Macro Intelligence Report
March 2024

GAMMA INVESTMENT CONSULTING

Gamma Global Macro Model Highlights

- **The S&P 500 Model remained SHORT for March. The Nasdaq Model, which had been neutral, also turned SHORT**. This bearish positioning for equities is due to valuation reaching its highest level since the dot com mania of the early 2000's combined with negative liquidity that could worsen as the Fed winds down its O/N Reverse Repo Program and the Bank Term Lending Program while it continues to liquidate its investment portfolio.

- **The 10-year Treasury Note Model remained SHORT for March. The 30-year Treasury Models remained NEUTRAL. They were joined by the Investment Grade Corporate Model which went NEUTRAL after being long the previous month. Only the High Yield Corporate Models remained LONG (lower yields**). The neutral-to-short bias reflects surprisingly strong U.S. economic growth, signs that inflation may be bottoming, the Treasury Department's insatiable demand for money, and postponement of a Fed rate cut to at least June.

- **The Gold Model remained NEUTRAL for March though the silver and platinum Models remained LONG due relatively more attractive valuations.** The prospect of Fed rate cuts being delayed until the second half of the year has created a headwind for gold. The dollar's ability to hold its value against the euro and yen has also helped cap any major gold gains.

- **The EUR/USD Model remained SHORT euros (long USD) for March.** With the Federal Reserve and European Central Bank matching policy moves, the exchange rate has remained range-bound between 1.0500 and 1.1000 since the beginning of 2023. Despite this, the Model has preferred a long USD position due to the persistent interest rate differential favoring the U.S. currency.

Equity Index Outlook

The S&P 500 and Nasdaq Models remain bearish on U.S. equities (Chart 1). The S&P 500 has rallied 42% since its September 2022 low, while the Nasdaq has climbed a whopping 52%. Some of our subscribers have asked why the Program continues to take a bearish view on equities. The reasons are quite straightforward: liquidity and, especially, valuation.

- **Liquidity is improving but remains negative and could turn lower.** The Gamma Liquidity Indicator for the U.S. turned negative in February 2022 (Chart 2). 12-month momentum of the Indicator turned negative in May 2021. The Gamma Nasdaq Model turned neutral in January 2022 with the S&P 500 Model following a month later. After going neutral, the Nasdaq posted a -25.6% drawdown ending in September 2022 followed by a second -10.5% drawdown ending in October 2023. The S&P 500 fell -17.9% followed by an -8.6% loss. Since the Gamma Models turned neutral, the Nasdaq has gained 13.2%. The S&P 500 has risen 16.3%.

  Since 1970, the average annual return on the S&P 500 when the Liquidity Indicator has been negative has been 3.8% compared to an average annual return of 9.1%. During periods when liquidity has been negative, returns have been only 43% of the long-term average. The Gamma Liquidity Indicator is not foolproof - there have been instances in the past when contractions in liquidity have not been followed by declines in stock prices. **However, with the Gamma Liquidity Indicator still in negative territory, the odds continue to favor below-average equity returns. This is especially true since none of the Indicator's components have yet to turn positive, and the odds of another deterioration in liquidity are growing**.

  - **Money growth**. Real (inflation adjusted) money growth remains negative. Real True Money Supply was down -4.9% yr/yr last month. Real M2 was down -5.3% compared to a year ago. Both measures have improved steadily since bottoming in mid-2023. That improvement has likely been due to the slowing pace of interest rate hikes by the Federal Reserve and also a steady recovery in the supply of bank reserves starting in March 2023.

Readers will remember last month's extended discussion of the Federal Reserve's Overnight Reverse Repurchase Program (O/N RRP) and the Bank Term Lending Program (BTLP). The Federal Reserve back in 2020 created a special overnight reverse repo facility for money market funds to prevent interest rates from turning negative. The BTLP was established in March 2023 in reaction to the series of regional bank failures to provide funds to banks experiencing short-term liquidity problems.

As we noted last month, both of these programs have had the result of **adding** liquidity to the banking system at the same time as the Federal Reserve is trying to drain liquidity by raising interest rates and selling (or allowing to run off) parts of its investment portfolio ("quantitative tightening - QT").

CHART 1

USA: S&P 500 Model Forecast

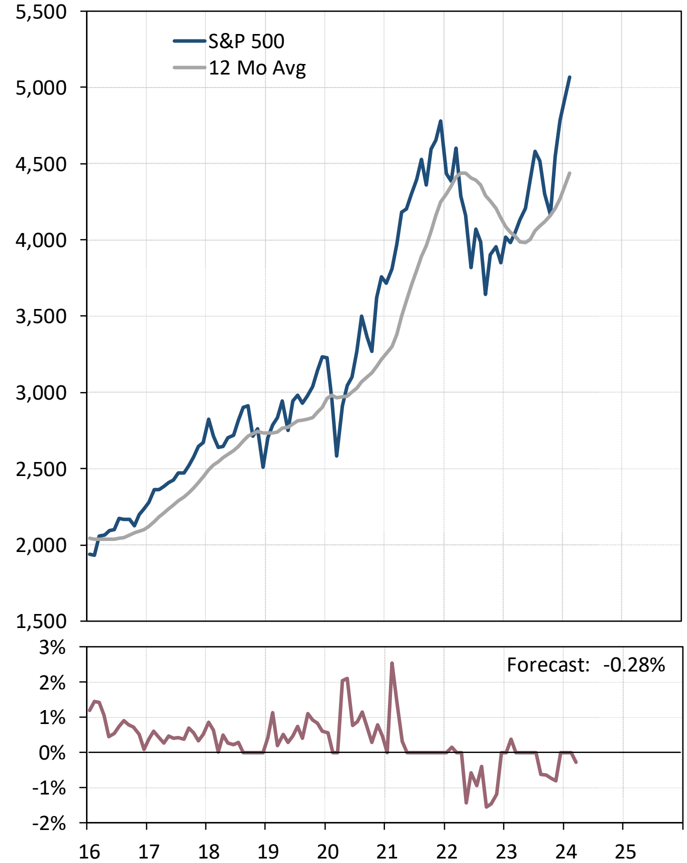
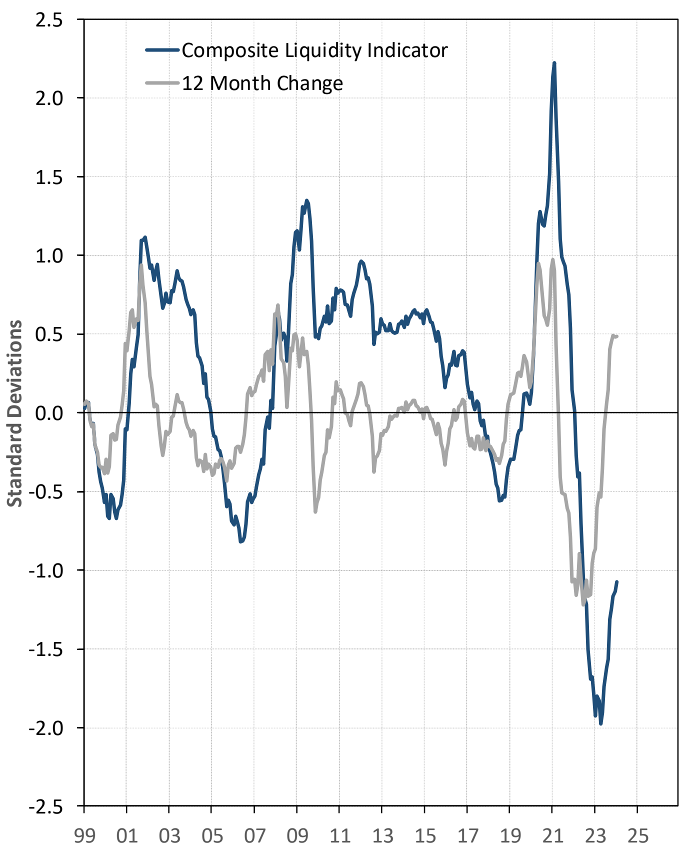


CHART 2

United States



Since peaking at $8.58 trillion in May 2022, the Federal reserve has liquidated $1.34 trillion in Treasury securities and mortgages (MBS). Such an aggressive reduction in its investment portfolio would normally be expected to reduce the level of bank reserves. In this case, however, the gradual reduction of the O/N RRP and introduction of the BTLP has more than offset the Fed's QT so that bank reserves have actually risen steadily since bottoming at the of 2022. Total bank reserves last month were up almost 16% from their year-ago level. This increase in reserves has helped offset the contractionary impact of higher interest rates and has also caused a recovery in money growth. It is also likely responsible for the buoyancy of the stock market despite the highest level of interest rates in 22 years.

Chart 3 shows the level of True Money Supply compared to the level of bank reserves since the end of 2019. Note that bank reserves bottomed in late 2022 before climbing steadily to their current level. True Money Supply bottomed about six months later. The increase in reserves may be about to reverse. To understand how these three programs, O/N RRP, BTLP, and QT, affect reserves we need to look at their total net change. Whether Fed policy is loose or tight depends on the **NET effect of all of these policies.**

The Fed has indicated that their plan is to reduce BTLP to zero by the end of March and gradually reduce the O/N RRP close to zero over the next few months. At the same time, the Fed will continue to trim its investment portfolio by about $90 billion a month. That implies that bank reserves will continue to rise, albeit more slowly, for at least the next few months. After April, however, reserves would start to decline monthly by close to the full $90 billion QT since there would be no offsetting liquidity from the BTLP or O/N RRP. To reach the Fed's (presumed) $2.4 trillion reserve target, the central bank would need to maintain QT through March 2025.

Initially slower growth followed by an outright decline in reserves will likely be followed by another downturn in money growth (Chart 3). It will also remove the source of liquidity that has kept stock prices heading higher despite the near-record rise in interest rates since March 2022. **The decline in reserves is also likely to occur just as the favorable seasonal period for stocks ends. The combination of contracting liquidity, negative seasonals, and extreme overvaluation (discussed below) would lay the groundwork for a major correction in stock prices**.

CHART 3

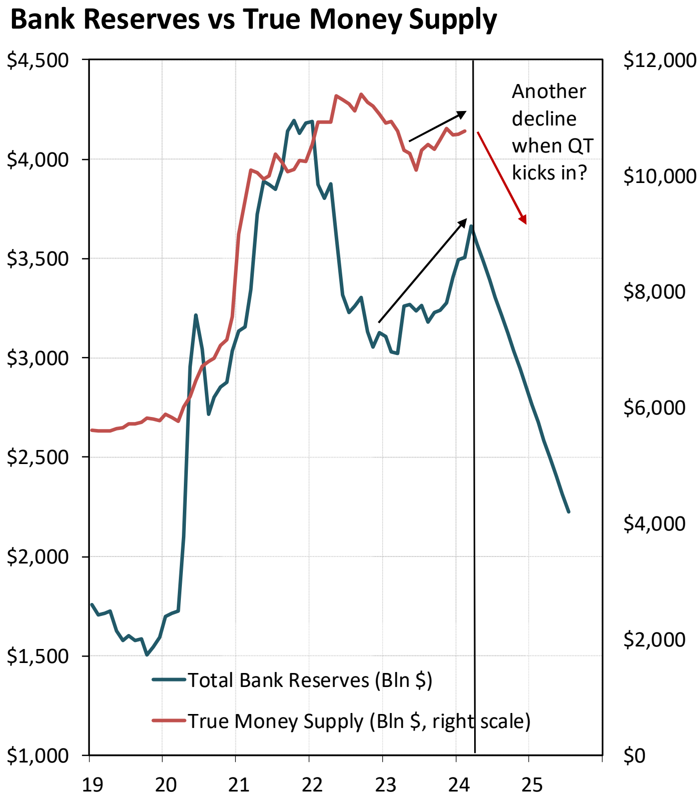
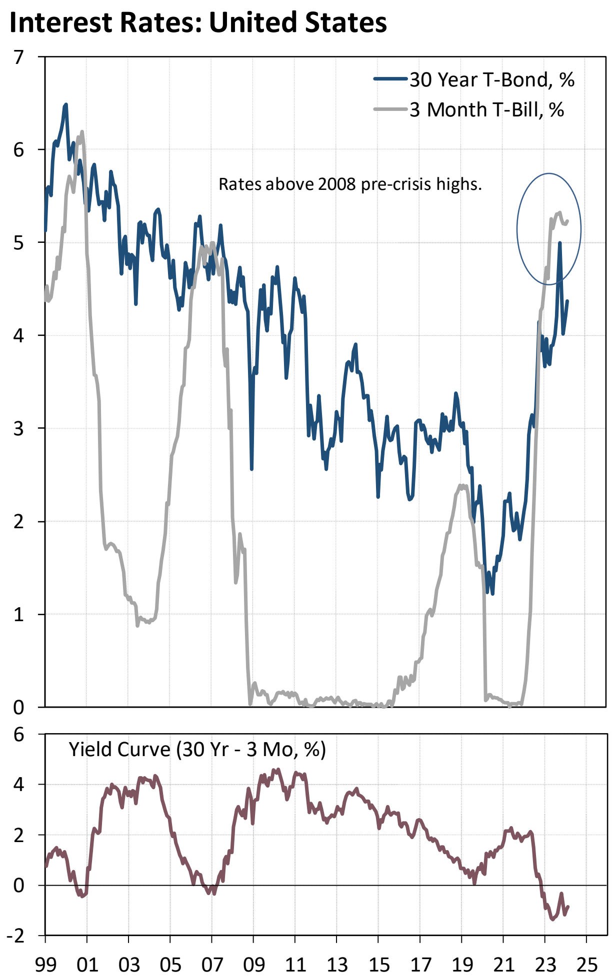


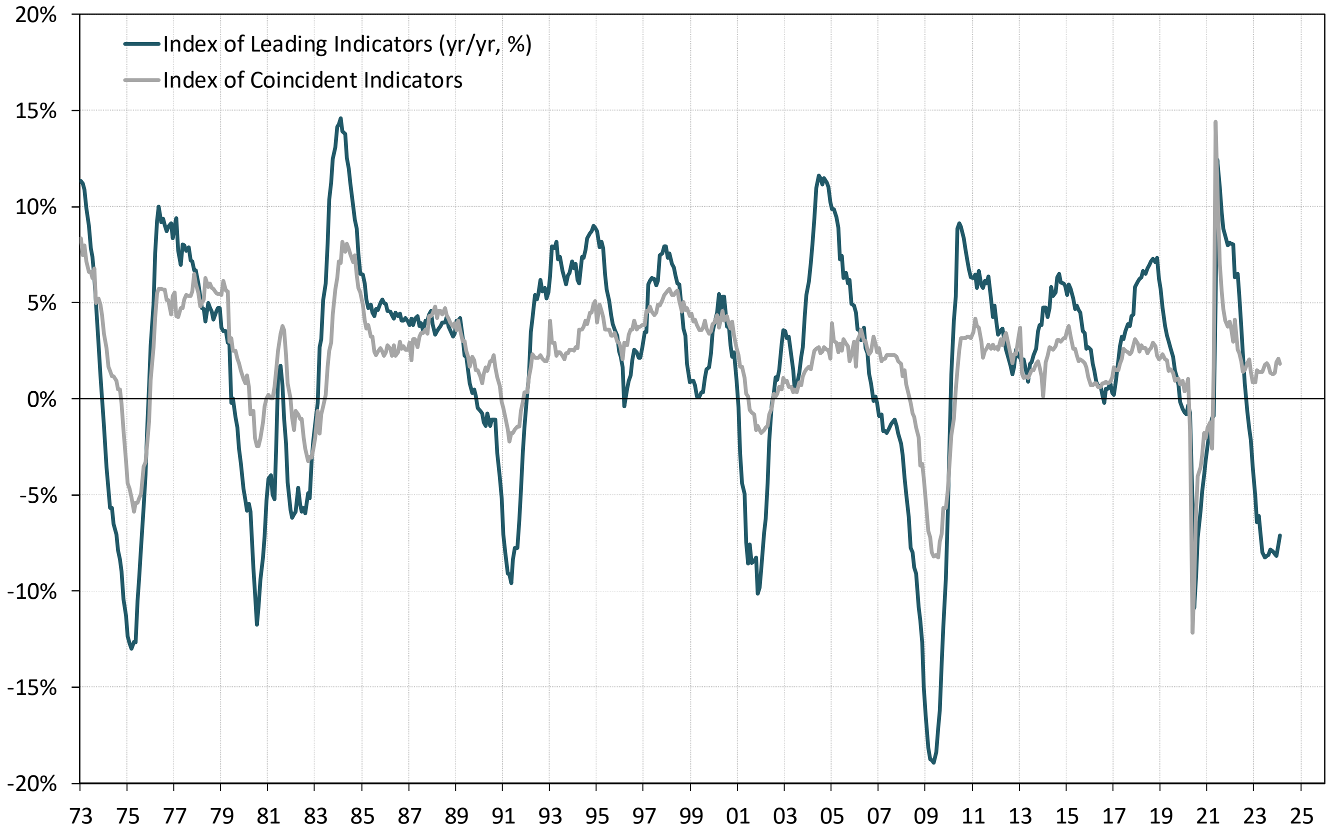
CHART 4



- **Interest rates**. Interest rates remain at their highest levels since 2001. The Fed has not raised rates since July 2023 and most of the rate hikes occurred over two years ago, but interest rate momentum remains positive with both short and long-term rates still well above their year-ago levels (Chart 4). Long-term interest rates have also crept higher for the past three months as markets steadily push into the future the timing of the Fed's first rate cut. Moreover, while not yet the consensus, an increasing number of economists and analysts are starting to suggest that there may be NO rate cuts this year. A small minority has even indicated that the Fed may even be forced to **hike rates further** after their recent seven-month pause.

The problem facing the Fed is that there is little evidence that interest rates have reached a level where economic activity is slowing substantially and, even worse, inflation

CHART 5
Measures of Economic Activity



is showing signs of bottoming. On the one hand, the Index of Leading Economic Indicators (LEI) has dropped 22 months in a row and was down -7.1% yr/yr last month (Chart 5). Economist Milton Friedman noted that monetary policy works with a "long and variable lag." Changes in the LEI have historically led changes in real GDP by an average of 9.3 months. In the current cycle, the LEI tuned negative on an yr/yr basis 17 months ago. While some sectors have clearly struggled (manufacturing, commercial real estate) and likely have moved into recession, the overall economy has remained surprisingly robust. Real GDP has now posted six consecutive quarterly increases in excess of the Fed's 2% sustainable non-inflationary growth target (Chart 6). The labor market remains solid with nine million job vacancies reported at the end of December. That's 7.5 million more openings than at the height of the Trump jobs boom and 2.6 million more than the pre-Trump record high. Add to this a 353,000 increase in nonfarm payrolls last month and you have an economy that shows little sign of falling out of bed.

CHART 6
Real GDP Growth

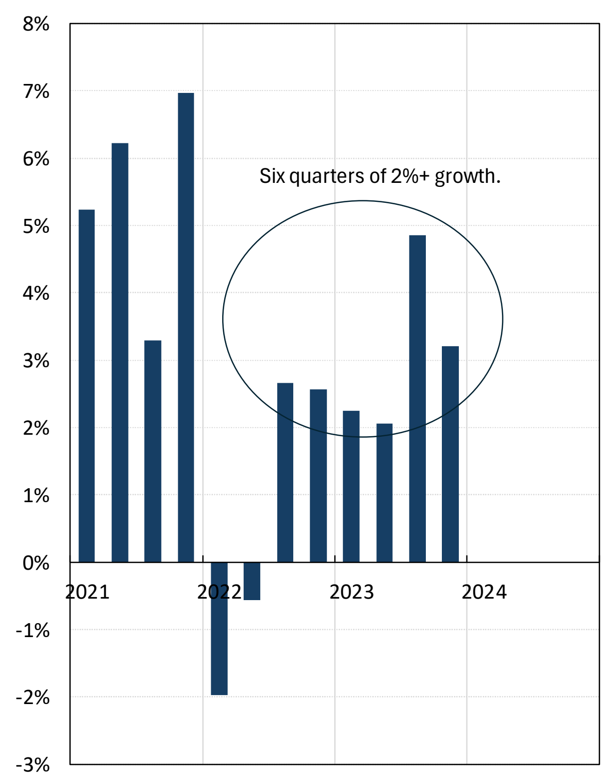
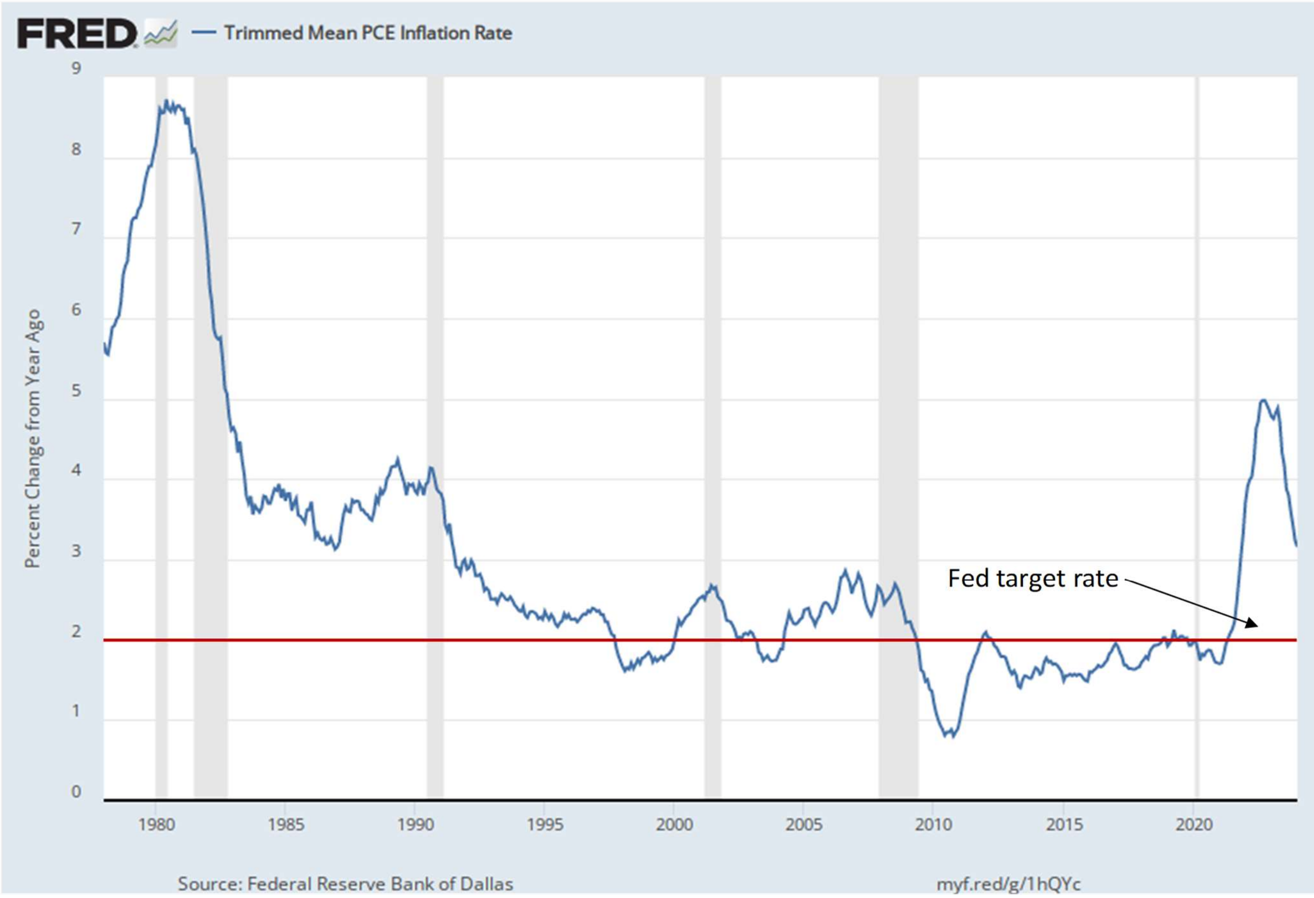


Chart 7



Further complicating the Fed's decision-making is an inflation rate that is still well above its 2% target at the same time that several measures surged last month. Chart 7 shows the yr/yr change in the Federal Reserve Bank of Dallas' "trimmed mean" measure of the personal consumption expenditure deflator (PCED). This measure attempts to identify the behavior of "core" inflation better than just excluding food and energy prices. The measure has fallen steadily from a 5% yr/yr peak in September 2022 to a 3.2% rate last month - still well short of the Fed's 2% target. Moreover, the headline PCED, PCED excluding food and energy, and PCED services all surged last month to their highest levels in a year. Services inflation was especially worrisome with an increase at a 7.4% annual rate – the strongest increase since a 7.1% rate in January 2023.

The Fed's rate hikes are likely still working through the economy so a slowdown may still potentially be coming especially if bank reserves do start to contract. The average corporate loan has a maturity of 4-5 years, so less than half of commercial loans have repriced at the current high rates. The commercial real estate sector, which already has its share of problems due to low occupancy rates post-Covid, may be a potential source of trouble. The spread between the yield on high-yield and investment grade debt, however, is still near a record low of 2.51%, almost 1.5 standard deviations below the long-term average of 3.92%. **This suggests that a credit-induced shock to the economy is not imminent despite rising delinquency rates on auto and credit card debt**.

Atlanta Fed President Raphael Bostic recently noted that "as my staff and I have talked to business decision-makers in recent weeks, the theme we've heard rings of expectant optimism. Despite business activity broadly moderating, firms are not distressed. Instead, many executives tell us they are on pause, ready to deploy assets and ramp up hiring when the time is right. I asked one gathering of business leaders if they were ready to pounce at the first hint of an interest rate cut. The response was an overwhelming 'yes.' If that scenario were to unfold on a large scale, it holds the potential to unleash a burst of new demand that could reverse the progress toward rebalancing supply and demand. That would create upward pressure on prices. This threat of what I'll call pent-up exuberance is a new upside risk that I think bears scrutiny in coming months."

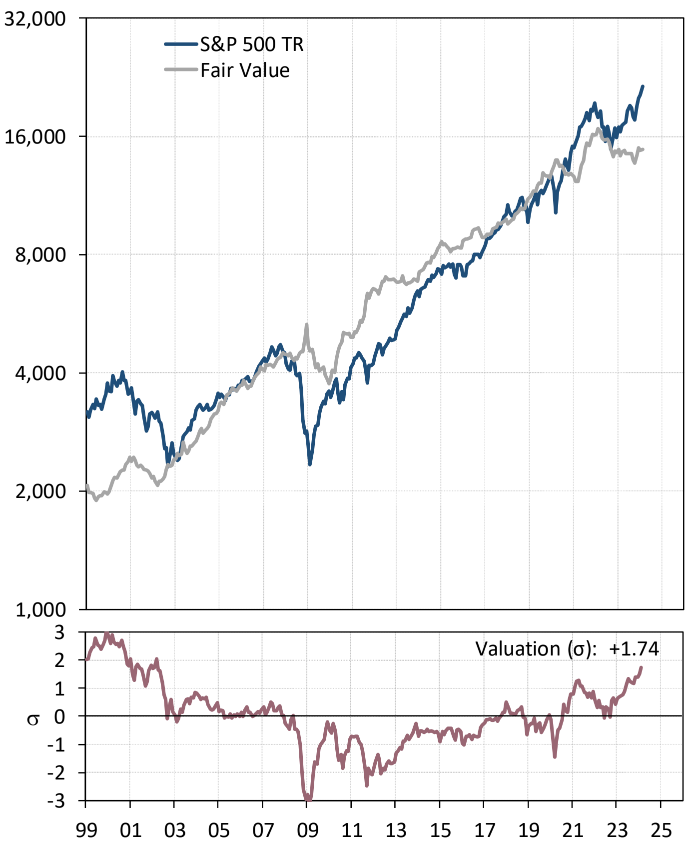
Fed officials have made it very clear that they think it would be catastrophic to cut rates only to raise them again if inflation accelerates. Barring an unexpectedly severe slowing in economic activity, the Fed is unlikely to cut if the inflation rate is stabilizing above a 2% yr/yr rate. And the current level of interest rates simply seems too low to decisively bring inflation down to a 2% rate. The implication for stocks is not good. The S&P 500 finished 2023 at 4,942.95 when the market expected six 25 basis point rate hikes in 2024. The S&P 500 has since advanced another 6.5% despite Fed Fund futures indicating that markets now expect only 75 basis points in cuts by year-end. Even these numbers are seemingly optimistic given the persistent cautious comments emanating from the Fed. In a sense, the Fed's decision to hold steady is quite simple. The economy continues to grow at a real 2%+ annual rate, and inflation is running well above the 2% target. **The most logical course is to keep rates unchanged unless there is a meaningful slowing of the economy or acceleration in inflation**.

- **Yield curves**. The 2-10 and 3-30 Treasury yield curves have flattened since inverting strongly in mid-2023, but both curves remain inverted at -0.39% and -0.86%, respectively (Chart 4). Given recent Fed comments and the combination of moderate economic growth and bottoming inflation rate, it seems highly unlikely that the sharp drop in short-term rates needed to "uninvert" the curves will happen any time soon. Inverted yield curves have historically been one of the most reliable indicators of equity bear markets. Virtually every major decline in stock prices since WW II has been preceded by a flat or inverted yield curve. The one exception, the 1987 "flash crash," was not preceded by an inverted yield curve, but both short- and long-term rates did rise sharply before the crash.

- **Valuation is reaching unsustainable levels. Equity valuation for the S&P 500 and the Nasdaq has reached levels last seen during the dot com mania of the late 1990's** (Chart 8). According to the Gamma Valuation Model, the S&P 500 is now 1.74 standard deviations overvalued (37%) and the Nasdaq is 1.86 standard deviations overvalued (52%). **These readings are the third highest since the 1950's, lagging only the levels seen before the 1973-1974 and 2000-2002 bear markets. In both cases, the S&P 500 declined by over -45%**.

  Overvaluation alone has historically not been enough to trigger major bear markets. It has usually taken a combination of high valuation plus reduced liquidity due to higher interest rates, a flattening yield curve, and slower real money growth. For example, the Nasdaq in January 1999 hit a 2.1 standard deviation level of overvaluation. Historically, the two standard deviation level has invariably been a top for equity prices. **In 1999, however, despite the high valuation the Nasdaq climbed another 24% before peaking in August 2000 with valuation hitting a record 3.1 standard deviations**.

CHART 8
USA: S&P 500 Valuation



High valuation is no guarantee that prices will not overshoot even further to the upside. That said, historical relationships indicate that the expected return to highly overvalued markets is dramatically below their long-term averages. For example, the S&P 500 at current valuation has a one-year expected return of only 0.5%. Valuation extremes can take years to unwind. For example, the two-, three- and five-year annual returns to the S&P 500 are only 3.3%, 5.1%, and 5.4%, respectively (Table 1). This compares with an average annual return of 12.9% since 1973.

TABLE 1

VALUATION vs FORWARD RETURN ANALYSIS - ANNUALIZED RETURNS **Updated: 02/29/24**

Country / Index	Valuation (σ)	Valuation (%)	Valuation-Based Forecast (Annualized, %) 1 Mo	3 Mo	6 Mo	1 Yr	2 Yr	3 Yr	5 Yr
United States	+1.88	+38%	-4.6%	-3.4%	-3.6%	-2.1%	1.2%	3.4%	4.2%
S&P 500	+1.74	+37%	-0.7%	-0.7%	-0.9%	0.5%	3.3%	5.1%	5.4%
Nasdaq	+1.86	+52%	-6.4%	-6.5%	-6.5%	-6.3%	-2.2%	1.2%	1.6%
S&P 600 Small Cap	+0.17	+3%	9.8%	9.7%	10.0%	10.4%	11.1%	11.3%	11.1%

The outlook for the Nasdaq is even more bleak. At 1.86 standard deviation overvaluation, the Nasdaq would need to fall -52% (!) just to get back to fair value. This level of valuation has historically been consistent with an average loss of -6.3% over the next year. The two-, three- and five-year predicted annual returns to the Nasdaq **based solely on valuation** are -2.2%, 1.2%, and 1.6%, respectively (Table 1). That compares to an average annual return of 15.6% over the last 50 years. The point is that regardless of whether equity prices overshoot further into overvalued territory, the odds strongly favor an extended period of underperformance that could stretch years into the future. **The Nasdaq peaked in February 2000 but did not put in a new high until 172 months later**.

Note that the level of overvaluation is not uniform across all markets. While the S&P 500 and Nasdaq are at stratospheric levels, mid-cap and small-cap stocks are much closer to being reasonably priced. Mid-cap stocks are 1.1 standard deviations overvalued (16%) – not cheap but not anywhere close to the overvaluation of large-cap stocks. Small-cap stocks are even more attractive with overvaluation of a modest 0.2 standard deviations (3%).

Nor do these numbers tell the whole story about how valuation is being driven by an extreme subset of stocks. The so-called "magnificent seven" of Amazon, Apple, Alphabet, Meta, Microsoft, Nvidia, and Tesla are up an average of 391% from their Covid-lows compared to 125% for the other stocks in the S&P 500 – a 3.1-fold outperformance. This extreme outperformance has left the magnificent seven stocks with an average 12-month forward P/E of 33.7 compared to 22.2 for the other S&P 500 stocks. But even this does not fully express how disproportionately these seven stocks have impacted the overall market. All of these stocks other than Tesla are currently at or just below the highs hit during the Covid-rally in 2021-22. The other stocks in the S&P 500 are on average still -18.7% below their previous highs.

The numbers look even worse for the mid- and small-cap indexes. The average stock in the mid-cap S&P 400 has a forward P/E of 23.5 and is down -21.1% from its Covid-rally high. The average small-cap stock in the S&P 600 is still down a whopping -31.6% from its 2021-22 peak. Only 13.8% of the 600 stocks are above their Covid peaks compared to 27.2% for the S&P 500 stocks.

The lesson from the dot com frenzy is that overextended stocks eventually return back to earth. The net effect during that transition period is to pull the entire market down with it, BUT the less extreme the overvaluation the better a stock is likely to do during that transition. The Nasdaq peaked in February 2000 with a P/E of 63.8. 31 months later, the index bottomed -73% lower with a P/E of 28.3. In contrast, the mid-cap S&P 400 during that same 31-month period started with a P/E of 19.8 and, during the -73% collapse in the Nasdaq, actually gained 22%. The small-cap S&P 600 started that period with a P/E of 19.1 and dropped -12% - only 1/6th of the loss in the Nasdaq. So, while the high-fliers may be difficult to resist due to the fear of missing out, investors should be acutely aware that when the inevitable correction comes, life will be much more comfortable in reasonably priced stocks.

II. Fixed Income Outlook

The 30-year Treasury Bond remained NEUTRAL for the third month in a row while the 10-year Treasury Note Model remained SHORT (higher yields) (Charts 9, 10). The Investment Grade Corporate Model joined the bearish camp by going NEUTRAL. Only the High Yield Corporate Model remained LONG (lower yields), a position that it's held since last November. Notably, the High Yield Corporate Model is the only Gamma Fixed Income Model globally that is not neutral or outright short bonds.

CHART 9

USA: 10 Yr T-Note Model Forecast

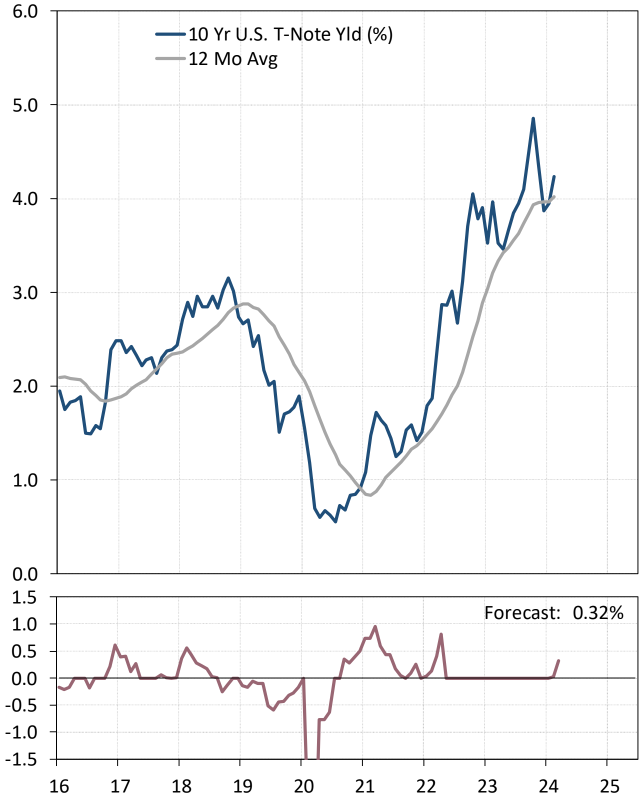
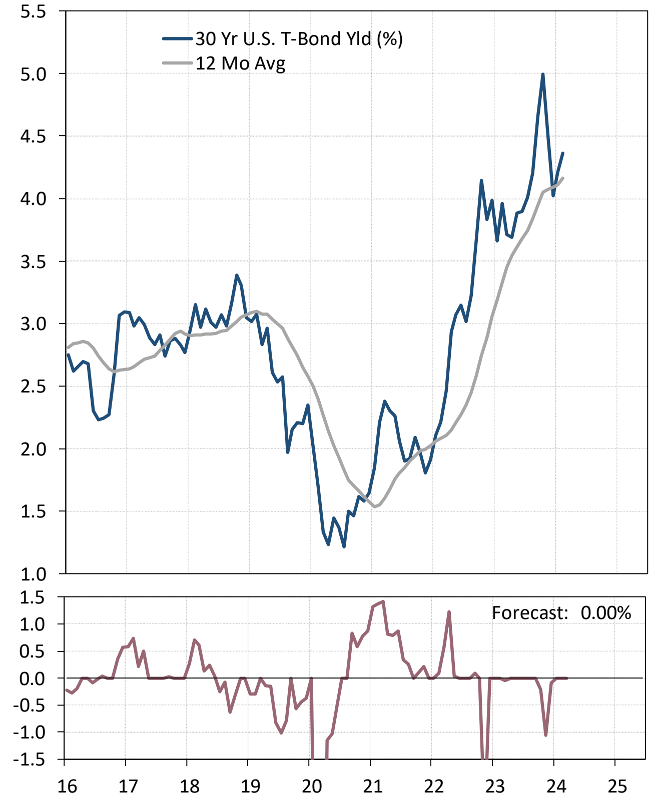


CHART 10

USA: 30 Yr T-Bond Model Forecast



- **Interest rate cut expectations have eased.** At year-end, the bond market was anticipating six 25 basis point rate cuts in 2024. That has since been cut to three expected cuts given the persistent strength in GDP and a buoyant labor market. Also, while not yet clear if it will persist, last month's across-the-board jump in the PCE deflator measures will also make the Fed leery about cutting rates while inflation is running above its 2% target rate.

- **BTLP, O/N RRP, and QT**. The winding down of the Fed's BTLP and the O/N RRP is about to clash with the Fed's $90 billion-a-month quantitative tightening. It's always difficult to predict the impact of Fed policy on long-term rates because Fed policy can have very different implications depending on the time period that investors focus on. For example, the Treasury is currently auctioning new debt at the rate of $1 trillion every three months. Raising that much cash would normally clash with a restrictive monetary policy (since the Fed is a seller rather than buyer of Treasury debt) and push rates higher. That same restrictive policy, however, is also intended to slow economic growth to reduce the inflation rate. These two forces compete with each other so the net impact on rates at any point in time can be unclear.

  We believe that moderate economic growth and potentially higher inflation will force the Fed to keep rates higher for longer than what investors are pricing into their interest rate outlook. For that reason, we expect the restrictive impact of the Fed's QT, when free of the offsetting stimulative effects of the BTLP and O/N RRP, will tend to keep upward pressure on long-term interest rates.

III. Gold and Precious Metals Outlook

The Gamma Gold Model remained NEUTRAL for March though the silver and platinum Models remained long (Chart 11). The Gold Model continues to be impacted by the risk that interest rates will remain higher longer than investors expect, and that monetary policy could turn more restrictive as the Fed's BTLP and the O/N RRP wind down. The Gold Mining Shares Model also remains NEUTRAL.

- **Interest rate expectations will slow gains**. Gold prices have slipped -0.7% since the beginning of the year as the reality of fewer interest rate cuts and potentially contracting bank reserves sinks in. The lack of a larger correction has been partly due to Chinese retail buying and steady purchases by central banks. Central banks have been net buyers of gold for the last eight months in a row (Chart 12). With the US moving beyond simple sanctions and threatening to sequester $300 billion in Russian financial assets, some central banks may be boosting their gold holdings in order to diversify into non-dollar assets. While gold is benefiting from these purchases, we continue to believe that a sustained breakout to new highs will likely be delayed until clearer signs emerge on Federal Reserve policy.

CHART 11

Gold Model Forecast

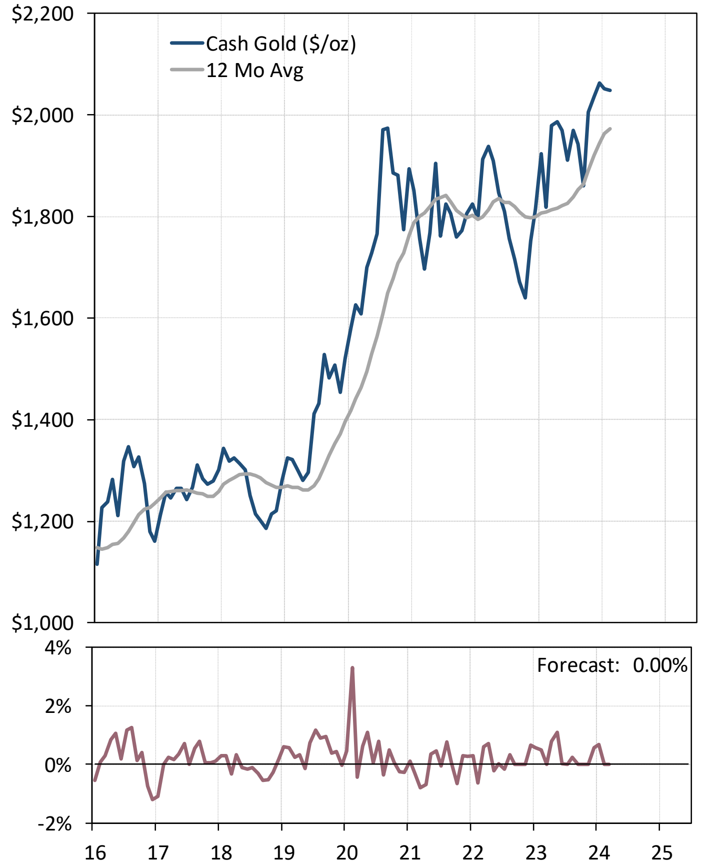
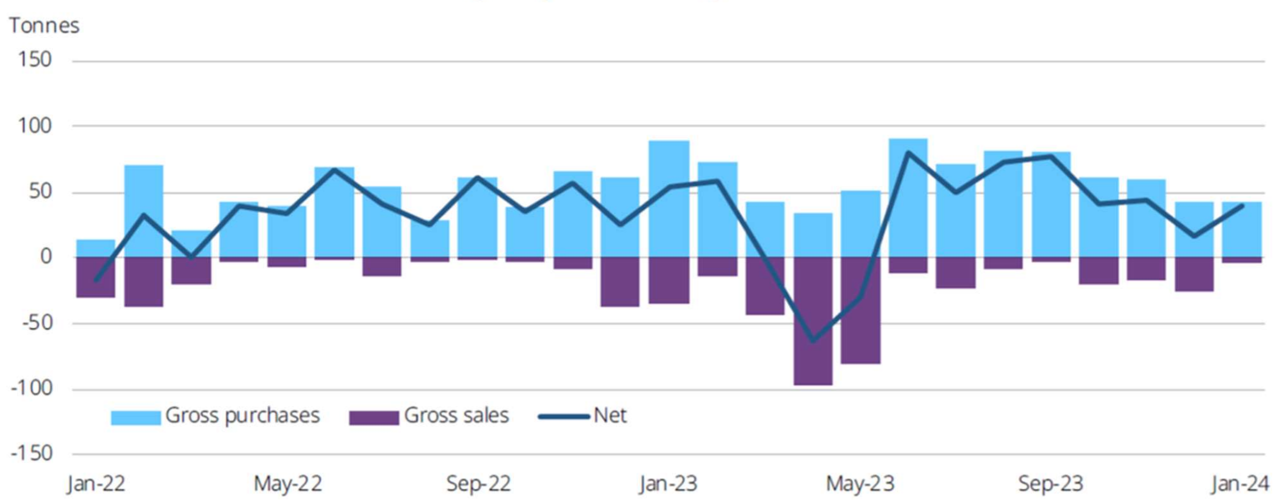


Chart 12

Central banks have now bought gold for eight consecutive months*

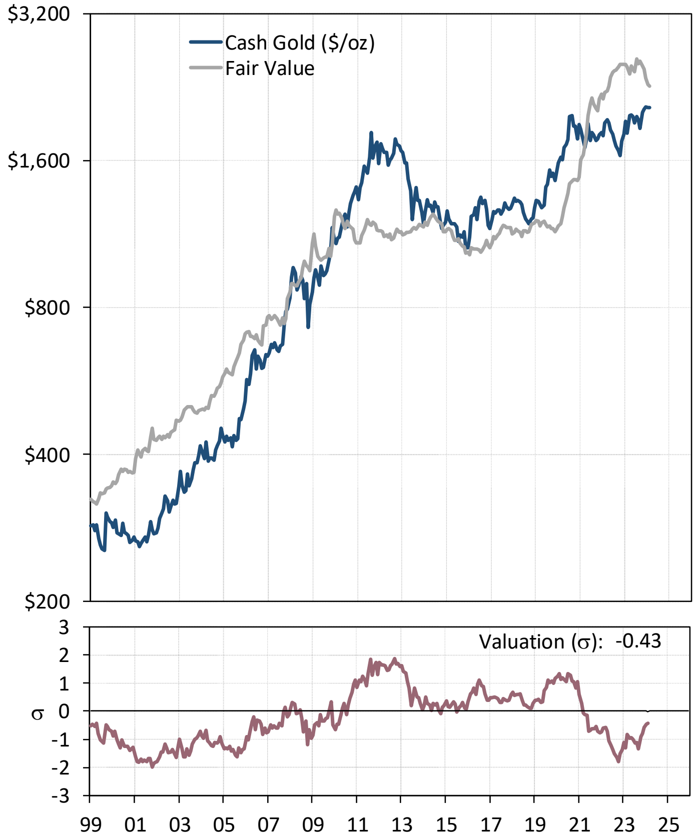


*Data to 31 January 2024 where available.

Source: IMF IFS, respective central banks, World Gold Council

- **Still favorable valuation, but….** Much of the 21% recovery in gold prices from their September 2022 lows has been due to extremely attractive valuation. Gold valuation fell to -1.90 standard deviations, the third cheapest level since 1973. That extreme level of undervaluation helped provide a floor off which the metal has rallied. The steady rise since, however, has eaten into the extreme undervaluation (Chart 13). Gold undervaluation last month improved to only -0.43 standard deviations (-10%). That implies that gold's equilibrium price is now around $2,250 $/oz. Gold should still get support from undervaluation, but a more sustained rally will need the help of a more accommodative monetary policy.

CHART 13
Gold Valuation



IV. Foreign Exchange Outlook

The Gamma EUR/USD Model remained SHORT the euro (long USD) for March for the eighth month in a row (Chart 14). The exchange rate has been stuck in a narrow trading range between 1.0500 and 1.1200 since the end of 2022. Over that time, the European Central Bank (ECB) has managed to narrow the interest rate gap with the U.S. which has helped the euro recover from its plunge to 0.9600 in mid-2022 before the ECB began raising rates. As we have noted in recent months, monetary policies for both the Fed and ECB remain in neutral for the time being. The interest rate differential favors the dollar, however, which should keep at least moderate upward pressure on the U.S. currency.

- **<u>The U.S. is likely to maintain its interest rate edge.</u>** Both Federal Reserve and the European Central Bank monetary policies are in neutral. Inflation in both regions has dropped quicker than expected but at the same time continues to run well above the 2% target rate due to persistently high service sector inflation. Eurozone services inflation in February remained at a 4% yr/yr rate for the fourth month in a row and on a month-to-month basis jumped a disturbing 0.8%. However, unlike the United States where real GDP continues to roll along despite 500 basis points of rate hikes, the Eurozone has flirted with a recession for over a year. Real Eurozone GDP has been essentially unchanged since IIIQ2022. During the same period, U.S. GDP has climbed a surprisingly strong 4.4%. For that reason, we believe that the ECB is more motivated to cut rates than the Fed even if inflation does not reach its 2% target. That implies that the dollar is likely to maintain its interest rate edge over the euro for the foreseeable future (Chart 15).

CHART 14

EUR/USD Model Forecast

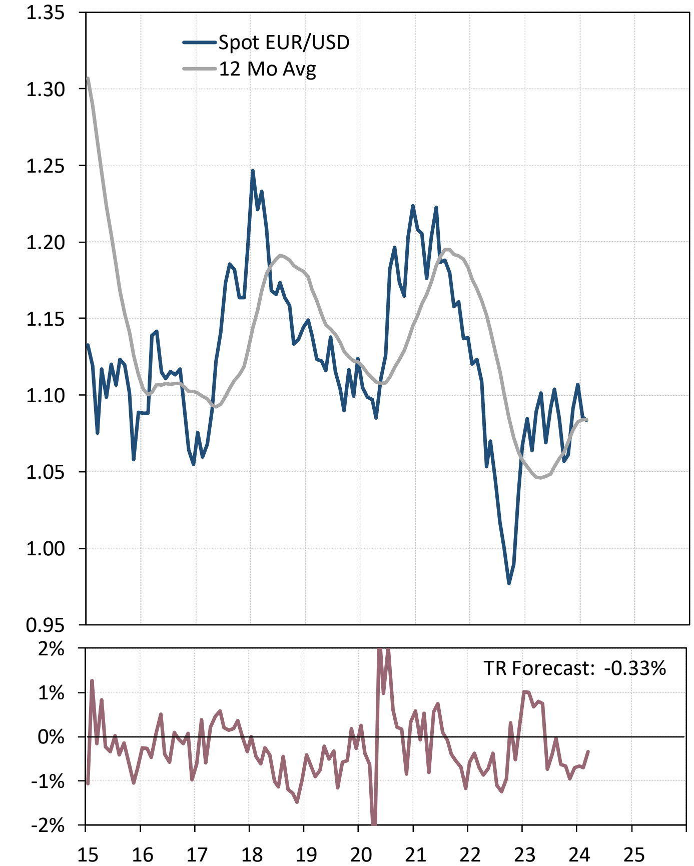
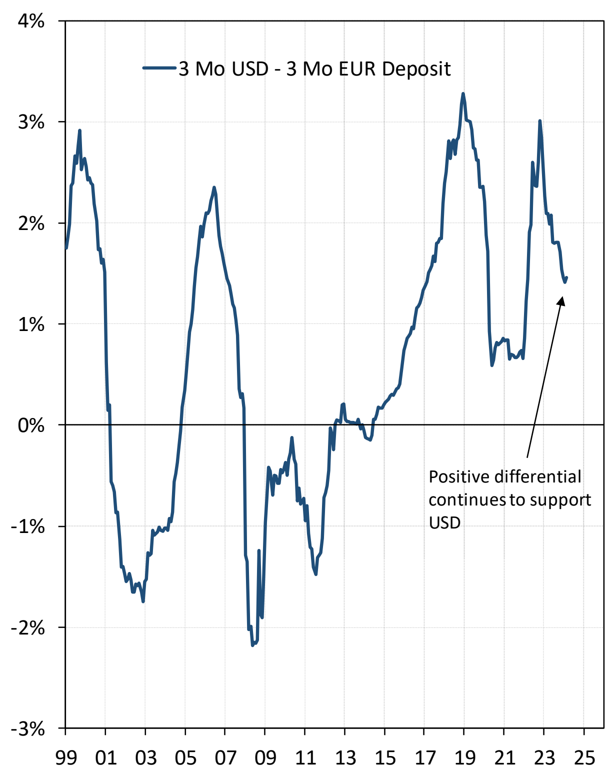


CHART 15

3 Month Interest Rate Differential



- **<u>QT about to shift in favor of the dollar</u>.** The ECB has shed €2.0 trillion (48%) of its assets since its own quantitative tightening (QT) began in 2022 (Chart 16). That compares with a decline in Federal Reserve assets of -16%. Using this measure, arguably the ECB has been more restrictive than the Fed. As we discussed above, however, this may be about to change. The winding down of the Fed's TBLP and the ON RRP will remove the two stimulative pieces that have effectively offset the Fed's own QT since June 2022. That will likely shift the relative liquidity situation back in favor of the dollar.

- **European equities are a bargain compared to U.S. stocks.** As we discussed above, U.S. stocks are now at their third most overvalued level since the 1950's. The expected return to U.S. stocks over the next several years is much lower than their long-term average. In contract, European equities offer much more attractive valuation than U.S. stocks. The Stoxx 600 is still one standard deviation undervalued (-22%) despite having rallied 16% from last October's low. For comparison, the S&P 500 is 37% overvalued – a record differential of 59% (Table 3). Europe has a one-year expected return of 17.8% based on valuation compared to only a 0.5% gain for the S&P 500. The magnitude of this differential is likely to provide some support to European capital inflows. Moreover, a resolution of the Ukraine war could trigger a flood of capital back into Europe.

Chart 16

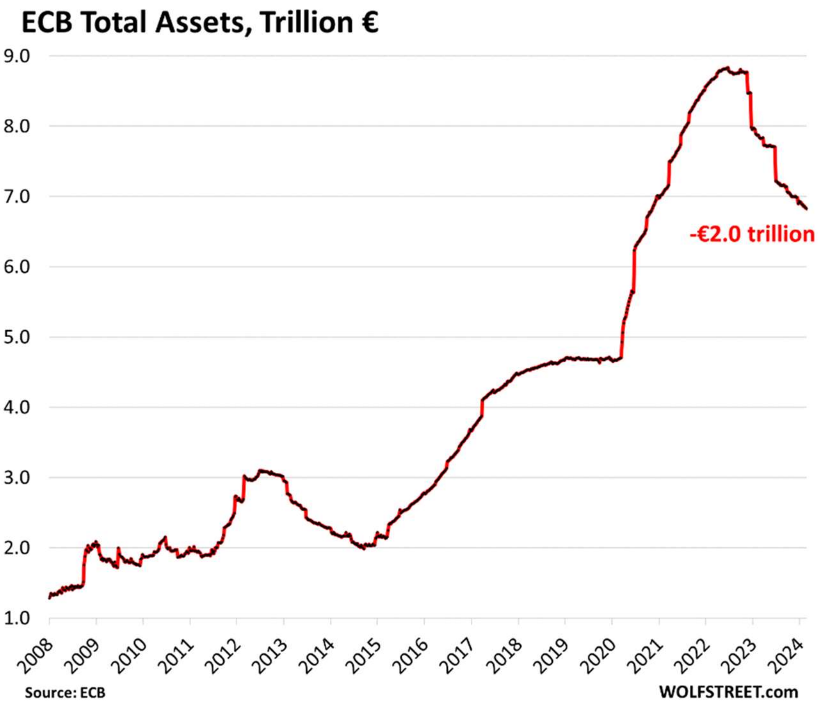


TABLE 2

VALUATION vs FORWARD RETURN ANALYSIS - ANNUALIZED RETURNS **Updated: 02/29/24**

Country / Index	Valuation (σ)	Valuation (%)	1 Mo	3 Mo	6 Mo	1 Yr	2 Yr	3 Yr	5 Yr
			Valuation-Based Forecast (Annualized, %)						
United States	+1.88	+38%	-4.6%	-3.4%	-3.6%	-2.1%	1.2%	3.4%	4.2%
S&P 500	+1.74	+37%	-0.7%	-0.7%	-0.9%	0.5%	3.3%	5.1%	5.4%
Nasdaq	+1.86	+52%	-6.4%	-6.5%	-6.5%	-6.3%	-2.2%	1.2%	1.6%
S&P 600 Small Cap	+0.17	+3%	9.8%	9.7%	10.0%	10.4%	11.1%	11.3%	11.1%
Europe	-0.96	-22%	17.0%	16.8%	18.0%	17.8%	16.8%	15.8%	15.4%
Germany	-1.70	-37%	18.8%	18.5%	19.2%	19.0%	17.9%	16.9%	15.7%
France	+0.64	+14%	9.5%	9.5%	8.6%	9.3%	10.9%	11.9%	12.6%
Italy	-0.96	-24%	14.4%	14.2%	15.7%	17.2%	16.5%	15.2%	15.6%
Switzerland	-1.84	-37%	10.4%	10.3%	12.3%	12.0%	11.4%	10.9%	12.8%
UK	+0.16	+4%	12.0%	11.9%	11.8%	12.1%	12.8%	13.1%	13.4%

Compare expected returns!

-Karl Chalupa

Mr. Chalupa is the CIO 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

Gamma Macro Model Forecasts for March 2024

1 MONTH STOCK INDEX MODEL FORECASTS (%)

Country	Stock Index	Price	1 Mo Forecast	Previous Forecast	Position	Trade	Updated
USA	S&P 500	5,069.76	-0.28%	-0.02%	Short	Hold	2/29/24
USA	Nasdaq	16,049.57	-0.06%	0.00%	Short	Sell	2/29/24
USA	Russell 2000	2,061.19	0.00%	0.00%	Neutral	Hold	2/29/24
Canada	S&P/TSX 60	1,287.83	0.00%	0.00%	Neutral	Hold	2/29/24
Mexico	IPC	55,349.66	+1.13%	+0.56%	Long	Hold	2/29/24
Brazil	Bovespa	129,034.81	0.00%	0.00%	Neutral	Hold	2/29/24
Japan	TOPIX	2,675.73	+1.60%	0.00%	Long	Buy	2/29/24
China	Hang Seng CEI	5,677.88	0.00%	+1.23%	Neutral	Cover Long	2/29/24
Hong Kong	Hang Seng	17,706.84	0.00%	0.00%	Neutral	Hold	2/29/24
S. Korea	KOSPI	2,642.36	+0.61%	+0.69%	Long	Hold	2/29/24
India	Nifty 500	20,090.05	+1.18%	+1.27%	Long	Hold	2/29/24
Australia	S&P/ASX 200	7,698.70	0.00%	0.00%	Neutral	Hold	2/29/24
Europe	STOXX 600	495.37	0.00%	0.00%	Neutral	Hold	2/29/24
UK	FTSE 100	7,648.75	+0.90%	+0.93%	Long	Hold	2/29/24
Germany	DAX	17,706.84	0.00%	0.00%	Neutral	Hold	2/29/24
France	CAC 40	7,941.78	0.00%	0.00%	Neutral	Hold	2/29/24
Italy	FTSE/MIB 30	32,630.87	0.00%	0.00%	Neutral	Hold	2/29/24
Switzerland	Swiss Market	11,454.98	0.00%	0.00%	Neutral	Hold	2/29/24
Russia	RTS 50	1,127.85	0.00%	0.00%	Neutral	Hold	2/29/24
S. Africa	FTSE/JSE 40	66,349.81	+2.96%	+2.22%	Long	Hold	2/29/24

1 MONTH FIXED INCOME MODEL PRICE CHANGE FORECASTS (%)

Country	Debt Instrument	Current Yield (%)	Price Change Forecasts (%) 1 Month	Previous	Bond Position	Trade	Updated
USA	2 Yr T-Note	4.62	-0.19%	-0.03%	Short	Hold	2/29/24
USA	5 Yr T-Note	4.24	-0.25%	-0.04%	Short	Hold	2/29/24
USA	10 Yr T-Note	4.23	-0.32%	-0.03%	Short	Hold	2/29/24
USA	30 Yr T-Note	4.36	0.00%	0.00%	Neutral	Hold	2/29/24
USA	IG Corporate	5.50	0.00%	+0.21%	Neutral	Cover Long	2/29/24
USA	HY Corporate	8.00	+0.26%	+0.50%	Long	Hold	2/29/24
Canada	10 Yr Govt	3.50	-0.25%	-0.17%	Short	Hold	2/29/24
Mexico	10 Yr Cetes	9.21	0.00%	0.00%	Neutral	Hold	2/29/24
Brazil	10 Yr Govt	10.84	-0.37%	-0.07%	Short	Hold	2/29/24
Japan	10 Yr JGB	0.71	0.00%	0.00%	Neutral	Hold	2/29/24
Australia	10 Yr Govt	4.12	0.00%	0.00%	Neutral	Hold	2/29/24
S. Korea	10 Yr Govt	3.47	-0.08%	0.00%	Short	Sell	2/29/24
China	10 Yr Govt	2.36	0.00%	0.00%	Neutral	Hold	2/29/24
India	10 Yr Govt	7.08	0.00%	0.00%	Neutral	Hold	2/29/24
Germany	10 Yr Bund	2.42	0.00%	+0.01%	Neutral	Cover Long	2/29/24
France	10 Yr OAT	2.90	-0.20%	0.00%	Short	Sell	2/29/24
Italy	10 Yr BTP	3.85	-0.04%	0.00%	Short	Sell	2/29/24
Switzerland	10 Yr Conf	0.84	-0.03%	0.00%	Short	Sell	2/29/24
UK	15 Yr Gilt	4.41	0.00%	+0.01%	Neutral	Cover Long	2/29/24
Russia	10 Yr Govt	12.86	0.00%	0.00%	Neutral	Hold	2/29/24
S. Africa	10 Yr Govt	10.14	-0.11%	0.00%	Short	Sell	2/29/24

Gamma Macro Model Forecasts for March 2024

1 MONTH FX MODEL FORECASTS (%)

Currency	Spot FX Rate	1 Mo Forecast	Previous Forecast	Position	Trade	Updated
EUR/USD	1.0838	-0.33%	-0.70%	Short	Hold	2/29/24
GBP/USD	1.2671	-0.20%	-0.31%	Short	Hold	2/29/24
USD/CHF	0.8791	+0.78%	+0.92%	Long	Hold	2/29/24
USD/NOK	10.5619	+0.60%	+0.36%	Long	Hold	2/29/24
USD/SEK	10.3201	+0.16%	+0.24%	Long	Hold	2/29/24
USD/JPY	149.24	0.00%	0.00%	Neutral	Hold	2/29/24
AUD/USD	0.6525	-0.49%	-0.66%	Short	Hold	2/29/24
NZD/USD	0.6105	-0.37%	+0.31%	Short	Cover Long & Sell	2/29/24
USD/KRW	1,334.27	+0.42%	+0.67%	Long	Hold	2/29/24
USD/CNY	7.1883	+0.40%	+0.31%	Long	Hold	2/29/24
USD/INR	82.88	-0.23%	-0.64%	Short	Hold	2/29/24
USD/SGD	1.3432	+0.24%	+0.29%	Long	Hold	2/29/24
USD/CAD	1.3547	+0.13%	-0.07%	Long	Cover Short & Buy	2/29/24
USD/BRL	4.9687	0.00%	+0.52%	Neutral	Cover Long	2/29/24
USD/MXN	17.06	0.00%	0.00%	Neutral	Hold	2/29/24
USD/RUB	91.17	+0.39%	-1.00%	Long	Cover Short & Buy	2/29/24
USD/ZAR	19.18	+0.70%	+0.94%	Long	Hold	2/29/24
BTC/USD	63,301	+5.65%	+2.21%	Long	Hold	2/29/24

1 MONTH COMMODITY PRICE FORECASTS (%)

Commodity	Cash / Futures Price ($)	1 Month Forecast	Previous Forecast	Position	Trade	Updated
Gold	$2,048.64	0.00%	0.00%	Neutral	Hold	2/29/24
Silver	$22.68	+0.40%	+1.04%	Long	Hold	2/29/24
Platinum	$883.06	+0.41%	+1.13%	Long	Hold	2/29/24
Palladium	$937.44	0.00%	-0.09%	Neutral	Cover Short	2/29/24
Aluminum	$2,251.51	0.00%	0.00%	Neutral	Hold	2/29/24
Copper	$8,103.00	0.00%	+0.43%	Neutral	Cover Long	2/29/24
Lead	$2,064.75	0.00%	+0.31%	Neutral	Cover Long	2/29/24
Nickel	$20,865.50	+0.60%	0.00%	Long	Buy	2/29/24
Tin	$25,867.00	+1.30%	+0.87%	Long	Hold	2/29/24
Zinc	$2,287.77	0.00%	+0.40%	Neutral	Cover Long	2/29/24
LME COMPOSITE	---	0.00%	+0.33%	Neutral	Cover Long	2/29/24
WTI Crude Oil	$78.49	+1.34%	0.00%	Long	Buy	2/15/24
HH Natural Gas	$1.646	+3.36%	0.00%	Long	Buy	2/20/24

GIC will use its reasonable best efforts to provide accurate and informative Information Services to Subscriber, but GIC cannot guarantee the accuracy, relevance and/or completeness of the Information Services, or other information used in connection therewith. GIC, its affiliates, shareholders, directors, officers, and employees shall have no liability, contingent or otherwise, for any claims or damages arising in connection with (i) the use by Subscriber of the Information Services and/or (ii) any errors, omissions or inaccuracies in the Information Services. The Information Services are provided for the benefit of the Subscriber. It is not to be used or otherwise relied on by any other person.

Some of the data contained in this publication may have been obtained from London Stock Exchange Group plc ("LSEG"). LSEG nor any other party involved in or related to compiling, computing, or creating the LSEG data makes any express or implied warranties or representations with respect to such data (or the results to be obtained by the use thereof), and all such parties hereby expressly disclaim all warranties of originality, accuracy, completeness, merchantability, or fitness for a particular purpose with respect to any of such data. Without limiting any of the foregoing, in no event shall Refinitiv, any of its affiliates or any third party involved in or related to compiling, computing or creating the data have any liability for any direct, indirect, special, punitive, consequential or any other damages (including lost profits) even if notified of the possibility of such damages. No further distribution, dissemination, reproduction of any information, opinions, views, data or material, including ratings ("Content") in any form is prohibited without Refinitiv's express written consent.

"LSEG Logo and LSEG" are trademarks of London Stock Exchange Group plc and its affiliated companies in the United States and other countries and used herein under license." In addition to the foregoing, Client shall display or print the following notice in the Help About section or in a general attribution page. "Copyright ©LSEG, 2023. All Rights Reserved. Use, duplication, or sale of this service, or data contained herein, except as described in the GIC products subscription agreement, is strictly prohibited."

Gamma Investment Consulting LLC may also obtain data from other sources ("Content Providers"). Such party(s) and their affiliates and suppliers do not guarantee the accuracy, adequacy, completeness, timeliness or availability of any Content and are not responsible for any errors or omissions (negligent or otherwise), regardless of the cause, or for the results obtained from the use of such Content. In no event shall Content Providers be liable for any damages, costs, expenses, legal fees, or losses (including lost income or lost profit and opportunity costs) in connection with any use of the Content. A reference to a particular investment or security, a rating or any observation concerning an investment that is part of the Content is not a recommendation to buy, sell or hold such investment or security, does not address the suitability of an investment or security and should not be relied on as investment advice. Credit ratings are statements of opinions and are not statements of fact.

Important Disclaimer

This communication reflects our analysts' current opinions and may not be updated as views or information change. Past results do not guarantee future performance. Business and market conditions, laws, regulations, and other factors affecting performance all change over time, which could change the status of the information in this publication. Using any graph, chart, formula, model, or other device to assist in making investment decisions presents many difficulties and their effectiveness has significant limitations, including that prior patterns may not repeat themselves and market participants using such devices can impact the market in a way that changes their effectiveness. GIC believes that no individual graph, chart, formula, model, analysis or other device should be used as the sole basis for any investment decision.

GIC and its affiliated companies or their respective shareholders, directors, officers and/or employees, may have long or short positions in the securities discussed herein and may purchase or sell such securities without notice.

Neither Gamma Investment Consulting LLC nor the author is rendering investment, tax, or legal advice, nor offering individualized advice tailored to any specific portfolio or to any individual's particular suitability or needs. Investors should seek professional investment, tax, legal, and accounting advice prior to making investment decisions.

GIC's publications do not constitute an offer to sell any security, nor a solicitation of an offer to buy any security. They are designed to provide information, data and analysis believed to be accurate, but they are not guaranteed and are provided "as is" without warranty of any kind, either express or implied.

GIC DISCLAIMS ANY AND ALL EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY, SUITABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE.

Gamma Investment Consulting LLC, its affiliates, officers, or employees, and any third-party vendors or data providers shall not have any liability for any loss sustained by anyone relying on the information contained in any GIC publication, and they shall not be liable to any party for any direct, indirect, incidental, exemplary, compensatory, punitive, special or consequential damages, costs, expenses, legal fees, or losses (including, without limitation, lost income or lost profits and opportunity costs in connection with any use of the information or opinions contained in their publications even if advised of the possibility of such damages.