from the depths of the pandemic. For example, Marathon Petroleum's Q1 2022 reported gross profit of \$11.34 billion is nearly three times higher than it was during the depths of the pandemic; Marathon reported gross profit of \$3.81 billion in Q1 2021, a decline of nearly 70% from its pre-pandemic (Q4 2019) gross profit of \$11.92 billion. Comparing today's profit metrics to a time when the front month oil contract in 2020 was trading at negative prices⁸ is nothing more than simply playing with the math. Indeed, profits and profit margins declined dramatically for all companies during the pandemic but especially energy companies, including petroleum refiners. The truth remains that today's profit metrics for petroleum refiners remain far from record levels and, in fact, have only now returned to their pre-pandemic levels (see Exhibit C). Whether one views a return to pre-pandemic profit levels as evidence of "excessive" profits is naturally subjective, but it's hard to argue that simply returning to pre-pandemic profit levels is somehow unique evidence of such a time when most S&P 500 companies have posted significant increases in profits over and above their pre-pandemic levels. For example, the earnings per share of S&P 500 companies is now 36% higher than pre-pandemic levels—the same cannot be said for petroleum refiners⁹.

Second, arguments that refiners' profits and profit margins have grown to excessive levels suggests a degree of monopoly power that just doesn't exist in the U.S. refinery space (or it would suggest an unprecedented degree of collusion, a serious charge that would require evidence). No less than 10 U.S.-based petroleum refiners compete for market share in the United States. Further, petroleum refining is a global market; the administration's U.S.-centric view of the refinery space ignores the fact that, of the top 10 global refiners, only 3 are U.S. companies.¹⁰ The only logical conclusion is that excessive profits and profit margins, however defined, do not appear to be significant contributors to today's high inflation rates.

Exhibit C: Marathon Petroleum (MPC) TTM Revenues, TTM Gross Profit, and Gross Margin, 2010 – 2022.¹¹



Conclusion

To conclude Part I, there is no convincing evidence to support what are arguably the two most popular political narratives attempting to explain today's high inflation. The lack of investment in refinery capacity is a long-term phenomenon, stretching back more than four decades, that isn't satisfactorily explained by the environmental policies of the past 18 months. Further, an exponential increase in oil and gas production since 2008 and a tripling of rig counts since early 2021 concludes that drillers can clearly expand production when market prices justify doing so. Similarly, claims that today's high inflation is a result of "excessive" profits and profit margins of refiners are unsupported by the data.

⁷ Source: Macrotrends. See Q1 2022 Gross Margin and Profit metrics for the three largest US refiners: Marathon Petroleum (MPC); Valero Energy (VLO); and Phillips 66 (PSX). Analysis based on most recently available public financial statements.

⁸ On April 20, 2020, the front-month May 2020 WTI crude contract settled at negative \$37.63 a barrel on the New York Mercantile Exchange.

⁹ Source: FactSet, Inc.

¹⁰ "Largest refining companies in the world", Off Shore Technology, February 3, 2022.

¹¹ Source: Macrotrends. See Q1 2022 Gross Margin and Profit metrics for Marathon Petroleum (MPC). Analysis based on most recently available public financial statements.

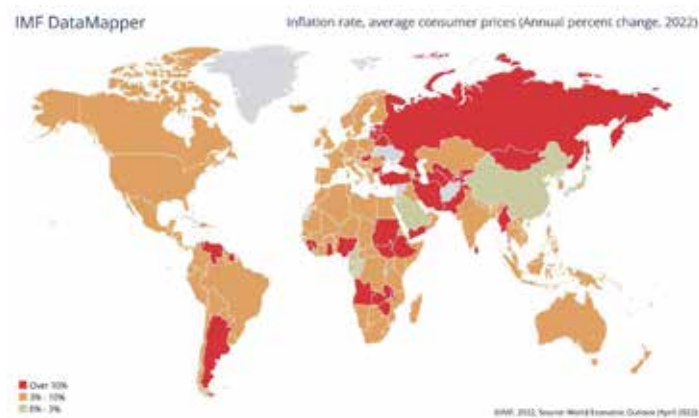
To the contrary, corporate financial statements show that profits and profit margins are not at all-time highs as claimed by President Biden, but have, instead, simply recovered from their pre-pandemic lows.

Part II: What then are the causes of today's high inflation?

Inflation - not just a U.S. problem

Any genuine analysis of today's high inflation must first acknowledge that it is global in nature; it is not a uniquely U.S.-phenomenon. According to the International Monetary Fund (IMF), year-over-year global inflation is currently running at 7.4%—specifically, 5.7% in advanced economies and 8.7% in emerging market and developing economies.¹² Consequently, the fact that high inflation is occurring globally, and not just in the U.S., strongly suggests its root causes extend far beyond U.S. environmental policy, the profit margins of U.S.-based refiners, COVID-related spending, and even quantitative easing by the U.S. Fed.

Exhibit D: High inflation is global and not just a U.S. phenomenon.¹³



¹² Source: International Monetary Fund - www.imf.org/external/datamapper

¹³ Ibid.

¹⁴ Source: Consumer Price Index, December 2021.

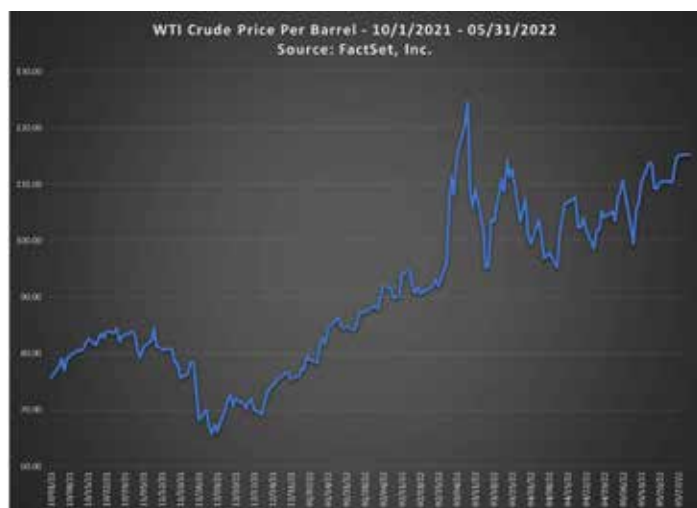
¹⁵ Source: FactSet, Inc.

Russia's invasion of Ukraine

It's important to acknowledge that inflation prior to Russia's invasion of Ukraine was already high at 7% for headline inflation and 5.5% for core inflation.¹⁴ Therefore, arguments that today's high inflation is due to the invasion are overstated. U.S. economic growth surged in 2021 to its highest level since 1984, due in part to the development and distribution of new COVID vaccinations, significant pent-up demand, and trillions in COVID-related spending. Importantly, it surged at a time when businesses, and the global supply chains and labor markets they rely on, were all woefully unprepared to meet the rapid resurgence in demand—resulting in a significant imbalance between supply and demand that continues to persist today. Russia's war on Ukraine is not a root cause of this supply-demand imbalance; but what the invasion did do was to act to sustain and greatly exacerbate it for three reasons.

First, the invasion itself injected a high level of uncertainty and price volatility into energy markets. Prior to the invasion, the price of oil was actually declining—and not by a little. Oil peaked in October 2021 at around \$85 and gradually fell to a low of \$62 in early December (see Exhibit E). Had markets continued on this trajectory, it's quite feasible headline inflation might've moderated in early 2022 (and, in fact, core inflation—which excludes food and energy—did peak in March 2022). However, history took a different turn when headlines began to report U.S. intelligence assessments that Russia was planning an invasion of Ukraine. As rhetoric mounted, the price of oil rose, gradually at first, and then spiked on news of the invasion; volatility in WTI futures quadrupled between February 23 and March 9.¹⁵ The price per barrel peaked at \$129.44 in intraday trading on March 8 and has remained elevated since.

Exhibit E: WTI Crude, October 1, 2021 – May 31, 2022¹⁶



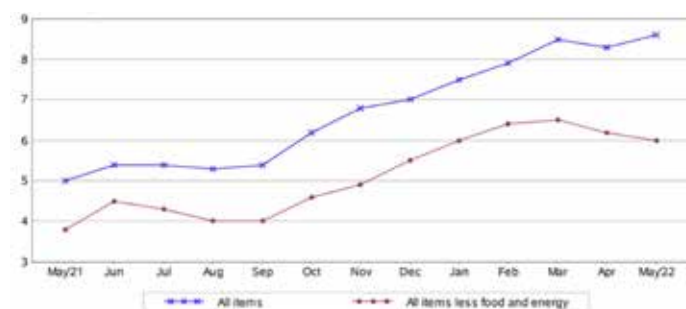
Second, global sanctions against Russian oil exports have resulted in an estimated decline of nearly 9.3% in global supply, removing a staggering 1 million barrels per day from global markets at a time when U.S. economic growth—and hence energy demand—remains exceptionally strong. Russian oil production is projected to fall further still, by over 20% from pre-invasion levels, through the end of 2023.¹⁷ The economic repercussions of removing so much oil from global markets—something that so heavily influences the price of everything from food and gasoline to plastics and air travel—is staggering to put it mildly. Moody's Analytics estimates that as much as 53% of today's high inflation is either a direct or indirect result of elevated oil prices.¹⁸

Finally, the invasion exacerbated already highly stressed global supply chains. The New York Fed's Global Supply Chain Pressure Index (GSCPI) reversed course (it was slowly improving) and rose a staggering 23% following the invasion.¹⁹ Perhaps a more tangible example of the war's impact on global supply chains is its impact on global food supplies. Prior to the war, Ukrainian exports made up 10% and 15% of global wheat and corn supplies, respectively; Ukraine's food exports are now expected to decline by as much as 80% in 2022, removing as much as 8% - 12% of

wheat and corn from global food supplies.²⁰ U.S. food prices overall are up 5.1% since the invasion with global wheat prices up nearly 20%.²¹

To better appreciate the war's impact on food and energy prices, consider the difference in changes between headline and core inflation. The difference between the two is that headline inflation (CPI) includes food and energy prices in its measurement; core inflation does not. While core inflation peaked in March 2022—and has had a slowly declining growth rate since—the same cannot be said for headline inflation, which hit 40-year highs in May 2022 (see Exhibit F).

Exhibit F: Year-over-year headline and core inflation began moving in different direction from one another in March 2022.²²



Supply chain stress and refinery capacity

In addition to the aforementioned under-investment in refinery capacity over the past several decades, global refinery capacity has remained constrained for other reasons. A 2019 explosion at a Philadelphia area refinery took 335,000 in barrels per day (bpd) capacity off the market and reversed two full years' of capacity gains for U.S. refiners.²³ Additionally, the closing of a large refinery in Louisiana due to damages sustained from Hurricane Ida removed another 255,600 bpd of refinery capacity.²⁴ But arguably the biggest impact to global refinery capacity is due to COVID-related shutdowns in what is already probably the world's largest refiner: China. Experts estimate approximately one-third of the country's 18 million bpd in refinery capacity

¹⁶ Source: FactSet, Inc.

¹⁷ JP Morgan *Guide to the Markets*, June 22, 2022, Slide 29.

¹⁸ See Moody's *Inside Economics: Lousy Inflation & Life Lessons* with Mark Zandi, Ryan Sweet, and Chris deRitis, June 11, 2022.

¹⁹ Global Supply Chain Pressure Index (GSCPI), Federal Reserve Bank of New York

²⁰ "The war in Ukraine triggered a global food shortage", The Brookings Institution, June 14, 2022

²¹ US Bureau of Labor Statistics, YCharts, Inc.

²² "News Release: Bureau of Labor Statistics", June 10, 2022, p.2

²³ "Philadelphia refinery closing reverses two years of US capacity gains", Reuters, July 5, 2019

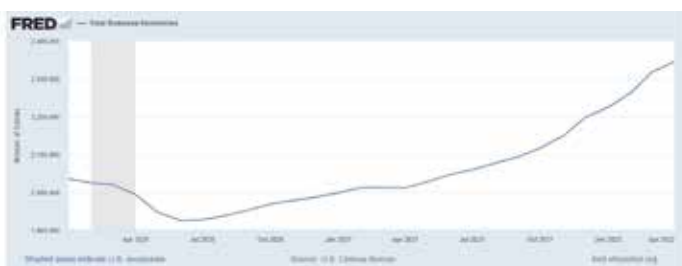
²⁴ "US oil refinery capacity down in 2021 for second year", Reuters, June 21, 2022

is currently off-line due to COVID shutdowns.²⁵

The economic impact of China's COVID-related shutdowns isn't limited to reductions in refinery capacity. China, the world's largest manufacturer and a key contributor to global supply chains, is struggling to contain a rise in coronavirus infections (challenging that nation's "zero-COVID" policy and related public narrative). Shanghai, a city of 25 million people and one of China's largest manufacturing and export hubs, is under an indefinite citywide lockdown.²⁶ An estimated 63% of Japanese-owned factories in Shanghai remain idle; another 28% are running at less than 30% capacity.²⁷ Subsequently, Chinese exports have fallen from \$340 billion USD in December 2021 to a low of \$217 billion in March 2022; they've since slightly recovered to \$273 billion at the end of April 2022.²⁸

However, and perhaps ironically, manufacturing challenges in China haven't necessarily resulted in empty warehouses in the United States. U.S. business inventories are higher today than they were pre-pandemic; they bottomed in June 2020 and have been rising steadily since. Consequently, today's inflation narrative is better characterized not as a situation of "too many dollars chasing too few goods", but more so as a situation of the goods simply being in the wrong place at the wrong time. Major retailers like Target and Walmart are now struggling with bloated inventories—a strong sign that inflation should soon begin to moderate.²⁹

Exhibit G: Are goods in the wrong place at the wrong time? Business inventories have risen significantly since June 2020.³⁰



²⁵ "Massive Oil Refining Capacity Idle in China as Prices Soar", Bloomberg, June 19, 2022

²⁶ "Shanghai's lockdown is making the supply chain look like 2020 again", Quartz, April 11, 2022

²⁷ "The Pace of China's Trade Slowdown Is Coming Into Focus", Bloomberg, May 9, 2022

²⁸ Source: Statista, 2022.

²⁹ "Wood Sees Huge Inventories as Evidence Inflation Will Ebb", Bloomberg, June 8, 2022

³⁰ Source: Federal Reserve Bank of St. Louis - FRED

³¹ Source: YCharts, Inc.

What about the impact of quantitative easing and COVID-related stimulus spending?

"For every problem there is a solution that is simple, neat—and wrong."

Quote attributed to H. L. Mencken

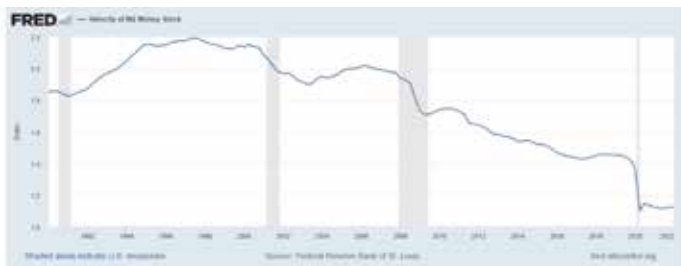
No analysis of today's high inflation would be complete without considering the inflationary impact of quantitative easing and Covid-related stimulus spending. There is a long-held view in monetary economics that printing money out of thin air (aka, "quantitative easing") and government spending (to the degree that it's financed by deficits) both cause inflation. These arguments seem logical enough. All things equal, more money, chasing the same amount of goods and services, should lead to inflation. However, in the real world all things are not equal; the global economy is infinitely complex and constantly in motion. And even if this world were simple and less dynamic, the truth remains that economics is, even under the best of circumstances, a highly inexact science. Therefore, the evidence in our view suggests not that quantitative easing and COVID-related spending haven't contributed to inflation—they probably have to some degree—but that such arguments are likely overstated due to the simple fact that the assumptions at the root of such arguments don't hold in the real world.

Quantitative easing ("QE")

The problem with arguments touting QE as a root cause of inflation is that they're often predicated on assumptions that don't hold in the real world. Take, for example, the Global Financial Crisis (the "GFC") from 2007–2009. Never could economists have designed a better test of this theory. From 2008 - 2014 the U.S. Federal Reserve printed approximately \$4.5 trillion out of thin air to inject into the U.S. economy—all to combat the economic impacts of the GFC. Economic theory—specifically, the monetarist view that argues QE causes inflation—predicted inflation would surge. Only it didn't. Despite trillions in new money creation, from 2009 - 2014, year-over-year inflation fell to 0.76% annually (from an average annual rate of 2.52% from 2000 - 2009).³¹

So why didn't QE in the aftermath of the GFC cause inflation? Economists have identified a plethora of potential reasons why inflation failed to materialize—everything from the deflationary impact of China's economic rise to powerful productivity gains due to rapid advances in technology—all of which resulted in a decline in the velocity of money in the U.S. economy. Consequently, economists today believe this decline in *money velocity*—a critical measure of how often dollars change hands throughout the economy—to be the primary reason why quantitative easing has failed to cause significant inflation. If money is sitting in checking accounts and bank vaults, and isn't changing hands via economic transactions, then it's not bidding up prices. In the aftermath of the GFC, quantitative easing should have caused inflation—in theory—had money velocity remained constant. Only it didn't; in fact, money velocity has declined significantly since 2000. It fell further, indeed quite dramatically, during the pandemic and has yet to recover (see Exhibit H). In short, our "all things equal" assumption failed to hold. Why? Because the real world is messy and doesn't sit still.

Exhibit H: The velocity of money declined significantly over the past 20 years. It fell further still during the pandemic and has yet to recover. Separately, there is no evidence that money velocity is mean-reverting, suggesting we should not expect it to return to its pre-2000 or even pre-2020 levels.³²



But none of this is to argue that the Fed's pandemic-related quantitative easing isn't contributing to inflation. Indeed, the Fed took interest rates to near zero in March 2020 and launched an aggressive bond buying program whereby it injected trillions into U.S. financial markets. It's hard to imagine a world where so much money creation isn't inflationary on some level. Consider the significant impact QE has had on home prices over the past few years. Since home prices (shelter) make up nearly one-third of the Consumer Price Index, any impact QE might have on home prices would be significant. For example, the interest rate on the 30-year mortgage fell nearly 30% to a low of 2.67% by the end of 2020; it rose only slightly to 3.1% by the end of 2021. As the Fed suppressed interest rates, it subsequently fueled a surge in asset prices, but especially residential home prices; home prices rose nearly 40% nationally between January 2020 and May 2022.³³ For existing homeowners who do not intend to move, this rise in home prices is arguably immaterial (other than perhaps some related wealth effects); for renters or those in the market to purchase homes, the inflationary impact of QE is very real.

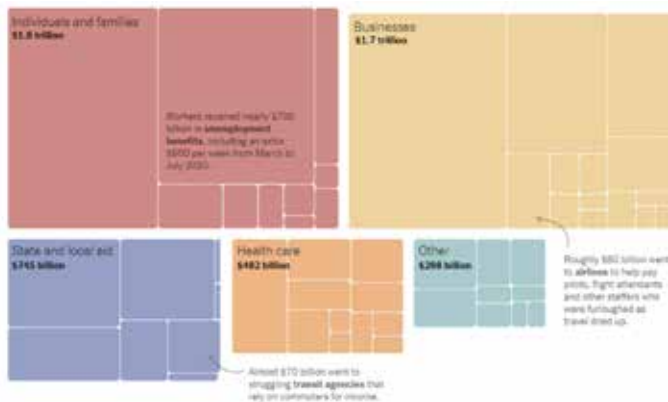
Pandemic-related stimulus

To reiterate, none of this is to argue that quantitative easing and the \$5 trillion in stimulus spending isn't contributing to contemporary inflation; it probably is, to some degree, especially in certain product markets such as real estate and used vehicles. However, a significant amount of pandemic-related spending went towards simply keeping the economy afloat—i.e., sustaining demand and not necessarily expanding it (see Exhibit I). Recall that the U.S. economy contracted at a 32.9% annualized rate in Q2 2020—in dollar terms, the economy shrunk by over \$2 trillion in Q2 2020 alone. Funding for things like unemployment benefits, compensation for furloughed airline industry and transit employees, and paycheck protection programs arguably did little to nothing to fuel inflation but instead helped stop the economy from falling into a deflationary collapse (the U.S. economy experienced deflation in April and May 2020).

³² Source: Federal Reserve Bank of St. Louis
³³ Source: YCharts, Inc.

Did Congress and the Fed overshoot? Probably. Were there businesses and households who received stimulus funds who didn't need it? Certainly. But, at least in retrospect, it looks like the Fed and Congress got it mostly right. The economy stabilized, began recovering in Q3 2020, and employment quickly rebounded with unemployment plummeting to near 50-year lows. The third quarter of 2020 saw real GDP growth of 33.4%, a powerful recovery by any measure that came quickly on the heels of Q2 2020's record-setting contraction. Yet it took nearly a year—not until April 2021—before any hint of inflationary pressures began showing up in consumer prices. Whether one considers that a win or not is obviously subjective; economics offers no guidance there. But the facts remain that the economic recession experienced between February 2020 - April 2020 was both the shortest and sharpest in modern economic history (it lasted two months during which GDP fell a staggering 19.4%). Therefore, when we consider the steep decline in GDP and money velocity during the pandemic, it seems unlikely that COVID-related stimulus spending is a significant contributor to today's inflation; and if it is, it's certainly not the only contributor.

Exhibit I: Of the \$5 trillion in pandemic stimulus, a significant amount went towards sustaining demand, not increasing it.³⁴



Conclusion

To conclude, any analysis of today's high inflation must begin with the fact that it is global in nature; it is not a uniquely U.S. problem. Consequently, its causes are likewise global in nature; it's not believable that Fed policy or U.S. deficit spending would cause inflation in places as far away as Iran, Pakistan, Russia, and many nations throughout sub-Saharan Africa. While quantitative easing and pandemic-related spending may be contributors to today's high inflation, its biggest causes are likely a combination of COVID-induced economic shutdowns and re-openings; significant global supply chain disruptions; Russia's invasion of Ukraine and its subsequent impact on food and energy prices; and limited global refining capacity.

Part III: Implications for Fed Policy and Investors

Implications for interest rates and GDP growth

Given inflation is a global phenomenon, with a myriad of global and domestic contributing factors, the Fed's ability to tame inflation through rate hikes and quantitative tightening ("QT") is limited. The Fed largely influences demand; it cannot miraculously increase supply—but it can heavily influence demand by constraining credit (via rate hikes). And since so many of today's inflationary pressures can be attributed to supply side constraints—COVID-shutdowns in China, limited refinery capacity, and the war in Ukraine's impact on food and energy prices—it's quite possible that the Fed's policy actions will be less effective than it thinks.

There are two possible outcomes implied by this view. First, the Fed could very well continue its current course of action, a conclusion that's reinforced by the recent hawkish tone of several FOMC board members, including Chair Jerome Powell. Yet there are several problems with the Fed's current approach. As we've shown, food and energy prices are significant drivers of today's high inflation and the Fed has no control over COVID-shutdowns in China, global refinery

³⁴ Parlapiano, et. al., "Where \$5 Trillion in Pandemic Stimulus Money Went", *The New York Times*, March 11, 2022

capacity, or the war in Ukraine. In addition, it's not very "data-dependent", as the Fed so often claims is a requisite for how it approaches policy decisions. For example, there are some signs that inflation is beginning to cool—core inflation appears to have peaked in March and commodity prices, after peaking on June 9, have since fallen 11%.³⁵ Forward inflation expectations have all come down recently and the 5-year forward inflation expected rate now stands at 2.3%—within easy striking distance of the Fed's 2% average long-term target inflation rate.³⁶ When we consider that inflation data is lagged—meaning by the time it hits the presses it's already many weeks old (e.g., June's hot CPI report hadn't fully accounted for the impact of the Fed's aggressive rate hikes on May 6) — the same will be true of July's CPI report in that it won't have fully accounted for the Fed's eye-popping 0.75% rate hike on June 15. Therefore, while the Fed's current policy approach may ultimately bludgeon inflation into submission, in doing so it significantly increases the likelihood of recession (the proverbial "hard landing" that the Fed hopes to avoid). In fact, the Atlanta Fed now believes the U.S. economy to already be in recession.³⁷

The second possible outcome is that Fed changes course in some way—not necessarily by cutting rates but by slowing or lowering future rate hikes. There are, after all, growing signs that the economy is slowing—a rising trade deficit, declining home sales, growing business inventories, and record low consumer confidence. A significant decline in the Federal deficit over the past six months is also contributing significantly to a slowing economy³⁸—the deficit has declined 80% YTD relative to the same period for 2021 and the government posted its largest monthly surplus ever in May 2022. To be fair, there are still signs the economy is growing—unemployment remains near record lows, consumer spending remains strong (ironic given such low consumer

sentiment), and the Purchasing Managers' Index (PMI) stood at 51.4 (a reading over 50 indicates expansion).³⁹ Therefore, forecasting the odds of a recession is a game of probabilities, not certainties. But given the increased probability of recession—which economists estimate to be in the 50% range presently (the odds of a recession in any given year are about 15%)—there is a strong possibility in our view that the Fed changes course at some point later this year.

Implications for investors

Whether the U.S. economy tips into recession remains to be seen. Given such a high degree of uncertainty, it helps to step back and take stock of what we know and don't know.

First, if the economy tips into recession, we don't know how severe or long-lasting it would be. There is no reason to think it would be deeper or longer than average. Unlike 2008, the U.S. banking sector today is not overleveraged and is in fact well-capitalized. Similarly, unlike March 2020, the pandemic has largely subsided, at least outside China and other emerging markets. But we know from history that since 1946 the average recession has lasted an average of 10 months and that the average expansion has lasted for over five years.⁴⁰ To quote JP Morgan's David Kelly, we still live in a "world of short winters and long summers".⁴¹

Second, we don't know when the bear market will end but we do know that bear markets, defined as a decline of 20% or more, are normal. There have been 26 bear markets in the S&P 500 Index since 1926—about one every 4 years—lasting an average of 9.6 months.⁴² If you're keeping track, the market last peaked on January 3, 2022—meaning today's bear market is approximately 6 months old.

³⁵ Bloomberg Commodity Index as quoted by David Kelly in "Notes on the Week Ahead", JP Morgan Asset Management, June 28, 2022.

³⁶ Source: YCharts, Inc. Data as of June, 29, 2022.

³⁷ "Atlanta Fed GDP tracker shows the US economy is likely in a recession", CNBC, July 1, 2022

³⁸ Source: Federal Reserve Bank of St. Louis, FRED; Congressional Budget Office

³⁹ See: JP Morgan "Guide to the Markets", June 27, 2022, slide 50.

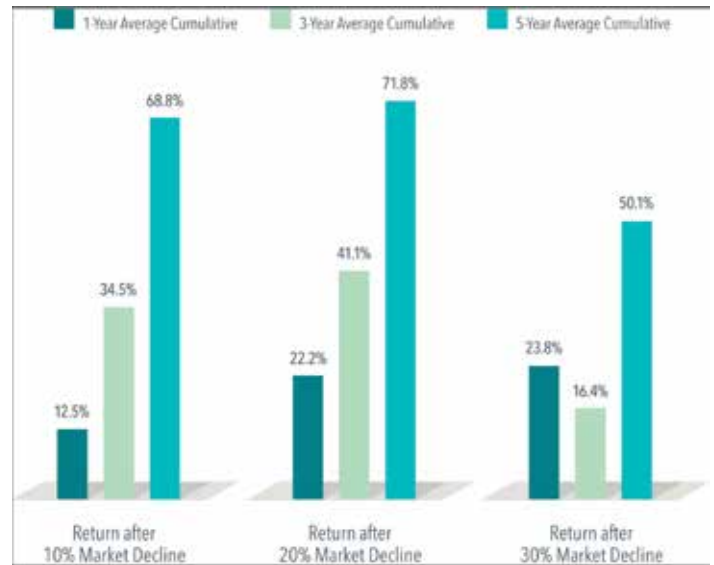
⁴⁰ "Recession Risks & Investment Implications", JP Morgan Notes on the Week Ahead by David Kelly, June 22, 2022.

⁴¹ Ibid.

⁴² Source: Hartford Funds, "10 Things You Should Know About Bear Markets"

Finally, we don't know when the economy or bear market will hit bottom. However, we do know from history that the market is forward-looking and tends to lead the economy. Said differently, markets tend to bottom before the economy does. Consequently, attempting to time markets in anticipation of an economic recession—which is only identified in hindsight using data that is weeks or even months old—is not a good idea. Despite 12 recessions and 12 bear markets since 1947, the S&P 500 Index has returned 12.57% annually.⁴³ Further, markets have historically posted exceptionally strong returns in the wake of bear markets. Since 1926, stocks returned an average of 22.2% in the first year following a 20% decline—and a cumulative return of 71.8% after five years.⁴⁴ The takeaway is that it's far better for investors to be strategically well-positioned to benefit from long summers than to try to tactically trade around short winters.

Exhibit J: Market returns have been strong in the wake of bear markets. Source: Fama/French Total U.S. Market Research Index Returns, July 1926 - December 2021⁴⁴



⁴³ Source: FactSet, Inc. Rolling 1-year returns since 1947. Analysis of 906 rolling 1-year periods using monthly returns data for the period January 1947 - June 2022.

⁴⁴ "History Shows That Stock Gains Can Add Up after Big Declines", Dimensional Fund Advisors, June 2022. Data is the Fama/French Total US Market Research Index, July 1926 - December 2021.

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