# **Economic Intelligence Report**November 2022

GAMMA INVESTMENT CONSULTING

#### Dear Gamma Subscriber.

Welcome to the inaugural issue of the Gamma Economic Intelligence Report. The Economic Intelligence Report joins our family of Global Macro, Equity, Energy, and Real Estate Intelligence Reports. Unlike the Macro, Equity, and Energy Reports, which focus on specific trade recommendations and analysis of investment instruments, the Economic Intelligence Report focuses on long term forecasts of economic and financial indicators for the major industrial countries and emerging markets.

The Gamma Macro and Equity Forecasts are based on our Gamma Global Macro Model, a proprietary nonlinear econometric algorithm that has accurately predicted major trends and inflection points for stocks, stock indexes, bonds, foreign currencies, and commodities for over 35 years. The Gamma Economic Forecasts are based on our nonlinear Vector Auto Regression (VAR) Model. This Model is particularly adept at identifying complex interactions between key economic and financial indicators and using that that information for long-term forecasting. Unlike the Gamma Global Macro Model, which is designed specifically for trading and investing, the Gamma VAR Model is designed to predict long term trends and reversals months or even years in advance. The Gamma VAR Model is thus very well suited for long-term financial planning and hedging purposes.

The Gamma VAR Model is updated mid-month. Output from the Model includes forecasts of interest rates, stock indexes, commodity indexes, exchange rates, output, employment, income, and producer and consumer prices from one month to three years into the future. Forecasts are also presented graphically in charts that include historical data and forecasted values. Both the Report and the supporting tables and charts are available via email and on our website.

# Gamma US Economic VAR Model Highlights

- Our Gamma Economic Model predicts a mild-to-moderate recession next year. The labor market is expected to remain robust, however, with only a relatively small rise in unemployment.
- Interest rates should peak in the first quarter.
- Inflation will decline steadily but slowly through 2023 with the yr/yr rate not falling below 6% until year-end.

#### **United States Economic Outlook**

#### **Summary**

The US economy continues its late-cycle slide into recession. Persistent worsening of core inflation (prices excluding food and energy) has clearly spooked the Fed. After bottoming at a 1.2% yr/yr rate in May 2020, core consumer prices have risen to a 6.6% rate in September – the highest level since August 1982. The central bank is increasingly worried that inflation expectations will become embedded in wages and prices. That would potentially require a much more severe recession to bring inflation back to its target 2% annual rate.

The Fed has hiked rates by 300 bps since their bottom in mid-2020, and markets are expecting another 75 bps rise in November. The Gamma VAR Model predicts that this series of rate hikes will push the US economy into a moderate recession by the second quarter of 2023 even without the additional 50-75 bps increase expected in December. Inflation is likely to remain stubbornly high with the yr/yr rate not dropping below 8%



until mid-2023. If the Fed worries that inflation is not declining as quickly as desired, additional rate hikes after November and December may be in order. The result would be a quicker and sharper drop in the inflation rate but at the cost of a more severe economic downturn.

Given what the Fed has done up to now, a mild-to-moderate decline in economic activity and inflation is already "baked into the cake." The bigger question is how long and how aggressively the Fed raises interest rates over and above the next two rate hikes. Each additional hike increases the risk of a more severe recession.

### Monetary Policy: How Did We Get Here?

The current tandem of slowing growth and 40-year high inflation is a direct consequence of the ill-advised fiscal and monetary responses to the Covid-19 pandemic. In early 2020 when the Covid threat emerged, the response was to shut down essentially everything for two weeks in order to "flatten the curve" so the number of cases would not overwhelm the health care system. The two weeks quickly turned into two years as countries around the world imposed various degrees of authoritarian shutdowns.

In the US, an unprecedented wave of fiscal and monetary support for employees and businesses adversely affected by the shutdown was launched. In a world where governments are competent, the responsible course of action would have been to borrow the funds against future income (to compensate for the current loss of income) and then repay the loans when the economy returned to post-Covid normal. Instead, the federal government borrowed over \$5.8 trillion between December 2019 and December 2021. Of that \$5.8 trillion, \$4.5 trillion was purchased by the Federal Reserve. So rather than funding the borrowing through savings, \$4.5 trillion of the \$5.8 trillion was paid for by printing new money. The result was a record surge in money growth. True Money Supply (TMS) increased 78% between December 2019 and December 2021 (Chart 1). To put this into perspective, the previous largest 24-month increase ever in TMS was 32% ended in December 2012 after the 2008-09 financial crisis.

Between 2009 and 2019, a 1% increase in the money supply raised consumer prices an average of 0.2%. Using that same relationship today, the 78% increase in TMS would have been expected to increase consumer prices by 14.3%. In practice, consumer prices since December 2019 have risen 14.8% - pretty close to the predicted

CHART 1
Nominal TMS and M2

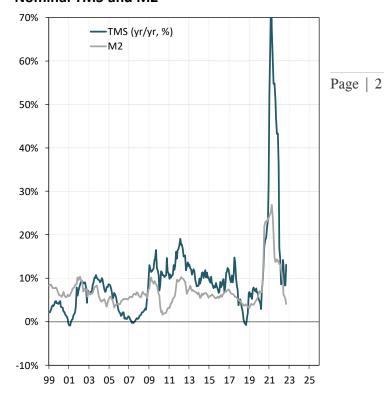
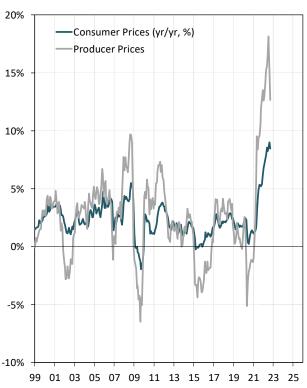


CHART 2
Inflation Measures



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level (Chart 2). Despite this obvious "back of the envelope" calculation, Federal Reserve officials have been "surprised" by the size and persistence of the inflation they've created. What is most concerning is that 1) Fed officials were aware of the consequences of their actions and did it anyways (which makes them corrupt), or 2) they were unaware of the consequences of their actions (which makes them incompetent). In either case, we now have to live with the consequences of their actions.

Milton Friedman once noted that inflation is everywhere and at every time a monetary phenomenon. The problem is that history also has few examples of surging inflation that did not end in a severe recession when bringing it to an end.

The Fed realized in early 2021 that the "transitory" jump in the inflation rate was anything but. They have been behind the tightening curve ever since. The Federal Reserve first increased interest rates by 25 bps in March when consumer price inflation was already at a 40-year high of 7.5%. The inflation rate has since risen to 9.0%, and the Fed has been forced to hike rates four more times this year. The Fed Funds rate now stands at 3.25%, up 3% from its Covid-low and is likely to be increased by 75 bps in November and another 50-75 bps in December (Chart 3).

CHART 4
Federal Government Debt (Trillion \$)

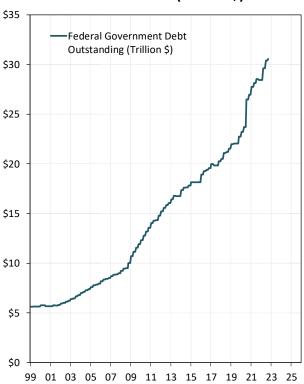
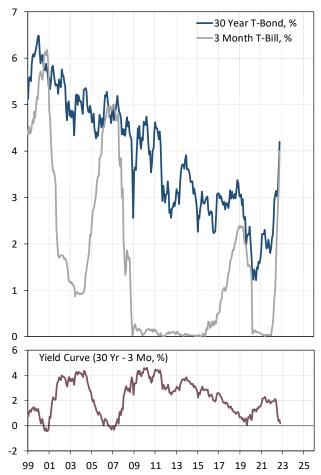


CHART 3
Interest Rates: United States



Accompanying the rise in interest rates has been the worst bear market in bonds in 40 years. The yield on the 10-year Treasury note bottomed at 1.25% in July 2021 and has since climbed to over 4.20%, its highest level since before the financial crisis in 2007. The yield on the 30-year Treasury bond, the reference rate for 30-year fixed rate mortgages, has similarly climbed from 1.20% to over 4.20%. Interestingly, the major part of the selloff in the long end of the yield curve occurred not when inflation rose from a 1.5% to a 7% rate, but when the Fed began to curtail its purchases of Treasury securities. The Federal Reserve bought an average of \$177 billion a month in Treasuries between January 2020 and the Fed's rate hike in March 2022. Since then, the Fed has been liquidating its portfolio at the rate of \$8 billion a month.

The Fed's exit from the Treasury market has created a major funding problem for the US government. The US Treasury must now compete with private sector



borrowers without the backstop of the Federal Reserve as the "buyer of last resort." The result is that 10-year Treasury yields have jumped almost 2.50% since the Fed began tightening. The US government has borrowed a staggering \$2.5 trillion in the past 12 months, and it is expected to borrow \$1.2 trillion in the next year.

The Fed has painted itself into a corner. On the one hand, if it eases prematurely on any sign of economic weakness, bond investors may question the central bank's commitment to bringing inflation under control. In that case, investors may demand even higher yields as protection against what they perceive as persistently high long-term inflation. Alternatively, it can continue to liquidate its bond portfolio as part of its plan to bring inflation back down to 2%. In that case, long term rates may rise even further as the Treasury tries to finance a deficit that will top 5% of GDP next year.

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Neither option bodes well for the economy. Barring a completely unexpected return to fiscal sanity, the Fed has likely resigned itself to whatever interest rate hikes are necessary to bring inflation down decisively. The alternative is to allow inflationary expectations to become so embedded that it requires a severe recession to dislodge them.

The increase in interest rates has adversely affected two of the most reliable predictors of the economy: money growth and the yield curve. A major consequence of the Fed's rate hikes has been a collapse in money growth. Real (inflation-adjusted) TMS growth has plummeted from a 74% yr/yr rate in mid-2021 to a -0.6% rate last month. Real M2 growth has similarly collapsed from a record 25% rate in 2021 to a -4.4% yr/yr rate last month. Negative real money growth has preceded every recession since WW II. This swing to negative money growth has likely already set in motion at least a moderate recession next year.

The yield curve has also flattened (i.e. short-term rates have risen faster than long-term rates) since mid-2021. In May 2021, 30-year Treasury yields were 230 bps above the rate on 3-month T-bills. That spread narrowed to only 45 bps last month due to the sharp rise in T-bill rates. Flattening yield curves tend to be associated with major contractions of liquidity. Inverted curves (in which short term rates are higher than long-term rates) are

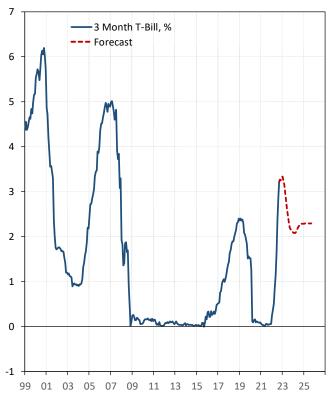
especially predictive of major economic slowdowns and also major bear markets in equities. An inverted yield curve has preceded the five worst recessions since 1960. The 3-30 curve is not yet inverted, but it is virtually certain to be if the Fed follows through with rate hikes at both its November and December meetings.

#### The Outlook

The Gamma VAR Model predicts that interest rates will peak with the December 2022 Fed rate hike before declining slowly but steadily after the first quarter 2023 (Chart 5). The higher interest rates are likely to ensure that money growth remains weak and remains a drag on the economy. Real TMS growth is projected to drop to a -4.5% yr/yr rate around the middle of next year (Chart 6). Real M2 growth is also expected to fall further to a -6% yr/yr rate.

As a result of negative money growth and the flattening yield curve, the Conference Board's Index of Leading Economic Indicators (LEI) has turned negative yr/yr for the first time since January 2020. Negative annual growth in the LEI has historically been an extremely accurate predictor of major

CHART 5
3 Month Treasury Bill Forecast





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declines in economic activity. The Gamma VAR Model is predicting that the yr/yr change in the LEI will hit a bottom of -10.3% in mid-2023 before gradually recovering (Chart 7). The LEI index has typically led changes in economic activity by 6-12 months.

The impact of tighter monetary policy is expected to push the economy into a recession by early 2023 as measured by the Index of Coincident Economic Indicators, an excellent monthly proxy for GDP. The CEI is forecasted to bottom at a relatively modest -1.4% yr/yr rate (Chart 8). For comparison, the Index was down -3.1% during the 1981-82 recession, was down -1.9% in 2000-01, and plummeted -8.4% following the financial crisis in 2008-08. Most major economic indicators are likely to suffer a similar fate. Industrial production expected to fall -5% yr/yr by mid-year and real personal income could be down over 10% due to only a slow decline in inflation. The rise in interest rates will be especially hard on the housing sector, where housing starts are expected to drop to a 1.18 million unit pace from a 1.8 million unit peak as recently as May 2022.

CHART 7
Leading Economic Indicator Forecast

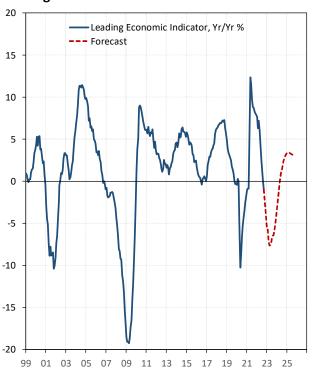


CHART 6
Real True Money Supply (TMS) Forecast

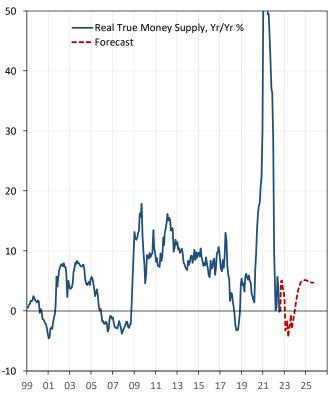
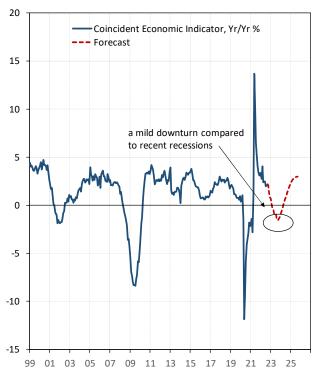


CHART 8
Coincident Economic Indicator Forecast





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The one sector that is expected to weather the recession fairly well is the labor market. Due to lingering imbalances due to the Covid shutdowns and low labor force participation rates, the unemployment rate is expected to rise to only 4.8% by late 2023 from 3.5% currently (Chart 9). Payroll growth is expected to remain positive except for only a small decline late next year.

Note that these forecasts are based on an expected peak in interest rates in December. The Chicago Mercantile Exchange's FedWatch tool indicates that markets currently expect, with about 50% probability, another 50 bps rate hike next February. The Gamma Model does not expect this to occur, but if it does it would likely reduce money growth even further which would increase the magnitude and duration of the recession.

The whole point of the Fed's rate hikes is to bring the inflation rate back to its 2% target rate. Given that the Fed is willing to risk a recession to accomplish this, what is the outlook for inflation? Since the central bank began raising rates, several leading inflation indicators have peaked and are pointing to a more broad-based decline in the inflation rate.

Raw industrial materials prices peaked at a 46.5% yr/yr rate in mid-2021 and have since fallen sharply to a -9.2% rate mirroring the slowing in output. The Gamma VAR Model predicts industrial commodity prices will continue to drop to a -20% yr/yr rate in the second quarter before bottoming and starting to work higher. The S&P GSCI Commodity Index, which is more heavily weighted by energy and food products, rose at almost a 100% yr/yr rate in April 2021 before easing to a more moderate 9% rate last month. The Gamma Model projects the index to bottom at a -25% rate in mid-2023.

Based on the developments in commodity prices and weaker economic activity, the Gamma Model now projects that headline CPI inflation will peak at an 8.5% rate in very early 2023. The inflation rate is expected to fall slowly but steadily through 2023, though it is still projected to be above a 6% annual rate at year-end (Chart 10). The rate is expected to drop much more sharply in 2024, but our projection does not show either the CPI or the Fed's preferred measure, the personal consumption expenditure deflator (PCED), to fall to less than a 3.8% yr/yr rate by

CHART 9
Unemployment Rate Forecast

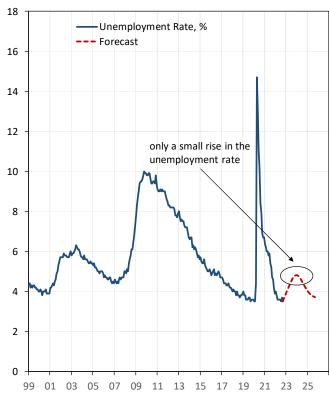
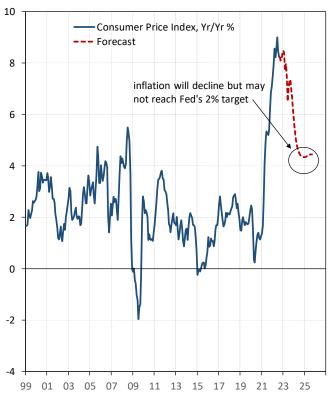


CHART 10
Consumer Price Index (CPI) Forecast



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late 2024. The implication is that, if the Fed is serious about bringing inflation back to its 2% range, interest rates may not come down rapidly even if economic activity eases more than expected.

-Karl Chalupa

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Mr. Chalupa is the CEO and Co-Founder of Gamma Investment Consulting and Editor of the Gamma Intelligence Reports. He is also President of Gamma Capital LLC, a quantitative global macro investment firm. Mr. Chalupa developed the Gamma Investment Program used for previously trading the firm's \$400 million global macro program. He was previously Director of Risk Management at Titan Advisors LLC, a \$4.5 billion alternative investments firm. Mr. Chalupa was also Managing Director of the Currency and Alternative Investment Strategies Groups at State Street Global Advisors (SSGA) where he developed a \$9 billion currency overlay program and launched SSGA's first hedge fund based on his Gamma Model. Mr. Chalupa spent 13 years at ABN Amro Bank where he traded interest rate and currency derivatives and was Manager of the Proprietary Trading and Economic Research Desk. He began his career as an economist for the Federal Reserve Bank of Chicago. Mr. Chalupa holds an MA in Economics from Brown University, graduated magna cum laude from Northern Illinois University with BAs in Economics and Political Science, and is Series 3 registered.



# Gamma US Economic VAR Model Forecasts for November 2022

For detailed forecast charts, please see the attached PDF file or visit our website at www.gammaic.com.

TABLE 1 Updated: 10/17/22

TABLE 1								Updated:	10/17/22
			Current			Model Fo	orecast		
Indicator	Measure	End of	Value	1 Mo	3 Mo	6 Mo	1 Yr	2 Yr	3 Yr
3 Mo T-Bill	Yield, %	Sept	3.22	3.26	3.32	3.14	2.20	2.28	2.29
5 Yr T-Note	Yield, %	Sept	4.08	4.13	4.18	4.14	3.86	3.71	3.47
10 Yr T-Note	Yield, %	Sept	3.80	3.86	3.93	3.94	3.79	3.66	3.44
30 Yr T-Bond	Yield, %	Sept	3.76	3.83	3.92	3.95	3.93	3.80	3.59
S&P 500 Index	Level	Sept	3,585.62	3,561.26	3,517.37	3,470.42	3,597.59	3,961.94	4,323.93
S&P/GSCI Commodity Index	Yr/Yr, %	Sept	9.0%	2.7%	6.6%	-18.8%	-3.6%	0.3%	3.7%
Raw Industrial Materials	Yr/Yr, %	Sept	-9.2%	-12.6%	-14.2%	-20.3%	-4.1%	1.7%	4.8%
EUR/USD	Spot	Sept	0.9950	0.9940	0.9930	0.9920	0.9910	0.9900	0.9890
USD/JPY	Spot	Sept	132.00	132.13	132.26	132.40	132.53	132.66	132.79
USD/CAD	Spot	Sept	1.2933	1.2946	1.2959	1.2972	1.2985	1.2998	1.3011
USD/MXN	Spot	Sept	19.934	19.954	19.974	19.994	20.014	20.034	20.054
AUD/USD	Spot	Sept	0.6960	0.6953	0.6946	0.6939	0.6932	0.6925	0.6918
USD/CNY	Spot	Sept	6.8522	6.8591	6.8659	6.8728	6.8796	6.8865	6.8934
Gold	Cash, \$/oz	Sept	\$1,674	\$1,683	\$1,705	\$1,749	\$1,887	\$2,112	\$2,401
True Money Supply {TMS}	Yr/Yr, %	Aug	13.2%	13.2%	11.9%	5.1%	4.4%	9.5%	9.2%
M1	Yr/Yr, %	Aug	3.6%	3.1%	1.6%	0.7%	5.2%	9.3%	8.6%
M2	Yr/Yr, %	Aug	4.1%	3.8%	2.8%	2.3%	6.0%	9.1%	8.4%
C&I Loans and Leases	Yr/Yr, %	Aug	14.1%	15.2%	14.9%	15.3%	9.9%	5.0%	8.9%
Index of Leading Indicators	Yr/Yr, %	Aug	-1.0%	-1.8%	-4.3%	-7.1%	-6.4%	2.5%	3.1%
Index of Coincident Indicators	Yr/Yr, %	Aug	2.2%	2.1%	0.8%	-0.4%	-1.6%	1.4%	3.0%
Industrial Production	Yr/Yr, %	Sept	5.3%	3.3%	1.9%	-1.7%	-5.4%	0.9%	2.7%
Nonag Payrolls	Yr/Yr, %	Sept	3.9%	3.5%	2.7%	1.6%	0.1%	0.9%	2.2%
Unemployment Rate	Level, %	Sept	3.5%	3.6%	3.8%	4.1%	4.7%	4.3%	3.7%
Personal Income	Yr/Yr, %	Aug	-2.4%	-1.3%	-1.5%	-0.5%	1.6%	4.4%	4.1%
PCE	Yr/Yr, %	Aug	8.2%	7.9%	7.1%	6.7%	6.3%	8.3%	8.0%
Retail Sales	Yr/Yr, %	Sept	8.2%	6.9%	8.3%	2.6%	0.3%	1.9%	2.8%
Housing Starts	1,000 units	Aug	1,575	1,524	1,434	1,300	1,180	1,386	1,416
Housing Permits	1,000 units	Aug	1,542	1,495	1,405	1,278	1,192	1,403	1,451
Existing Home Sales	1,000 units	Aug	4,800	4,706	4,525	4,279	4,142	4,344	4,509
Median Home Price	Yr/Yr, %	Aug	8.5%	6.0%	4.0%	-0.6%	1.7%	4.6%	5.8%
Construction Spending	Yr/Yr, %	Aug	8.5%	9.1%	6.7%	0.7%	-1.4%	4.1%	7.0%
Factory Orders	Yr/Yr, %	Aug	11.2%	11.1%	7.0%	1.9%	-5.9%	0.7%	1.5%
Durable Goods Orders	Yr/Yr, %	Aug	8.8%	9.9%	5.5%	-0.1%	-6.7%	0.5%	1.6%
Business Inventories	Yr/Yr, %	Aug	18.2%	17.5%	14.9%	9.0%	-1.5%	-0.2%	1.9%
Consumer Price Index	Yr/Yr, %	Sept	8.2%	8.1%	8.4%	7.7%	7.4%	4.4%	4.4%
Producer Price Index	Yr/Yr, %	Sept	11.5%	10.7%	11.4%	6.6%	5.3%	3.6%	3.9%
PCE Deflator	Yr/Yr, %	Aug	6.2%	6.5%	6.6%	6.5%	5.9%	3.9%	3.8%
Imports	Yr/Yr, %	Aug	13.3%	12.1%	5.8%	-0.3%	-2.3%	7.5%	10.6%
Exports	Yr/Yr, %	Aug	21.2%	26.2%	18.2%	16.8%	5.2%	7.2%	9.2%
Fed Govt Debt Outstanding	Trillion \$	Sept	\$30.93	\$31.14	\$31.55	\$32.24	\$33.99	\$38.00	\$41.72

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## **Macro Intelligence Report**

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