Globicus Leading Economic Index

Outlook February 2023

Leading Economic Index:

Is It Different This Time?

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New York

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1. Executive Summary

Globicus Leading Economic Indexes were all negative in the latest reading for January, suggesting that a US recession may start in the beginning of 2023 and may be deeper than most people expect. The model has an excellent historical record having predicted all recessions since the 1960s except the Covid 19 "recession" 2020, which was primarily the result of the government's shutdown of the economy. The coincident index showed continued growth although at a slower pace in December. The US economy is still not in recession as of December as indicated by National Bureau of Economic Research's Business Cycle Dating Committee's recession indicators (NBER)[1] .

With continued high inflation, the Fed is unlikely to reverse course. The "market" has reluctantly followed the Fed's lead but is still not buying the Fed's continuously hawkish signals. The FOMC[2] "**anticipates that ongoing increases in the target range**[3] will be appropriate in order to attain a stance of monetary policy that is sufficiently restrictive to return inflation to 2 percent over time."[4]

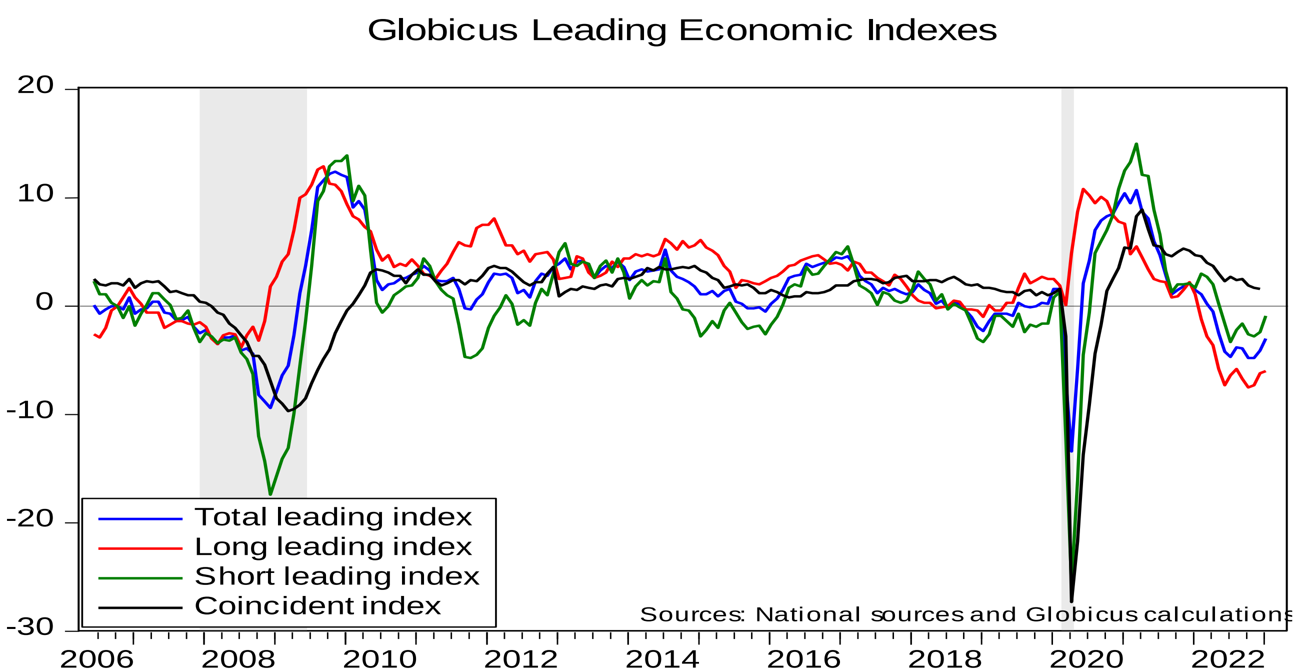
Inflation is a lagging indicator and does not usually decline until unemployment, also a lagging indicator, rises and the economy enters a recession. The historic experience is that higher unemployment is necessary to reduce inflation significantly. This makes it exceedingly difficult for the FOMC to tighten appropriately to reduce inflation while at the same time avoiding a recession.

[1] National Bureau of Economic Research is a private, nonpartisan economic research organization. The NBER's Business Cycle Dating Committee maintains a chronology of US business cycles as well as decides the dates of the recessions.
[2] The Federal Open Market Committee (FOMC) is responsible for open market operations.
[3] My emphasis
[4] https://www.federalreserve.gov/newsevents/pressreleases/monetary20230201a.htm

Additionally, during periods with high historical inflation the Fed mostly continued to keep interest rates high at the beginning of the recessionary period.

2. Globicus Leading Indexes All Negative in January

Globicus Leading Economic Indexes (Total- Long- and Short leading index)[5] all had negative readings for January, indicating an impending recession. The coincident Index (designed to coincide or measure the overall economy, i.e., the business cycle) is moderating from strong numbers earlier this year but showed relatively strong growth in December.



[5] We are using three leading indexes. The reason for this is that leading indicators have different lead time, and it can be useful to disaggregate what the long and short leading indexes indicates. The total leading index is a combination of the short and the long leading index and is constructed to smooth out the volatility of the individual indexes and to get a timely indication.

In January the total leading index's Six-month Smoothed Growth Rate ("SMGR")[6] rose to -3.1 from -4.2 in December, the tenth consecutive monthly negative reading, new and revised data showed[7]. The long leading index rose to -6.1 in January from -6.3 in December, its twelfth monthly negative reading. The short leading index recorded its eighth negative reading, -1.0 in January up from -2.5 in December.

The coincident index, a measure of the current economic activity, slipped to 1.5 SMGR in December from 1.6 the previous month. Although still relatively strong, the coincident index has slowed significantly from the 5.2 SMGR a year ago.

Overall, economic weakness will intensify and spread more broadly throughout the US economy over the coming months with a recession to start in the beginning of 2023, despite some improvement in the leading indexes in January.

3. Yield Curves Sharply Negative in January

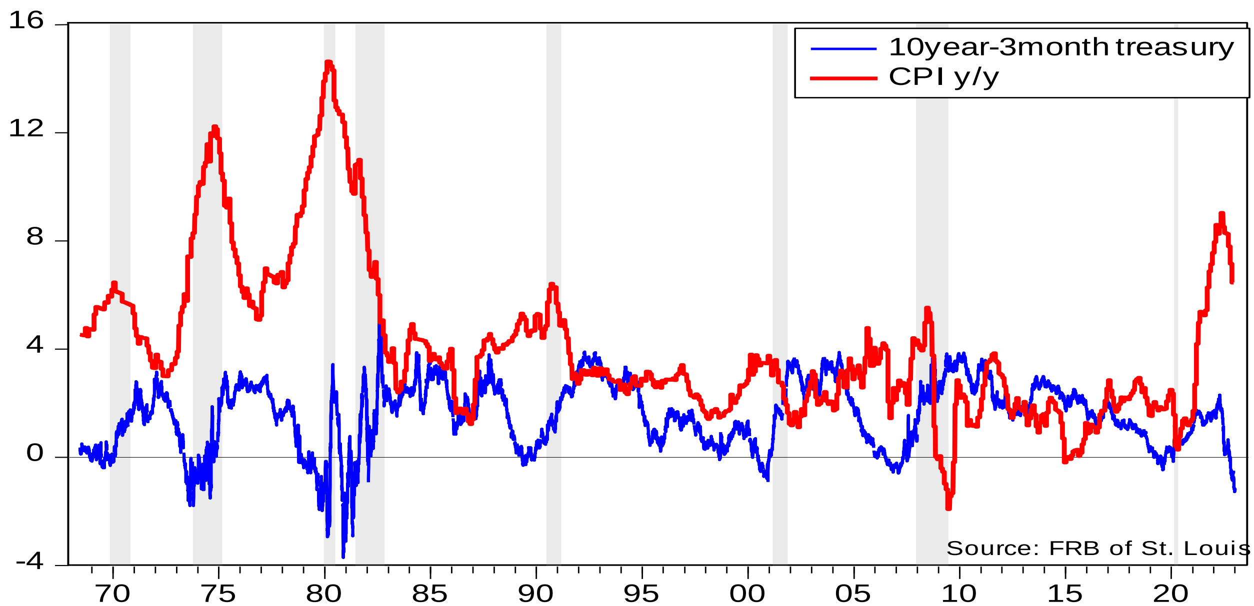
Inverted yield curves usually precede a recession, particularly the spread between 10-year and the 3-month treasury securities normally turns negative before a recession. This spread has narrowed dramatically since the Fed got religion and turned negative on October 25 and as of February 2 was -1.26, the lowest level since 1981 when Paul Volker was the chair of the Fed. This spread typically turn from negative to positive before the recession starts and have always done so since the 1990 recession. However, that was not the case during the four recessions in the 1970 to 1982 period. These four recessions were all preceded by high inflation

[6] For input series X the formula for six-month smoothed growth rate is: Xsmgr= (X(t)/Avg of previous 12 months)^(12/6.5)-1

[7] The latest updates as of February 3, 2023

in contrast to the following recessions that were accompanied by more modest inflation. Therefore, we may not see a reversal of the negative spread before the recession starts as the high inflation rate today is more reminiscent of the high inflation recessions during the seventies and eighties rather than the more recent lower inflation recessions.

Yield Curve Inversion and Inflation



4. The Fed Slows Rate Hikes but Still Committed

With the highest inflation rate in four decades, it is unlikely that the Fed will back down from its planned rate hikes and quantitative tightening before they see convincing signs of price stability or weakening economic growth. The FOMC increased, as expected, the federal funds range 25bp to 4.50%-4.75% at its February meeting. The Fed indicated that even though it reduced hikes from 75bp to 50bp and now 25bp it will not stop. "Recent indicators point to modest growth in spending and production. Job gains have been robust in recent months, and the unemployment rate has remained low. Inflation has eased somewhat but remains elevated. ….. The Committee anticipates that **ongoing increases in the target range will be appropriate**[8] in order to attain a stance of monetary policy that is sufficiently restrictive to return inflation to 2 percent over time. "[9]

According to Fed's Summary of Economic Projections, December 14, 2022.[10] The Fed expects GDP growth at 0.5%, unemployment at 4.6%, PCE inflation at 3.1% and fed funds rate at 5.1% in 2023. The so-called dot-plot, which shows FOMC participants' assessment of appropriate monetary policy, i.e., the mid target level for the federal funds rate at the end of 2023. Ten participants predicted federal funds rate between 5.0%-5.25%, five participants between 5.25%-5.50% and two participants between 5.50%-5.75% at the end of 2023.

5. Unemployment And Recession Cure Inflation

From the chart below, we can see that there is a substantial lag from when the Fed starts increasing the Fed funds rate to when the unemployment rate increases. Not until the unemployment rate increases significantly does inflation usually fall. To address the Inflation problem unemployment usually needs to increase and economic activity fall. In the previous seven recessions[11], going back to 1970, unemployment rose on average 2.6 percentage points. If this pattern is repeated, unemployment could peak at around 6%.

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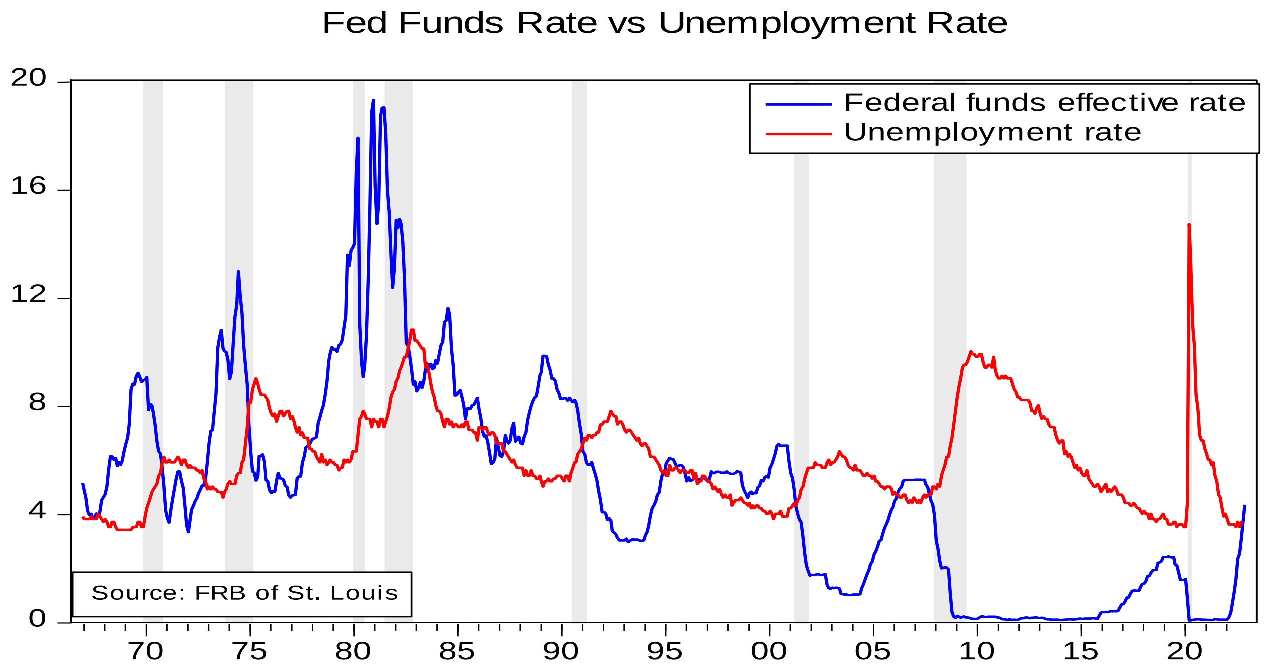
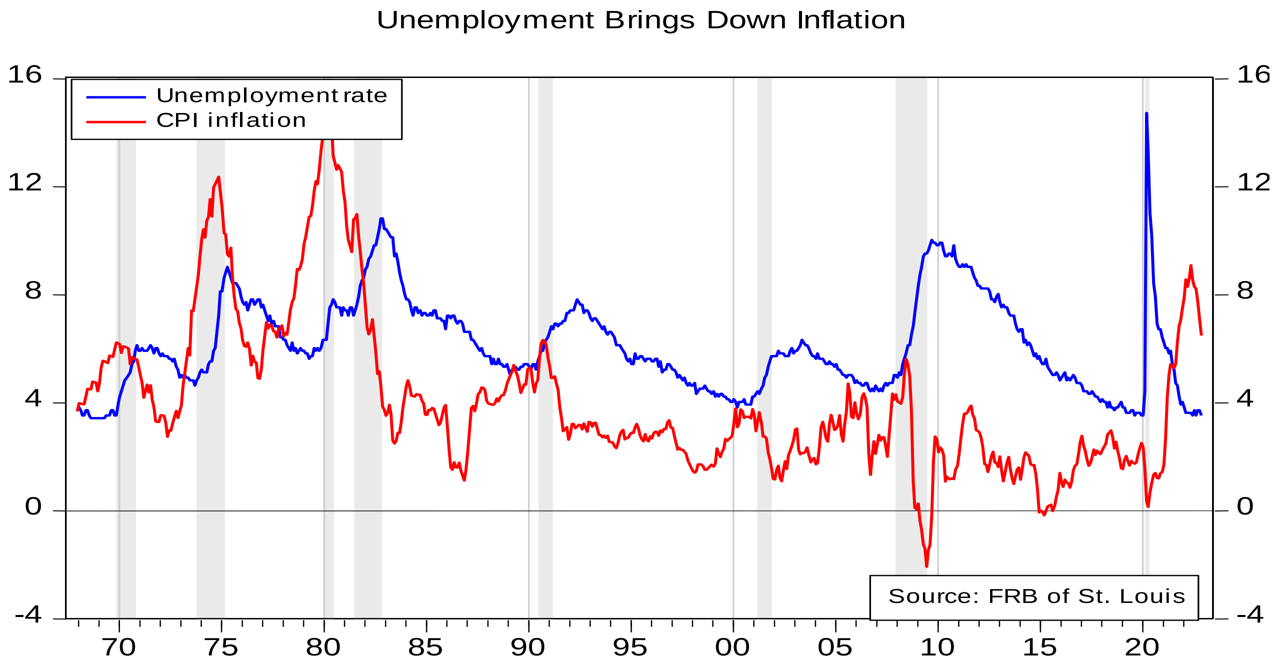
[8] My emphasis
[9] https://www.federalreserve.gov/newsevents/pressreleases/monetary20230201a.htm
[10] https://www.federalreserve.gov/monetarypolicy/files/fomcprojtabl20221214.pdf
[11] This does not include the Covid recession 2020.



The rise in unemployment rate, which historically defines the recession[12], is what finally brings down inflation. When unemployment start rising it is normally some time before inflation falls and inflation does not fall significantly until recession starts.

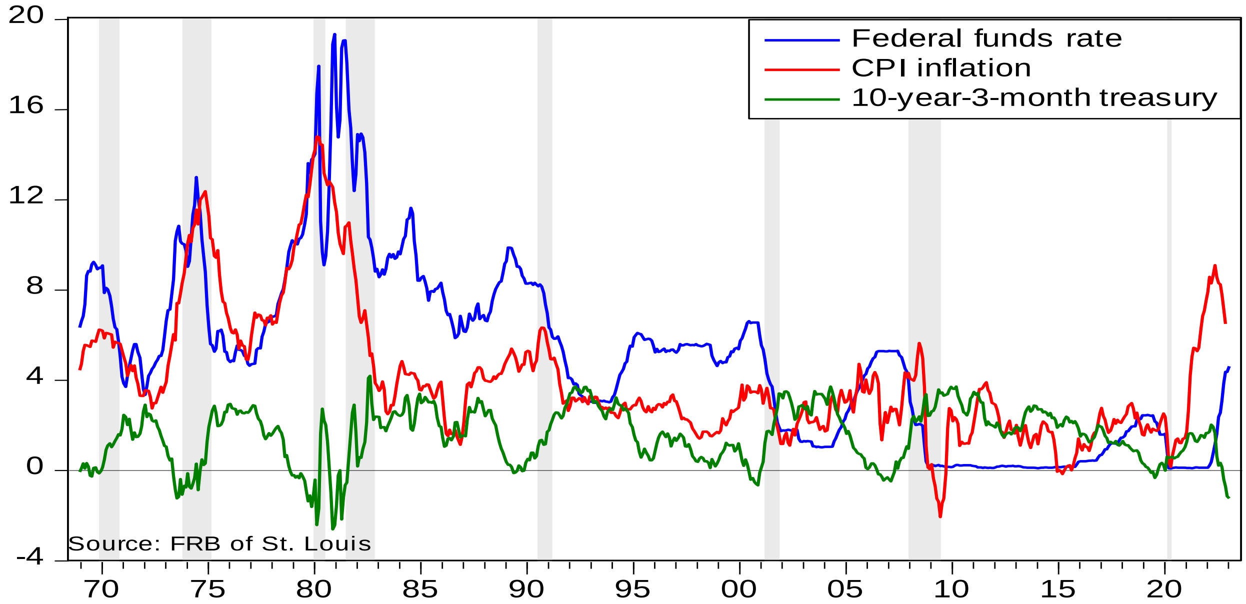
Inflation has moderated from its recent peak of 9.1% in June to 6.5% in December, measured by CPI. The improvement stems mostly from easing of supply chains and other bottlenecks. Primarily the relief is in the goods market, while service inflation and wage pressure continue to be high. The Fed have emphasized that they will not change its tune until inflation is back to 2.0% which is unlikely to happen until there is significant increase in unemployment.

[12] See Sahm's Rule below.



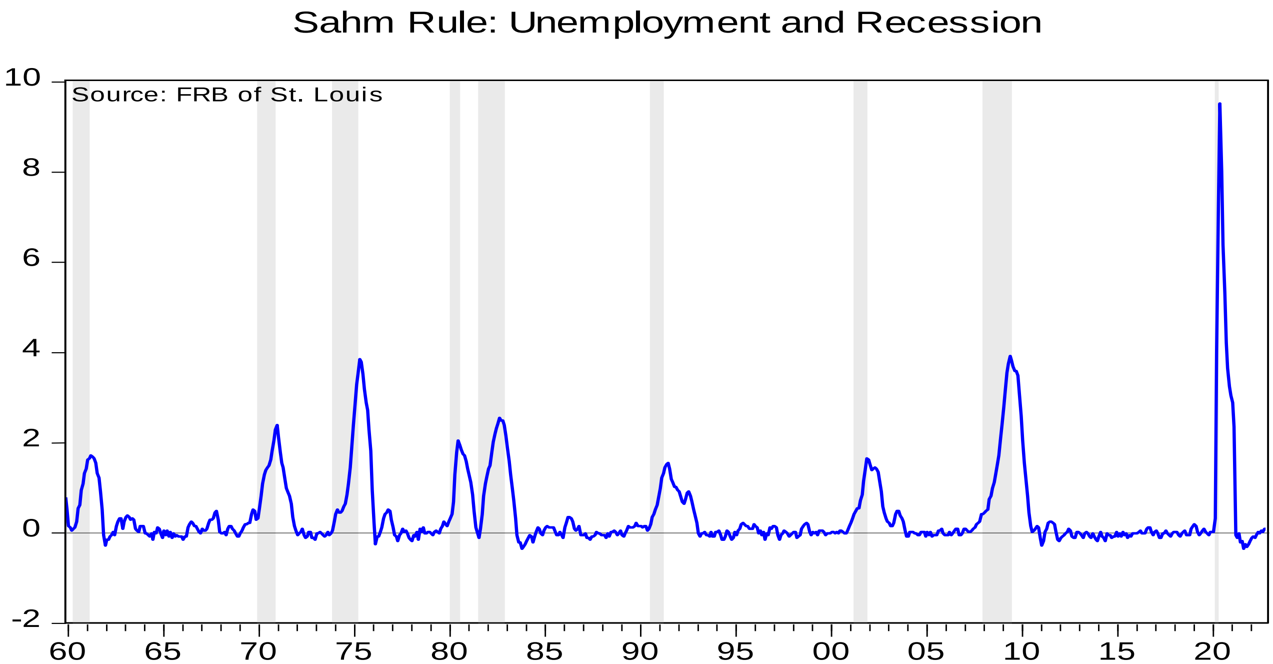
Since the 1970s the Fed have managed to fight inflation by raising fed funds rate without causing a recession three times. This is the so-called soft-landing scenario, which some analysts also believe could be the case with the current Fed policy. The Fed hiked the fed funds rate significantly in 1971, 1983 and 1994 without causing a recession. However, in these three episodes, the 10-year/3-month spread never inverted. In addition, the inflation rate was modest in the 3-5% range. Therefore, we don't think a soft-landing is possible this time.

No soft-Landing with Inverted Yield Curve



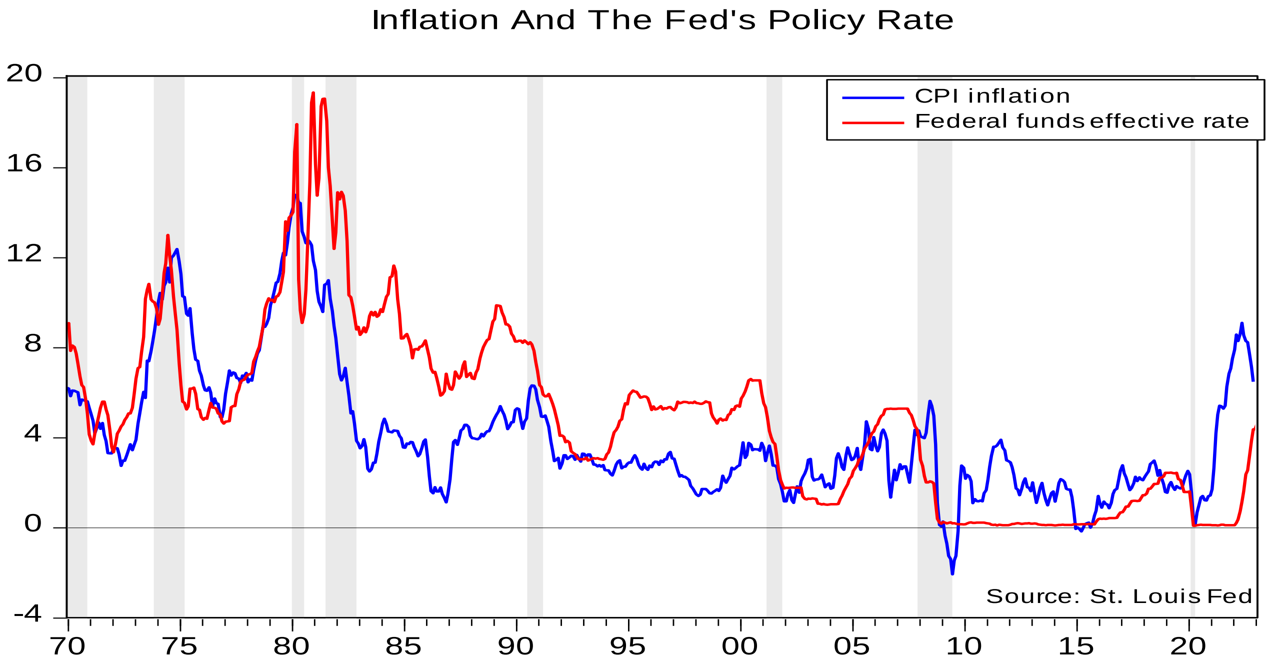
The Sahm Rule[13] identifies signals related to the start of a recession when the three-month moving average of the unemployment rate rises by 0.5% or more from its low during the previous 12 months. This is not a leading indicator but coincides with recessions and as you can see it indicates no recession as unemployment has not risen yet.

[13] Sahm, Claudia, Sahm Rule Recession Indicator [SAHMCURRENT], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/SAHMCURRENT



6. The Fed Got Religion

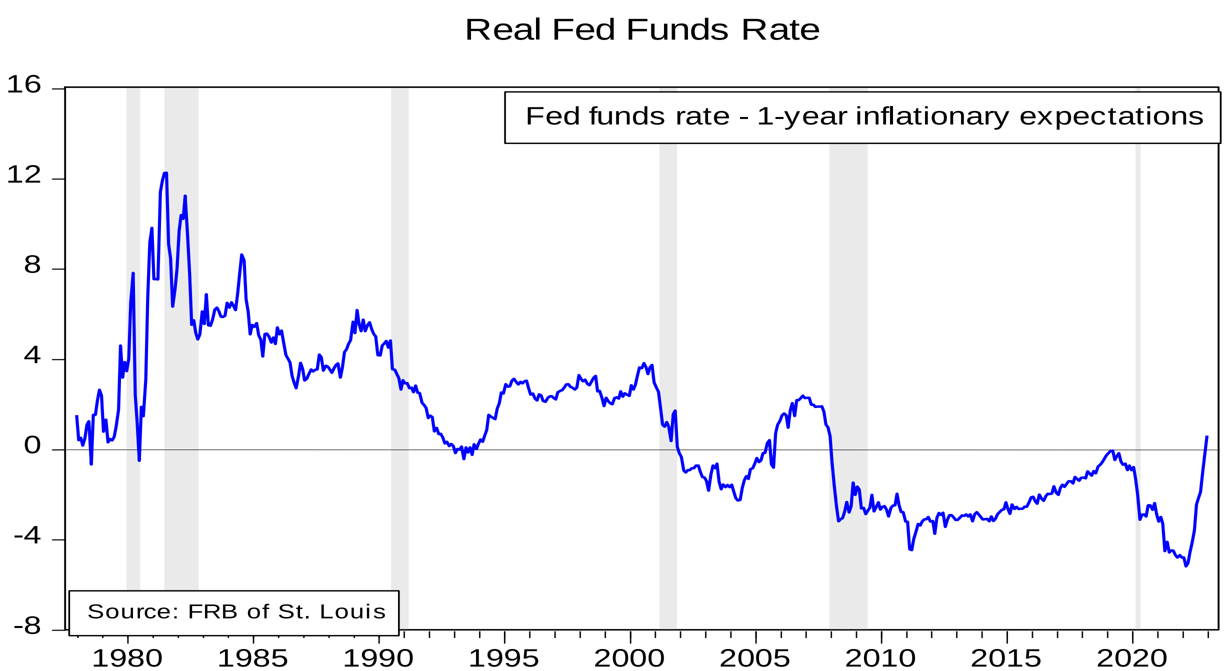
Before the 2001 recession the Fed's policy rate, the federal funds rate (FFR) was mostly above the inflation rate and since the Great Recession 2008 fed funds rate was mostly well below the inflation rate. The exceptions to the negative rate were in the 2006-2007 before the Great Recession and a few months in 2019 before the Covid 19 recession.



During the pandemic, the spread between inflation and fed funds rate widened to extreme levels. And despite the Fed's aggressive tightening by 450 basis points since March, the fed funds rate is still below the inflation rate. However, if the unemployment rate increase meaningfully and the recession start in the beginning of 2023, it may be the last increase in fed funds rate. On the other hand, if the economy holds up, the Fed has indicated that it will not pivot until the inflation is back to its target. Should, the Fed's action during the high inflation experience in the seventies and eighties be any guide, we should believe them. And they may continue raising rates even as unemployment increases. Furthermore, during the press conference following the February 1 FOMC rate hike announcement Fed Chairman Jerome Powell said, "It's very difficult to manage the risk of doing too little and finding out in six or 12 months we actually were close but didn't get the job done."

We do not believe in immaculate disinflation policies, the idea that we can get easing price pressure without significant economic and labor market slack. However, it is possible, even likely, that easing commodity prices and transitory effects will reduce inflation a few percentage points. The difficult part will be returning inflation to the Fed's stated goal of 2% from say 4% or 5%, without higher unemployment.

Many economists believe that to cure inflation the real rate needs to be positive. One can debate what the real rate is. Here we use fed funds rate deflated by University of Michigan's inflationary expectations. This rate has been negative since the Great Recession. And following the pandemic, rates fell to new all-time lows. However, the real fed funds rate has increased from -5.2% in March to 0.58 in following Fed's aggressive tightening.



The FRB of Cleveland has a one-year real interest rate estimate. This measure turned positive in October and had a real yield of 1.34% in.[14]

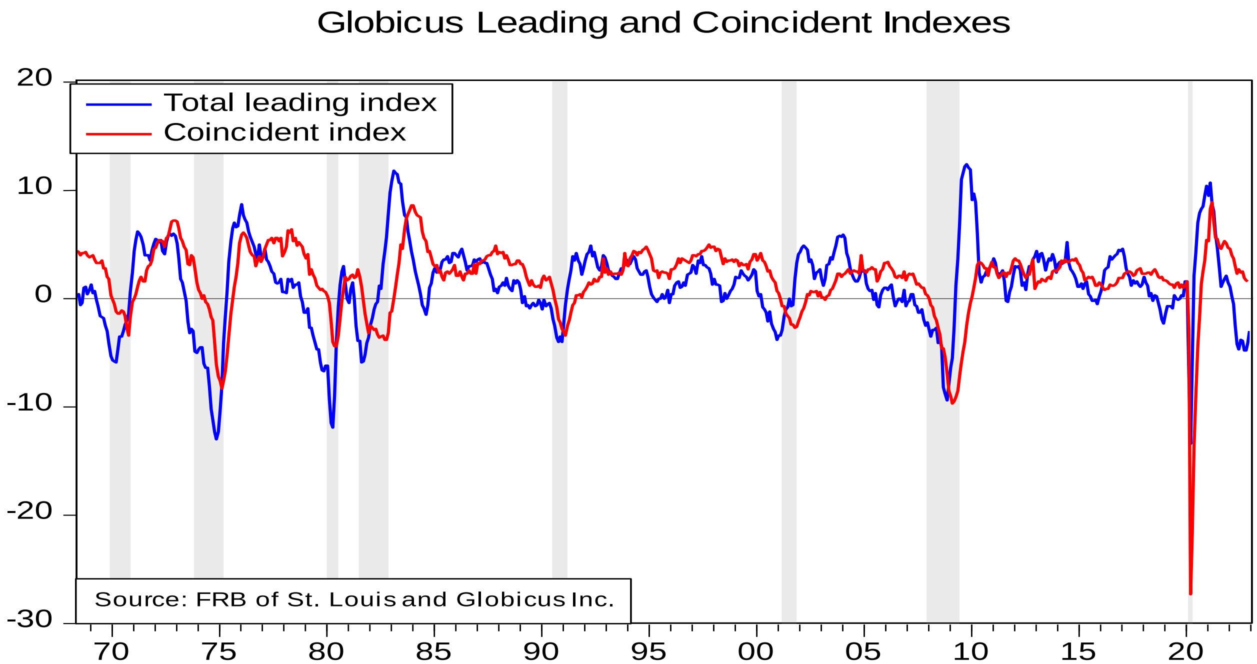
[14] The Federal Reserve Bank of Cleveland estimates the expected rate of inflation over the next 30 years along with the inflation risk premium, the real risk premium, and the real interest rate. Their estimates are calculated with a model that uses Treasury yields, inflation data, inflation swaps, and survey-based measures of inflation expectations.

7. The Recession Develops Slowly

Below are the model's results since 1970. The blue line is the model's total leading growth rate, designed to forecast economic activity and recessions. The red line is the coincident index, designed to measure current economic activity. How reliable in the model? We have high confidence in the recession prediction. The model has predicted all recessions since the 1970s. And we do not think it is different this time. However, exact timing of the start of a recession is more challenging. When the total leading index turns negative it precedes a recession on average by 9 months. However, these leads vary. The total index turned negative in April, so the recession could start as early as January or February. The strong labor market may postpone the recession. 10-year/3month yield spread turns negative several months before the recession and since the 90s turns positive again before the recession starts. However, this was not the case in earlier recessions when inflation was as high as it today. Therefore, we may not see a reversal in the spread before the recession starts.

The great economist Rudi Dornbusch once said, "the crisis takes a much longer time coming than you think, and then it happens much faster than you would have thought."[15] We are convinced that the recession will come but the timing is uncertain. Therefore, we conclude that there will be a recession and it will probably start the in the first part of 2023.

[15] United States. Congress. Senate. Committee on the Budget (2012). Concurrent Resolution on the Budget Fiscal Year 2013. p. 95



There isn't, as far as we know, any reliable way to forecast the depth of a recession. Still, many forecasters predicting a recession, also predict a shallow recession because of a strong labor market, over-sized pandemic savings and no major imbalances. There has been a long time with very low interest rates, and imbalance may not show up until the recession is upon us. We believe that one can get a rough idea of the depth of the recession from the depth of the decline in the leading indicators. In November the total leadining indicator stood at -4.9. This is the lowest reading, before a recession that has been observed, exept for the reading of this index before the onset of the 1980 recession. Currently the total leading index is lower than the lowest point during the 1990 recession and the 2001 recession. The total leading index generally falls further during the earlier parts of the recession. Today's total leading index is similar to the reading for the 2008 recession and the four high inflation recessions in the seventies and early eighties. During these five recessions unemployment rate rose on average 2.8 percentage points and the downturn lasted on average 14 months. During the 1990 and 2001 moderate inflation recessions, the average unemployment rate increased 1.25

percentage points and the downturn lasted only 7 months. This is less than half compared to the other recessions when the total leading index declined significantly. Therefore, we don't believe this recession will be shallow.

8. The US Economy Is Still Expanding

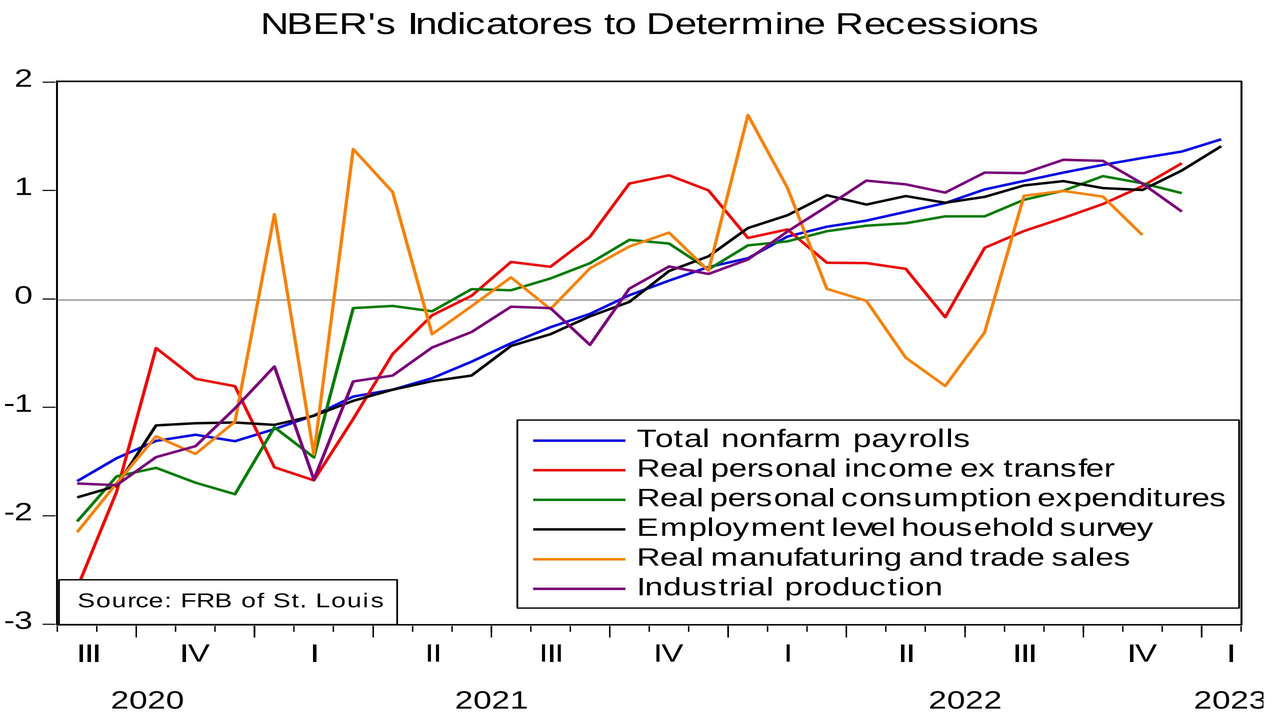
NBER's Business Cycle Dating Committee maintains a chronology of the US business cycles. The committee's definition of a recession is "a significant decline in economic activity that is spread across the economy and that lasts more than a few months."[16]

The committee's determination of the months of peaks and troughs is based on a range of monthly measures of aggregate real economic activity. These include real personal income less transfers, nonfarm payroll employment, employment as measured by the household survey, real personal consumption expenditures, wholesale-retail sales adjusted for price changes, and industrial production. In addition to the monthly indicators, they use two quarterly indicators, gross domestic income (GDP) and gross domestic income (GDI). GDP rose 2.9% in the fourth quarter and GDI rose 0.8% in the third quarter, the fourth quarter number for GDI has not yet been released.

The monthly indicators the Dating Committee uses are shown in the graph below. These indicators were mixed for the latest available data. The two employment indicators (January releases) and real income were strong while industrial production and personal consumption peaked in October and manufacturing and trade sales peaked in September. In other words, income and employment are still strong but other indicators are weakening. I don't think the Dating Committee will

[16] NBER Business Cycle Dating; https://www.nber.org/research/business-cycle-dating

call a recession on these numbers as the economic weakness is not widespread and has not lasted more than a few months.



9. Conclusions

In summary, the total leading index suggests that a recession will start in the first half of 2023. It will not be different this time. However, the strength in the labor market, the strength in the coincident index and the consolidation in the leading indexes may support the economy for another few months.

The Fed's tightening cycle is unlikely to end soon, particular after January's strong jobs data. In addition, the higher rates are not likely to reduce inflation until unemployment rises significantly and that does not normally happen until the economy enter a recession.

The Fed's monetary stance is not very restrictive. We characterize the policy as neutral. Some measures show positive real interest rates, but the fed funds rate is still well below CPI inflation. Nevertheless, the Fed should probably move in small steps to reach its announced target of a fed funds rate of 5.0%-5.25%.

From Globicus' coincident index and NBER's Dating Committee's data used to track recessions it is unlikely that the economy is in a recession now. Or for that matter that the economy was in a recession in the first half of 2022, despite two consecutive quarters of negative growth in the first half of 2022.

Appendix A.

The Leading Index Approach

Macroeconomic forecasts attempt to provide useful information on aggregate economic conditions. When it succeeds it can provide clients with specific information that allows him or her to make better decisions.

One approach to forecasting is to construct a theoretical model, build an econometric model around it and identifying economic relationships, and then use the model to forecast economic activity. A different approach to economic forecasting involves using explicit statistical model that requires little economic theory. Examples of this atheoretical approach are vector autoregressive (VAR) models, ARIMA models and the leading index approach. The leading economic index approach, unlike standard economic models, is not to primarily predict the magnitude of future economic growth, but rather to recognize and predict major turning points for the economy.

The leading index approach was developed in the mid-1930s by Arthur F. Burns & Wesley C. Mitchell associated with the National Bureau of Economic Research (NBER)[17]. Their research explored cyclical patterns of economic fluctuations that consist of expansions followed by recessions which then merge into the expansion phase of the next cycle. Leading indicators are series that tend to change direction in advance of the business cycle and lead the overall economy. Coincident indicators are the series that coincide and move in sync with the overall aggregate economy. A coincident economic index should turn at the same time as the general economy and rise and fall at a similar pace as the overall economy. A leading economic index should decline before recessions, increase before a recovery, and forecast change in the overall economy's pace.

[17] "Measuring Business Cycle" by Arthur F. Burns & Wesley C. Mitchell is their classical 1946 Book.

The leading index approach is designed to predict the direction of the economy in future months by predicting turning points in economic activity. For that purpose, indexes are developed from economic variables that leads the general economic activity. To better determine the turning points, we use six-month smoothed growth rate as it better represent turning points than regular moving average.