

Quarterly Review and Outlook First Quarter 2023

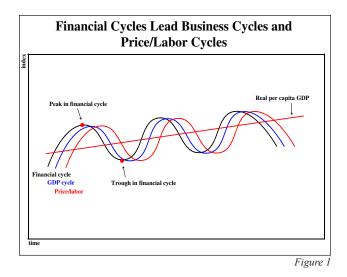
Financial Cycles Lead Business Cycles

When analyzing the business cycle, there are three cycles to evaluate: the financial cycle, the GDP cycle, and the price/labor cycle. Consider Figure 1, which shows three sine waves fluctuating around the economy's trend rate of growth (an upward-sloping flat line). The financial cycle (the black line) leads the GDP cycle (the blue line), with the price/labor cycle (the red line) trailing both.

Excessive monetary policies initiate two processes – inflation and excessive risk taking that becomes an integral part of the financial cycle. Together these two processes expose the economy to financial crisis, with one monetary policy fiasco leading to a future disaster.

The Pandemic Response

This historical pattern is evident in the Fed's response to the Pandemic, a process that has thus far not fully unfolded. In 2020 and 2021, the Fed engineered an unprecedented in modern times monetary acceleration. Then in 2021 and 2022, the U.S. economy suffered its worst cost of living crisis in forty-two years, heavily damaging the standard of living of modest and moderate income households. The median real weekly earnings of approximately 120 million full time hourly and salaried workers suffered a 2.5% decrease the past two years, the steepest loss in four decades. To subdue inflation running far above its target, Fed actions caused



an unprecedented monetary contraction, which has, in turn, begun to increase the potential for significant failure among the reckless ventures originated from 2020 to early 2022. As the research below will demonstrate, the destabilizing Fed actions have tied one financial cycle to the next many times over the Fed's 110year history. To describe this pattern, some key concepts need to be defined.

Terminology

Loose money implies five different situations which may occur both in combination and/or separately. First, money growth is too fast for too long. Second, credit, which may also be expressed as debt, is far too readily available for an extended time. Third, interest rates are held to extremely low levels for a prolonged time. Fourth, monetary looseness is also synonymous with ultimate credit (debt) availability to the least likely to repay principal and interest and heightened risk taking. A fifth consideration, forward guidance by the Fed, was added in the early 2000s. This tool was heavily used in the Pandemic, and quite possibly may ultimately prove to be very costly on both the micro and macro level. As of late 2021, the Fed was unequivocally advising that policy would be loose for longer, a tactic that undoubtedly led to overly aggressive risk taking by the bank, shadow bank, corporate and household sectors. The Fed's forward guidance of late 2021 proved highly inaccurate.

The financial cycle is comprised of money, credit, debt, interest rates, and availability of credit to the greatest risks. The peak in the financial cycle is the point at which monetary variables in combination, are at their most stimulative or loosest point. The financial cycle trough falls at the most constrictive or tightest combination. Historic and contemporary economists have contributed substantial backing for the rationale of Figure 1 even though they have generally not used the term financial cycle.

Signposts of the Financial Cycle

From the 18th Century to the Late 1970s

In 1752, David Hume, of whom the late economist Ingrid Rima said that without whom "the Enlightenment was not possible," wrote two important essays - "Of Money" and "Of Public Credit." In the former, he described how inflows of gold (which was money then and referred to as specie) from an international trade surplus resulted in higher inflation that in turn laid the foundation for a loss of the original trade surplus and a reversal of the cycle. In the public credit essay, he summarized the debilitating effects of inordinately high levels of government debt with the phrase "tranquility, languor and impotence." Hume's analysis has been confirmed by substantial research in the past fifteen years.

Knut Wicksell originated the natural rate of interest (1898). This occurs when an interest rate level neither slows nor accelerate economic activity. To achieve stability this interest rate should approximate the growth rate of nominal GDP. Interest rates higher than the top-line growth rate of the economy would mean that resources from the income stream of the economy would be required to pay for the higher rate of interest, thus slowing the economy. Interest rates below the natural rate would stimulate economic activity, but Wicksell also argued that lower than natural interest rates, especially when existing for lengthy episodes, would lead to higher prices which would in turn cause even higher prices as businesses and consumers extrapolate further price increases. This would result in rampant speculation and eventually a boom-bust cycle.

In 1933, Irving Fisher listed several factors that are present in business cycle fluctuations. These include (a) capital items, such as homes, factories, ships, productive capacity generally, inventories, gold, money, credits, and debts; (b) income items, such as real income, volume of trade, and shares traded; (c) price items, such as prices of securities, commodities, and interest. He goes on to say that all these factors are subordinate to "two bad actors" over-indebtedness and the deflation that follows.

Even more explicitly than Fisher, Charles Kindleberger wrote "Speculative manias gather speed through expansion of money and credit or perhaps, in some cases, get started because of an initial expansion of money and credit." To paraphrase Kindleberger money and credit excesses lead to "manias, panics and crashes," which is also the title of his famous 1978 book in which the above quote is found.

Hyman Minsky argued that excessive debt accumulation leads to financial instability

(1977) but did not identify the Fed as starting this process. Additional information from the four decades since Minsky's research reveals that when the Fed tries to achieve business cycle stability with excessive monetary policy, financial instability ensues. Minsky's instability hypothesis could be reworded to say monetary excess leads to Ponzi finance and financial instability (i.e., the Minsky Moment). The earliest book to utilize large-scale econometric techniques to measure the dynamics of forecasting financial cycles was Dynamics of Forecasting Financial Cycles: Theory, Techniques, and Implementation (Lacy H. Hunt, JAI Press, 1976). This model estimated from the early 1950s to the early 1970s and contained 60 stochastic equations estimated with monthly data - found reserve and monetary aggregate fluctuations a powerful influence on many key financial variables and, through these equations, measured lead times and thus documented a financial cycle.

Studies from 2005 to 2022

Since the early part of this century, contemporary scholars have identified additional causal chains of monetary excess leading to financial instability.

In a 2005 paper, Raghuram Rajan, holder of an endowed chair at the Booth School of the University of Chicago and the 23rd Governor of the Reserve Bank of India, presented a particularly important paper. To quote, "when interest rates are relatively loose, financial intermediaries have incentives—or are even required—to search for yield and thus risk. This incentive to "search for yield," in turn, serves as a source of financial risk. We would add that the greater the risk, the greater the potential instability. To attest to the high regard for Rajan's research, this paper was presented at the Fed's Annual Monetary Conference in Jackson Hole in 2005. Professors Robert J. Barro and José F. Ursúa of Harvard vigorously examined macroeconomic crises since 1870 for a broad and diverse group of countries including the U.S., the other major economic powers, and many other countries in terms of both real per capita GDP and real per capita consumption. In these crises, they found that they are not a single event but by a series of events. In other words, crisis is a process.

In 2017, Atif Mian, Amir Sufi and Emil Verner found that household debt booms are accompanied by a temporary boost in real economic activity. This boost, though, is shortlived and eventually reverses. In terms of the three interconnecting cycles fluctuating around the trend, the slope of the trend rate of growth in real per capita GDP does not, 'at the end of the day,' change. This should be the case since the trend in real per capita GDP is determined by technology interacting with the three factors of production – capital, natural resources, and labor.

These findings are also consistent with Hume's analysis of gold inflows. Monetary growth boosts real economic activity over the short-run, but over the long-run the effect is nil. Kindleberger's perspective was very similar. He felt that it was not clear whether a response to a financial crisis with heroic efforts were any better than letting the instability "burn itself out." After the Financial Panic of 1875, no response occurred as the U.S. was on the Gold Standard and federal budgets continued to be balanced. Nevertheless, problems were resolved within two decades. Japan's panic of the late 1980s has addressed their ongoing predicament, with almost too many heroic efforts to count, and the country is still languishing more than three decades later.

Itamar Drechsler, Alexi Savov and Phillip Schnabl established empirically a theoretical link between lower interest rates and increasing

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serious peer review.

leverage and thus risk exposure. Their paper, "A Model of Monetary Policy and Risk Premia," carries particularly important weight since it was published in 2018 in The Journal of Finance, the official publication of the American Finance

In "Low Interest Rates and Risk-Taking: Evidence from Individual Investment Decisions," published in the highly distinguished *The Review of Financial Studies*, Chen Lian, Yueran Ma, and Carmen Wang (2019) find that an individual starting in a high interest rate environment will tend to make riskier investment decisions when shifted to a low interest rate environment.

Association. Such publications receive very

In their paper "Monetary Policy and Endogenous Financial Crises" Frederic Boissay, Fabrice Collard, Jordi Galí, and Cristina Manea show financial crises are the consequence of a central bank that keeps the policy rate too low for too long, which in turn fosters an investment boom and eventually a capital overhang. This paper was published in 2022 by the Bank for International Settlements.

This Year

Another major breakthrough can be found in "Loose Monetary Policy and Financial Instability" Federal Reserve Bank of San Francisco, February 2023 by Maximilian Grimm, Òscar Jordà, Moritz Schularick, and Alan M. Taylor (referred to as GJST).

The GJST empirical analysis is based on the Jordà-Schularick-Taylor database which combines macro-financial data with a banking crisis chronology for 18 advanced economies 1870 until 2020. In evaluating the data, GJST used advanced techniques to exclude interferences from extraneous and non-causal factors in order "to capture movements in the component of interest rates affected by monetary policymakers." Building on contemporary work of others, GJST estimate a long-run trend component of interest rates for seven countries (Canada, Germany, France, Italy, Japan, the U.K., and the U.S.) by exploiting the joint dynamics of inflation and the short and long end of the yield curve for all 18 countries used in the database.

Here are their key findings: "a loose stance of monetary policy has potential benefits, as well as costs. Loose financial conditions and increased risk taking may not be a bad thing per se. They might, for example, enhance consumption smoothing by relaxing financial constraints or raise innovation and efficiency by providing more investment capital. However, our historical evidence suggests that running such a high-pressure economy may not be sustainable in general. ...we argue that potential short-term gains come at the considerable cost in the form of heightened risk of disasters in real economic activity."

GJST provide strong empirical documentation that the posture of monetary policy affects the stability of the financial system. To quote the authors, "a loose stance over an extended period of time leads to increased financial fragility several years down the line." These findings are consistent with the considerable body of research extending back to the 18th century that financial excess is a harbinger of financial turmoil. Here are GJST's concluding words: "Policymakers should take the dangers imposed by keeping policy rates low for long seriously, and thus weigh the potential short-run gains of loose monetary policy against potentially adverse medium-term consequences. Such policies increase the risk of financial crises and thus the risk of high social, political, and economic costs."

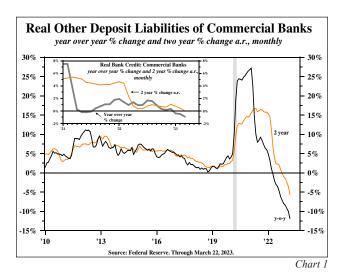
From one financial cycle to the next, the conditions described by GJST could bring a new

array of policy actions but, in so doing, the Fed could eventually destabilize the economy even more than in the prior financial cycle. To wit, the financial cycle, as illustrated in Figure 1, will have gone through a full rotation. The financial cycle started and ended with Fed actions and then will restart again with the Fed trying to correct for the prior cycle's failing, resulting in the financial cycle leading GDP and price/labor cycles once again.

Outlook

The risk of a recession continues to rise, even though the economy grew in the first quarter. The Fed has neutralized the inflationary impact of the fastest modern era money growth in 2020-2021. Other deposit liabilities (ODL), in real terms, have registered a double-digit decline in the 12 months ended March, with the 24-month change at a negative 5% (Chart 1). Over the past 12 months, real bank credit had declined even before the recent, and highly visible, bank failures and is now unchanged for the past 24 months. Although monthly data is not available before World War II, the latest 12 month decline in M2 is undoubtedly the sharpest since 1934.

Two considerations suggest that the rise in velocity in 2022, and the first quarter of



this year, which has thus far interfered with the Fed's efforts to contain inflation, will reverse. By formula and statistical estimation, velocity lags the business cycle. Since V equals GDP (a coincident variable) divided by money (a leading variable), V must definitionally lag. Econometrically, velocity is determined by the marginal revenue product of debt and the loan to deposit (L/D) ratio, both of which are lagging indicators. The econometrics would be highly questionable if V were determined by leading indicators

With \$10 trillion of total U.S. debt being rolled over this year, and an equivalent amount in 2024, the marginal revenue product of debt is set to decline late this year and in 2024. Allocating cash flow from debt funded projects to interest payments is the least productive use of these resources. While the L/D ratio rose in the first quarter and in 2022 as well, it is a lagging variable with its trough an average of 47 months after its recessionary peak. Under the weight of faltering business conditions, loans will follow and the so will the L/D ratio. When velocity turns down, monetary policy will have very little capability to stimulate economic activity. The well-known "pushing on a string" predicament will be totally insufficient to describe the situation that lies ahead.

Accordingly, with low or declining economic activity, the inflation rate will continue to recede. Further progress will be made in terms of moving consumer inflation into the Fed's target zone in 2024. Therefore, with the historical pattern of the financial, GDP and price/ labor cycles proceeding on its well documented path, this year's decline in long-term Treasury bond yields is expected to continue.

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