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Phone: 202-861-0791
Fax: 202-861-0790
www.international-economy.com
editor@international-economy.com

A SYMPOSIUM OF VIEWS

Liquidity *Tidal* *Wave*

To what extent is today's massive global ocean of liquidity breaking all the rules in U.S. financial markets?

If you trade U.S. Treasury securities or equities these days using the traditional rules for how markets function, you probably are ready to give up and head for higher ground.

Last May, for example, the Federal Reserve began its discussion for future tapering. By early November, U.S. equity markets had rallied another 14 percent. At that time, the ISM services sector data was the strongest in history. Still, real interest rates continued to be the lowest in history. Inflation soared to three times the Fed's target. Yet at one point during this rise, the ten-year Treasury bond experienced an eye-popping rally. Meanwhile, the greatest asset bubble in history continued to grow with surprisingly little correction until recently.

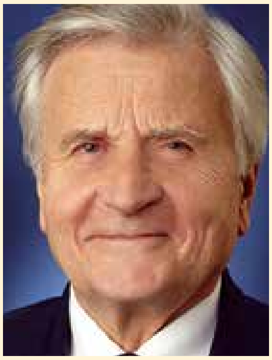
What's going on? Is today's giant swirling global ocean of liquidity the new master of U.S. financial markets? The global financial ocean first expanded after the fall of the Berlin Wall, with new entrants to the capitalist system such as China and India. The dramatic expansion of central bank balance sheets added to the situation.

What's the situation today? Europe and Japan, both with negative interest rates, seem to have ceded global leadership in technology to the United States and China. With China's return to a new form of Maoism, its bonds are highly risky. And as Chinese GDP continues to slow as a result of demographic and debt concerns, emerging markets are taking a hit.

By contrast, the U.S. Treasury's ten-year bond even at 1.9 percent (1.5 percent as of early November) looks relatively appealing. America's banks are well-capitalized. While American politics are essentially dysfunctional, the result has been a market favorite—divided government. Why shouldn't extraordinary amounts of global liquidity be pouring into the United States?

But what, if any, will be the long-term consequences of this current situation where rising liquidity has swamped the U.S. economy's price and market indicators of earlier times? More Bitcoin-type rocket scenarios? Or is this global liquidity effect being exaggerated?

Two dozen important analysts share their views.



I do not think the monetary policies of recent years were wrong, but it was an enormous mistake to leave central banks almost completely alone in the decade's battlefield.

JEAN-CLAUDE TRICHET
Former President, European Central Bank

During the last ten years, between the Lehman Brothers bankruptcy and the Covid-19 crisis, advanced countries' real economies experienced unprecedented disorders: much lower productivity growth, lower real growth, extremely low real interest rates, and abnormally low inflation. After having concentrated for many years on fighting deflation and then countering the dramatic Covid-19 crisis, they have now to cope with abrupt significant price increases.

Even if we put aside the exceptionally high level of headline inflation, which is under the influence of the global prices of oil, gas, and some commodities, the jumps observed in the level of core inflation are alarming. In the United States from July 2020 to November 2021, core went from 1.3 percent up to 4.9 percent (2.5 times over the 2 percent medium-term target). In the euro area from July to November 2021, core went from 0.7 percent up to 2.6 percent. In both cases, core inflation tripled and quadrupled in a short span of time!

During the global financial crisis, all advanced-economy central banks issuing the currencies that are in the basket of SDR converged toward the same definition of price stability, namely 2 percent in the medium run, in order to solidly anchor expectations. I consider this conceptual convergence, also visible in several other fields (banking surveillance, systemic risk monitoring, communication, and so forth), as one of the most consequential events in monetary policy since the dismantling of Bretton Woods.

For the U.S. Federal Reserve, the ECB, the Bank of England, and the Bank of Japan, the commitment made to fellow citizens, economic agents, and market participants to ensure price stability in the medium and long run is more demanding than before: the goal is precisely defined. And the travails of the three first central banks—Japan being a special case—to ensure price stability are likely to be difficult because of the many years of exceptionally accommodating policies. The four central banks mentioned earlier are still, as I write, at zero or negative interest rates and have accumulated around $24 trillion (significantly more than the 2020 GDP of the United States!) of purchases of tradable securities in their balance sheets. These enormous amounts are unprecedented and have had consequences, in terms of financial and asset markets bubbles and the distortion of economic agents' decisions.

I do not think the monetary policies of recent years were wrong. They were designed to prevent the materialization of deflation and, as regards the last two years of pandemic, the overall collapse of the economic and financial sphere. They succeeded. Central banks were up to their responsibilities, but it was an enormous mistake to leave them almost completely alone in the decade's battlefield.

I see four responsible entities that should have contributed to redress the advanced countries' real economic situation and therefore alleviate the burden of central banks.

First, governments and executive branches should have embarked much more resolutely in those structural reforms that are key to enhancing productivity and growth: reforming the labor market, improving mass education, financing help for students of excellence, professional training, technological innovation, and more.

Second, governments, entrepreneurs, and social partners should have realized much earlier that very low inflation was also due to the quasi flat nominal unit labor costs in many advanced economies. Strangely, only very recently was it realized that the significant weakening of the bargaining power of labor and ensuing inequalities were not only a major political problem, but also an important monetary and financial problem.

Third, central banks would have benefited from the minimization of financial unintended consequences if macroprudentials had been used significantly more resolutely. In this respect, the success of applying the new prudentials for banks after the global financial crisis was unfortunately not matched by financial market macroprudentials. Today, potential financial market instability is a major issue.

Fourth, the reader might be surprised that I ranked fiscal policies only as fourth on the list. In the eyes of many who assign macroeconomics to the sole mix of monetary and fiscal policies, it goes without saying that significantly more accommodating fiscal policies were the appropriate way to alleviate the central banks' burden. I do not dispute this view as regards the Covid period for all and, before Covid, for those countries and economies that had a significant fiscal space such as Netherlands, Germany, and Austria. But it was not a good recommendation for Japan, the United States, the United Kingdom, Australia, Canada, France, or Italy—economies which have a tendency to post high public debt outstanding as a proportion of GDP and/or significant public and current account deficits. In the near future, interest rates will be significantly higher also because of the green transition and its required investments, which will eliminate the savings glut and push up real interest rates.

In these extremely demanding circumstances, I would express two wishes. First, central banks should ensure credible anchoring of inflation expectations in line with their medium-term goal. This is absolutely key for the support of fellow citizens.

And second, central banks should not be forced to battle today's problems alone, as well as the new major difficulties that are likely to materialize in the future. If this becomes the case, I expect them to be more eloquent than in the past in calling upon all their partners, including political authorities and social partners, to step in and help.

All the disruptions we are witnessing have been carefully prepared over the last fifteen years.

JACQUES DE LAROSIÈRE

Former Managing Director, International Monetary Fund, and Honorary Governor, Banque de France

What is strange is not so much the current outburst as the astonishment it arouses. All the disruptions we are witnessing—particularly inflation's upsurge—have been carefully prepared over the last fifteen years.

I personally have never understood the "rationale" behind the major central banks' policies. These have been continuously accommodative, regardless of the cyclical positioning. Policy rates remained negative for twenty years in real terms, dictating their "guidance" to the markets.

The reason for this stimulating obstinacy? Inflation was below the 2 percent target set by the central banks. Achieving such an objective—which is obviously arbitrary and cannot be equated with the economic optimum—should never have been the single and absolute guide for policy.

For a number of reasons, break-even inflation (which prevented both deflation and excessive inflation) had been around 1 percent. And it is this, insignificant, disparity that "justified" the ensuing debauchery of monetary creation.

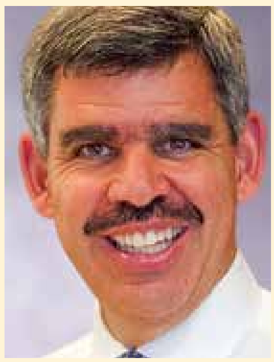
The consequences were of immense severity, which few observers denounced. First, the prolonged existence of zero or even negative rates has been disastrous. It has exacerbated the search for yield, propelling the value of junk bonds, stock exchanges, and most financial assets beyond reasonable limits, thus preparing for the severe adjustments that will follow the inevitable corrections to come.

This policy has allowed our world to accumulate the most phenomenal global debt ever observed in peacetime, with all the vulnerabilities it entails. It has also been accompanied by an extraordinary increase in income inequality.

Has the abundance of zero-rate liquidity at least promoted productive investment? No. In a system in which savings are no longer remunerated at all, economic agents prefer to keep riskless liquid instruments and turn away from long-term investments. This is the "liquidity trap" that Keynes was afraid of and in which we find ourselves, especially in Europe. Actually, global productive investment fell significantly during the period of extra-low interest rates while share buybacks flourished.

Why such dangerous developments and such disregard for the objective of financial stability? Basically, our decision-making system, faced with the existential challenges of our time, prefers the old, easy, short-term recipe of continuous monetary stimulus to structural effort. And governments, having sucked the milk of borrowing at no cost, would be happy to continue their "fiscal dominance."

But we still have to learn, once more, that structural problems call for structural remedies, and cannot be solved by more and more cheap money.



The Fed got sucked into an unhealthy co-dependency relationship with markets.

MOHAMED A. EL-ERIAN

President, Queens' College, Cambridge University, and Professor, Wharton School, University of Pennsylvania

Well-intentioned interventions by central banks, including in particular years of massive and predictable liquidity injections by the Federal Reserve, have distorted the functioning of financial markets in ways that could well come back and bite economic wellbeing in the years ahead. Fortunately, there is a window—albeit a small and shrinking one—to avoid collateral damage to livelihoods and financial stability.

Forced by political polarization into being the "only game in town" policy-wise, the Fed got sucked into an unhealthy co-dependency relationship with markets as it tried to use the financial asset channel to pursue economic objectives. As a result, market prices no longer have the information content that is so important for good policy-making and efficient economy-wide asset allocation.

Such deep price distortions have encouraged excessive risk-taking as markets bet on drawing the Fed even deeper into supporting asset prices and shielding them from fundamental-driven volatility. The "everything rally" prospered as investors were driven by FOMO (fear of missing out), TINA (there is no alternative), and BTD (buy the dip, regardless of its cause).

After all, there is no better financial investment thesis than one protected by a central bank with a printing press in the basement and a seemingly endless appetite to use it for buying assets. On top of that, the Fed is a non-commercial buyer, encouraging other buyers to also be price insensitive.

With inflation soaring and irresponsible risktaking threatening financial stability, the time has come for the Fed to change course—and to do so quickly before it is overwhelmed by the many seeds of economic and financial instability that it has inadvertently planted and watered. The easing of the monetary policy accelerator needs to be accompanied by pro-growth and pro-productivity structural reforms, as well as the enhanced supervision and regulation of non-banks.

Failure to do so would fuel a host of risks that undermine future inclusive wellbeing and sustainability, and unnecessarily so. Indeed, the last thing we need is a late and discredited Fed having to slam on the brakes just as we try to emerge from Omicron, as fiscal stimulus is fading, and as overvalued financial markets risk malfunctioning.

A lot has to do with the permanence of secular stagnation.

JOSEPH E. GAGNON

Senior Fellow, Peterson Institute for International Economics

For more than a decade, global financial markets have been sending a strong signal that they believe in secular stagnation. Declining birth rates, longer lifespans, and the shift from goods to services raise desired saving and reduce desired investment at any combination of safe and risky real rates of return. The result is downward pressure on all rates of return. The transition to ultra-low inflation rates increases the perceived safety of government bonds, pushing returns on sovereign bonds down even more than those on riskier assets. Even the Covid-induced spike in U.S. inflation has not shaken the market's faith in a return to ultra-low inflation and interest rates.

A world of secular stagnation is a world in which the zero bound on nominal interest rates frequently constrains central banks in their attempts to maintain full employment; fiscal policy is forced to take up the slack. The world is awash in government bonds paying ultra-low and even negative real rates of return. To some eyes, there is an excess of liquidity. What some call a risky reach for yield, others call a fully rational capitalization of future rents and profits into equity and real estate valuations given a historically low discount rate.

Much of this global wall of money is flowing into the United States, driving the U.S. current account deficit back up toward historically high levels. Factors behind these inflows include the dollar's international role, mercantilist currency policies in some surplus economies like Singapore and Switzerland, the greater dynamism of the U.S. economy relative to Europe and Japan, and the large U.S. fiscal response to Covid relative to responses in other economies.

One way out of persistent secular stagnation and negative real interest rates is a permanent shift to expansionary fiscal policy. It remains to be seen if Biden, Kishida, and Scholz will launch a materially important shift in the largest economies. For now, markets are skeptical.

If governance continues to improve in the euro area and decline in the United States, a new least-ugly champion is coming.

ADAM S. POSEN

President, Peterson Institute for International Economics

Why are we still asking this question? For nearly forty years, monetary aggregates and measures of credit have not been good predictors of asset prices, inflation, growth, or anything we should care about. They fluctuate wildly by orders of magnitude, and nothing changes in a consistent way. Yes, if there were a period of extended tight monetary policy and positive real rates of interest, it probably would not be great for growth or equity prices—but that says something about monetary policy, not about ill-defined inconsistently measured liquidity.

Issues of comparison between economies' attractiveness to capital flows and to longer-term investment is important. Those are determined by real factors, however, like whether technological progress is outpacing other economies there or property rights are more secure than elsewhere. What is meaningful is the underlying rate and volatility of growth, not liquidity.

As I have written before for *TIE,* it is best to think of competition between economies on their currencies or their investment prospects as a least-ugly contest: In a time of negative shocks, who do markets think is best situated to ride out the negative conditions without engaging in self-destructive policy? For decades, right up through the global financial crisis, the U.S. economy was deemed the least ugly, by a large margin. Even if the negative shock was generated by the United States, capital would leave emerging markets and some advanced economies in flight to American relative safety and quality.

That margin of victory is now shrinking during Covid. Even though all the major economies undertook similar rapid stimulus policies in response to the same initial pandemic and lockdowns, on both public health and management of the recovery the United States has not been a looker. Markets already update in close to real time. That is why almost all emerging markets and even some developing countries were able to engage in their own large macroeconomic stabilization policies until just recently: the money did not fly out to the United States. Europe this time, unlike in 2010–2012, did advance through crisis, creating new common fiscal capacities and issuing something approaching euro bonds.

In this sense, the markets are not ignoring the ugliness of U.S. politics, or the long-overdue restructuring of our employment of lower-income service workers. The hyped capital inflows into the United States are not going into Treasuries, where the share of foreign purchases of new issuance has fallen compared to the pre-Covid period, let alone pre-2010. The flows into China, Europe, and most emerging markets remain strong. If governance continues to improve in the euro area, and decline in the United States, a new least-ugly champion is coming.

Time for the Fed to consider a more balanced approach.

CHRISTOPHER WHALEN
Chairman, Whalen Global Advisors

In 1978, the national Congress passed a law known as the Humphrey-Hawkins Full Employment Act, which extended post-World War II benefits for soldiers and included amendments to the Federal Reserve Act that provide policy direction to the Federal Open Market Committee. The mandates in Humphrey-Hawkins—full employment, growth in production, price stability, and balance of trade and budget—were entirely domestic in focus and did not provide direction regarding America's financial relationship with the world.

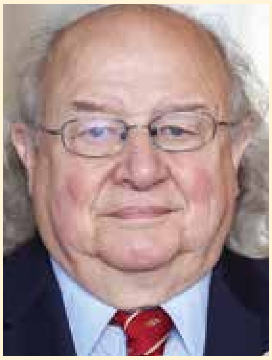
Wind the clock forward almost half a century and the situation is very different. The FOMC continues to set monetary policy based upon the legal mandate of Humphrey-Hawkins, but does so in the context of the internationalization of the dollar. Economists focus on the "special role" of the dollar as a reserve currency held by other central banks. The more significant fact, however, is the effective dollarization of much of the private global economy.

The widespread use of the dollar as a means of exchange and unit of account in other nations is still not recognized by U.S. policymakers. Researchers such as Carmen Reinhart (2017) have asked how long the dollar's role as reserve currency may last as the U.S. share of global output falls, but it fact, the use of the dollar for setting wages and large transactions such as real estate and investments in many other nations seems only to grow. Notice, for example, that long-dated dollar swaps frequently trade through Treasury yields. What does this suggest?

In much of Latin America, wages for professionals and real estate transactions, including the financing, are set and indexed in dollars. The fact of the global use of the dollar is also illustrated by China, which runs a short position in dollars totaling into the trillions of dollars to finance global trade and investment strategies. The fact of this strong demand for dollars, both in terms of currency and risk-free assets such as Treasury debt and agency securities, frequently thwarts efforts by the FOMC to manage domestic market liquidity.

When the New York Fed provides cash to the primary dealers, that cash does not necessarily "trickle down" to the rest of the money markets. Indeed, a good bit of the liquidity created by the Fed, ostensibly for domestic purposes, instead leaks offshore seeking to maximize yield and capital returns. The Group of 30 has pushed for permanent repurchase agreement facilities at the Federal Reserve Bank of New York and centralized clearing of Treasury debt to address liquidity concerns. But these proposals may, in fact, exacerbate liquidity problems in the domestic markets.

As the Fed rushes to catch up with the markets in terms of managing inflation based upon the ancient Humphrey-Hawkins law, it may be time for Congress to consider a more balanced and current mandate for the FOMC to manage global dollar liquidity.



Prices of some assets have increased substantially but this is not a market distortion.

EDWIN M. TRUMAN

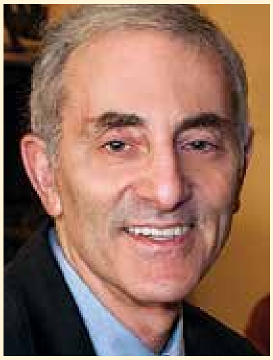
Senior Fellow, Mossavar-Rahmani Center for Business and Government, Harvard Kennedy School, former Assistant Secretary for International Affairs, U.S. Treasury, and former Director, International Finance, Federal Reserve Board

The global liquidity effect is being exaggerated. The global financial system has been going through an unusual extended period triggered by the pandemic that is entering its third year and by the response of fiscal and monetary policies to the pandemic's impacts on national economies.

Although the balance sheets of the major central banks have expanded to an unprecedented extent, the principal counterpart to the increase in central bank liabilities has been an increase in holdings of government or government-back securities. In the United States, the Federal Reserve's balance sheet has increased 20 percent over the past twelve months, by $1.4 trillion. However, that increase is more than accounted for by the increase in holdings of securities. The associated financing has facilitated U.S. government support for the domestic economy and thereby the global economy.

Meanwhile, the Bank for International Settlements reports that the four-quarter expansion of global liquidity in U.S. dollars provided to borrowers outside the United States and non-governmental borrowers within the United States has been essentially unchanged during the past two years compared to the previous two years.

Prices of some assets have increased substantially in an environment of low global interest rates for a prolonged period, but this is not a market distortion. It reveals the way markets work under unusual circumstances.



Today's concerns about "excess global liquidity" could look quaint in a few years.

ROBERT E. LITAN

Non-Resident Senior Fellow, Brookings Institution

The important question is not whether the global ocean of liquidity is "breaking all the rules in U.S. financial markets." Rather, why has there been so much demand for "safe" government bonds, which has depressed long-term yields for well over decade, and not greater demand for productive investment and research and development that would soak up much of that liquidity and generate faster global growth, albeit with higher long-term interest rates?

Former Treasury Secretary Larry Summers provided what was then a controversial answer in 2013 by resurrecting Alvin Hansen's "secular stagnation" thesis of 1938: that a combination of an aging population, less immigration, and waning technological innovation had combined to permanently reduce private investment relative to savings. Sound familiar? Summers' argument has seemed right on the market.

Until now, that is, for three reasons, two of them related to the Covid pandemic. First, having realized the enormous value of internet-enabled communication during the pandemic, firms in many sectors are likely to invest in business models and equipment for a very different post-pandemic world. Relatedly, many existing structures—think shopping centers—are already being repurposed for different uses, such as warehouses, and this trend is likely to continue.

Second, the Covid-related global supply chain problems that are responsible for much of the recent rise in inflation are likely to stimulate more localized investments in capacity to avert multiple types of future disruptions (wind and ice storms, future pandemics).

Third, though governments fell short (again) in Glasgow of agreeing on what is necessary to mount an effective coordinated global response to climate change, there is likely to be substantial private and public investment devoted to mitigating greenhouse gas emissions and to adapting to severe weather events aggravated by climate change.

In combination, these three forces should push trend real investment above preexisting levels, reducing the demand for safe government debt. If this happens, today's concerns about "excess global liquidity" will look quaint in a few years.

At some point, the Fed will have to decide whether it is willing to invert the yield curve, while the bond market has to decide if it is willing to finally reprice on the long end of the curve or bet on recession.

MARC SUMERLIN

Managing Partner, Evenflow Macro, and former Deputy Assistant to the President for Economic Policy and Deputy Director of the National Economic Council

In the United States, money growth has exceeded nominal GDP growth in every one of the last ten years except for 2018, during the quantitative tightening period. Money not spent on goods and services flows into asset prices as people buy stocks and bonds and real estate.

Since the Fed cares only about goods and services inflation, asset prices can rise for a long time—until they collapse under their own weight or until the Fed starts fighting inflation. The money creation and fiscal injections during the pandemic created so much liquidity that inflation is now widespread across the entire economy, which means asset prices might become collateral damage as the Fed embarks on a tightening cycle.

The massive liquidity over the last two years turbocharged the adoption of digital and crypto currencies. In the old world, the dollar might have devalued against other fiat currencies if the Fed were hyper-aggressive; now the dollar is being devalued against Bitcoin and yield-positive stablecoins. According to the digital asset analysis firm Messari, the global transaction volume of stablecoins reached $1.7 trillion in the second quarter of 2021 compared with just $25 billion in the first quarter of 2019.

Cryptocurrencies have been around for a decade. Why are they surging now? The reason is that the aggressive fiscal and monetary action during the pandemic sparked a fear of inflation and currency devaluation. People who bought cryptocurrency based on the fear of inflation have been aptly awarded.

The bond market is also making a policy statement. For all the inflation and growth that we have now, the bond market is telling policymakers the growth will not last. Keynesian-type fiscal packages work in the short run, mechanically boosting growth, but inevitably the fiscal impulse turns negative—as spending cannot keep increasing at the same pace—and the benefits to growth unwind. The bond market believes in a quick return to secular stagnation, holding negative real rates far into the future, and is daring the Fed to tighten beyond 150 basis points. At some point in 2023, the Fed will have to decide whether it is willing to invert the yield curve—a historically bad idea—while the bond market has to decide if it is willing to finally reprice on the long end of the curve or bet on recession.

If the Fed's QE is resumed, an alternative currency system—possibly based on Bitcoin—may constitute an exit path towards a more stable international financial system.

GUNTHER SCHNABL

Professor of Economic Policy, Leipzig University

Since the 1970s, the international financial markets have continued to grow, with the dollar-based U.S. financial market building the center. The gradual liberalization of the global financial markets has come along with growing turmoil, with crises becoming the pre-steps for strong liquidity growth and financial repression.

The liquidity tidal wave has been strongly intertwined with the crisis response of central banks. For instance, when the Japanese bubble economy burst in the early 1990s, the interest rate cuts of the Bank of Japan fueled new bubbles in Southeast Asia, which culminated in the 1997–1998 Asian crisis. The resulting global interest rate cuts built the breeding ground for the dot.com bubble. The new monetary stabilization measures paved the way into the U.S. subprime boom and exuberance in many European real estate markets.

Meanwhile, this wave of wandering bubbles is argued to have culminated in an "everything bubble." The increasingly expansionary conventional and unconventional monetary policies have not only helped to contain or prevent financial crises, but have also encouraged risk taking and moral hazard. The balance sheets of central banks have grown dramatically, with interest rates remaining depressed close to, at, or even below zero.

Within this global financial repression, the financial hegemony of the United States is likely to prevail. China will not catch up, because its financial markets are suppressed by tight capital controls and state-directed capital allocation. The Japanese financial market is burdened by a record level of government debt.

In the euro area, the European Central Bank has intensified the fragmentation of financial markets by charging commercial banks a negative interest rate on their excess reserves, thereby pushing the money market interest rate below zero. With the negative interest rate on the so-called Targeted Longer-term Refinancing Operations, the ECB has become a major competitor of private banks in the credit market.

The pervasive financial repression in the euro area and Japan has prompted high net capital outflows to the United States, as long-term government bond yields have risen substantially above the yields of German and Japanese government bonds. The United States' large bond, stock, and real estate markets continue to offer attractive diversification opportunities.

The challenge is, however, that the real interest rates in all parts of the industrialized world have become negative, with the very benign financing conditions having paralyzed incentives for enterprises to increase efficiency. In addition, the benign liquidity conditions have encouraged regulation, which has put sand into the gears of the globalization process. With productivity gains declining or even becoming negative, distribution conflicts have emerged, which are amplified by the hiking inflation.

It has to be seen if the tapering announced by the Fed will constitute the turning point away from the liquidity-driven financial market exuberance, or if—in the face of new financial instability—the Fed's quantitative easing will be resumed. If the latter is the case, an alternative currency system—possibly based on Bitcoin—may constitute an exit path towards a more stable international financial system.

Are we faced with a choice between a financial crash soon or a financial crash later?

STEVEN B. KAMIN

Senior Fellow, American Enterprise Institute, and former Director, International Finance, Federal Reserve Board of Governors

The U.S. financial system faces two critical risks. The first is that the Federal Reserve will be forced to sharply tighten monetary policy in response to continued elevated inflation. The second is that it won't.

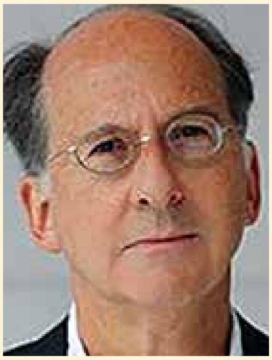
To back up a bit, a decade of low-for-long interest rates, followed by a pandemic of even lower rates, have put the financial system in a very exposed position. As detailed in the Federal Reserve's most recent *Financial Stability Report,* the forward price-to-earnings ratio for S&P stocks is near its highest levels since the dot.com boom. Corporate bond spreads are at their narrowest levels since before the global financial crisis. And the real estate boom of the last couple of years has pushed housing prices much of the way back to their mid-2000s heights. Stretched valuations and low financing costs, in turn, have encouraged a worrisome rise in corporate debt. Though down a bit from its pandemic high, the ratio of non-financial business credit to GDP remains well above its levels in the past four decades, while gross business leverage—the ratio of debt to assets—is also highly elevated.

As long as interest rates stay low and the economy continues to grow, these high asset prices and debt burdens will be sustainable. So the Fed's projections for policy interest rates as of the December FOMC meeting—0.9 percent by next December, 2.1 percent by the end of 2024—though up from previous forecasts, would still be extremely felicitous were they actually to come true.

But with inflation running at nearly 7 percent, the highest since 1982, and with the outlook for future inflation equally uncertain, I would not bet against a much steeper run-up in interest rates. Such a run-up could trigger a chain reaction of adverse consequences: financial market turmoil, recession, business defaults, and back to more turmoil. And the damage would spill out to the rest of the global economy, especially in emerging markets.

These are all good reasons to hope that inflation subsides and the Fed can avoid a sharp tightening of its policy. But that, too, carries its dangers. The Fed's current projections, despite having become more hawkish in response to rising inflation, imply at least two more years of negative real interest rates. This will provide the fuel for further increases in asset prices and business debt, leading the financial system to become even more exposed to adverse shocks.

So are we faced with a choice between a financial crash soon or a financial crash later? There is a middle way. Assuming inflation and output evolve as currently expected, the Fed should plan on taking the policy rate back to neutrality—say, 2.5 percent—within the next two years. Such tightening will be slow enough to avoid tanking the economy, but fast enough to put financial markets on notice that interest rates will not stay low forever.



America needs to guard against stretched valuations and a sharp repricing of risk.

MARK SOBEL

U.S. Chair, Official Monetary and Financial Institutions Forum, and former Deputy Assistant Secretary for International Monetary and Financial Policy, U.S. Treasury

Global financial conditions are highly accommodative. Major central banks have cut rates to zero or below and expanded balance sheets. Real interest rates are negative.

A reach for yield has predictably ensued, stretching valuations for stocks, housing, and alternative assets, thereby creating large repricing risks and vulnerabilities. Policymakers need to address these more seriously.

At their first summit in Washington in November 2008, G20 leaders assessed the root causes of the global financial crisis. They noted that market participants sought higher yields without adequate appreciation of risks, failed to exercise proper due diligence, and that a combination *inter alia* of leverage and opaque products not fully appreciated by regulators led to the crisis.

Financial authorities elevated their focus on financial stability concerns after the crisis. They explored how to separate monetary policy from financial stability concerns to avoid premature tightening and yet dampen financial market exuberance. Micro-prudential supervision was tightened. Authorities emphasized building out a systemic perspective and macroprudential oversight.

U.S. macroprudential oversight, however, remains highly inadequate. The Dodd-Frank Act created the Financial Stability Oversight Council, a Treasury-led committee of regulators, to identify risks to U.S. financial stability, promote market discipline, and respond to emerging systemic risks. The FSOC's regulatory powers are limited. It was particularly dormant during the Trump administration.

Buttressed by Basel III, banks weathered the pandemic storm. But with tighter bank oversight, many risks gravitated over the past decade to the non-bank financial sector.

The FSOC can designate non-banks and financial market utilities as systemic, subjecting them to heightened oversight. It did so for financial market utilities. But non-bank financial intermediation risks generally do not lie in the remit of bank supervisors, rather others such as the U.S. Securities and Exchange Commission. The FSOC sought to energize efforts to tackle money market funds under the Obama administration, but didn't go far enough amid internal squabbling. These funds again undermined financial stability in March/April 2020. The recent turmoil from the collapse of Archegos Capital Management raises deep concern.

For non-banks, the FSOC designation process relies on an "activities-based" approach, rather than an "entity" focus. While non-bank activities giving rise to leverage and interconnectedness can surely undermine financial stability, it is unclear how supervisors gauge such activities and whether the non-bank designation process has teeth. The U.S. regulatory structure is overly cumbersome and confusing, and many supervisors—such as the SEC—lack a financial stability mandate.

America needs to guard against stretched valuations and a sharp repricing of risk. If monetary policy and financial stability concerns are to be separated to the extent possible, the FSOC needs to step up. Others, such as the SEC, must integrate financial stability concerns far more heavily into their daily operations. America should streamline its woefully inefficient and dysfunctional regulatory structure, but don't hold your breath.

The effects on an overleveraged global economy would not be pretty if rates are shocked upwards.

WILLIAM R. WHITE

Former Economic Adviser, Bank for International Settlements

For decades, portfolio investors saw the attraction of a 60-40 percentage split between holdings of equity and bonds. This provided a natural diversification against risks associated with the business cycle. As the economy strengthened, equity prices would rise while interest rates would also rise and the value of bonds would fall. Today, as growth has rebounded in the advanced economies and inflation threatens, these traditional relationships no longer seem to apply. Equity prices, especially in the United States, are already so high that further increases would seem hard to justify. In contrast, while bond rates are deeply negative in real terms, the markets have shown a marked reluctance to push them higher. Will this continue or could there be a sudden shift in sentiment?

One fashionable school of thought, embraced by most central banks, suggests that real interest rates adjust "naturally" to economic developments. Thus, we need negative real rates to equilibrate excess global saving and investment at full employment. However, this framework suffers not only from poor theoretical foundations (it ignores monetary influences), but also from all the practical uncertainties associated with the natural rate being unobservable. Further, would not nominal rates still be expected to rise with inflationary expectations? Closely related, some suggest a future of "secular stagnation," though this is hard to reconcile with the increasing pace of technological innovation.

A less fashionable school of thought begins with economist John Maynard Keynes' observation in the *General Theory* that long rates are set by "convention" and that "Any level of interest rates which is accepted with sufficient conviction as likely to be durable will be durable." Until now, the world's most influential central banks have convinced markets that policy rates will not rise in a durable fashion. Popular acceptance of the "natural rate" framework is crucial to this belief since it falsely implies low rates are "rooted in objective grounds much stronger than convention." Moreover, the Fed has argued that the current level of inflation will soon decline. In addition, their new policy framework defines their objectives as being average inflation and maximum employment, both of which bias policy towards ease.

There are also political economy arguments for expecting policy rates to stay low. Given great uncertainty about the effects of tightening, the default position becomes the status quo. Worse, a suspicion that the economy and the financial system is currently overleveraged and vulnerable (the "debt trap") points in the same direction. Overburdened with sovereign debt, governments might also be expected to advise caution in tightening policy. Further, swollen central bank balance sheets imply huge capital losses should rates rise, threatening central bank independence. Finally, the example of Japan suggests that this state of affairs could actually persist for decades. All of these arguments support the conviction that interest rates should and will stay low.

However, if Keynes is right, a problem arises should developments occur that undermine this conviction. In a best-case scenario, inflation recedes quite quickly while real growth is sustained at around potential levels. Then both short and long rates might rise slowly, without disruptive effects, toward more normal levels. However, a worst-case scenario would see more persistent inflation and weaker real growth. Indeed, there are many conceivable negative supply shocks—viral mutations, worsening demographics, deglobalization, climate change, and resource misallocations—each of which could lead to that outcome. Should such developments suddenly shock rates upwards, the effects on an overleveraged global economy would not be pretty.

U.S. equity valuations are now at lofty levels that have been experienced only once before in the past one hundred years.

DESMOND LACHMAN

Resident Fellow, American Enterprise Institute

In 2009, when asked why Citibank kept lending aggressively on the eve of the U.S. housing and credit market bust, CEO Chuck Prince famously said that as long as the music is playing you've got to get up and dance. How quickly the world's major central banks seem to have forgotten the 2008–2009 Great Economic Recession that occurred when that round of easy money music stopped playing. Had they remembered, they might have long since wound down their current round of massive liquidity creation and ultra-low interest rates.

If ever the music of easy money has been playing, it has to be today. In response to the Covid-19 pandemic, not only have the world's major central banks maintained the easiest of monetary policy conditions. They have also engaged in massive bond buying on an unprecedented scale that has increased the combined size of their balance sheets over the past eighteen months by a staggering US$10 trillion.

With so much liquidity sloshing around the world's financial markets and with investors desperately stretching for yield, it should be little wonder that we now have a global "everything" asset price and credit market bubble that is very much more pervasive than the earlier U.S. housing and credit market bubble.

Among the more disturbing aspects of today's everything bubble is that U.S. equity valuations are now at lofty levels experienced only once before in the past one hundred years. It also has to be of concern that even adjusted for inflation, U.S. housing prices are now higher than they were on the eve of the 2006 housing market bust. So too should we be concerned about the massive amount of lending that has been made at low interest rates to borrowers in both the advanced and the emerging market economies with questionable ability to repay. This is not to mention the speculative frenzy in exotic asset markets like those in the cryptocurrency and the non-fungible token worlds.

The fly in the ointment for the world's major central banks is that their maintenance of ultra-loose monetary policies, even when the world economy was well underway to recovery, has contributed to the return of inflation to levels not experienced in the past thirty years. This has to make it only a matter of time before the world's central banks are forced to raise their policy rates to prevent today's inflation from becoming entrenched.

Today's asset price and credit market bubbles seem to be premised on the assumption that the current ultra-low interest rates will last forever and that the world economic recovery will not be interrupted. This makes it all too likely that these bubbles will burst when the world's major central banks end their bond buying programs and start raising interest rates. It also raises the possibility that these bubbles could burst if we were to experience a marked Chinese economic slowdown or a meaningful emerging market debt crisis.

In 2008, global economic policymakers were caught totally flatfooted by the bursting of the U.S. housing and credit market bubble. With so many indications that we are currently in the midst of a global everything asset price and credit market bubble of epic proportions, the world's economic policymakers will have no excuse for being ill-prepared for the economic fallout from the bursting of today's bubbles.

The elephant in the room is that our current suite of economic statistics has been outrun by the changes in the digital, global, and health economies.

MICHAEL MANDEL

Chief Economist and Vice President, Progressive Policy Institute

Tracking the impact of rising global liquidity would be easier if we could rely on better measures of the health of the real economy. The elephant in the room is that our current suite of economic statistics has been outrun by the changes in the digital, global, and health economies. To the extent that we cannot determine whether productivity is growing or shrinking, or whether consumer inflation is overestimated or underestimated, it becomes increasingly hard to assess whether the financial markets are in line with reality or way out of whack.

Consider our productivity measures, for example. As of early December, the Bureau of Labor Statistics reported that nonfarm business productivity fell by 0.6 percent on a year-over-year basis. That was the largest measured year-over-year decline in U.S. productivity since 1993, on the face of it indicating a massive divergence between the liquidity-driven financial markets and the realities of a stuttering real economy.

Of course, we need to remember that the 1993 productivity decline was followed by the New Economy boom of the 1990s, and a decade of strong productivity gains. It turned out that reported weak productivity growth in 1993 (and 1994 and most of 1995, for that matter) was missing the benefits of computerization bubbling just underneath the surface. These only emerged into full view once the internet arrived.

Could the same thing be happening again? Are our weak productivity and high inflation measures fully reflecting the gains from digitally driven changes in the economy? Or if we move beyond digital into healthcare, are real improvements in medical treatments being obscured by an increasingly bureaucratic health care system?

In December 2021, the Innovation Frontier Project (an offshoot of the Progressive Policy Institute) sponsored a virtual conference on "Better Statistics for Better Policy in a Changing World." An investment in improving and rebuilding our statistical architecture could go a long way to clarifying the impact of the global liquidity bubble.

The faster the Fed turns off the taps, the more it can contain the longer-term risks to inflation and to markets alike.

HOLGER SCHMIEDING
Chief Economist, Berenberg

Never before has liquidity been as ample as it is today. In response to a series of crises ranging from the post-Lehman financial collapse to the SARS-CoV-2 pandemic, central banks across the advanced world have flooded markets and their economies with a tidal wave of cheap money.

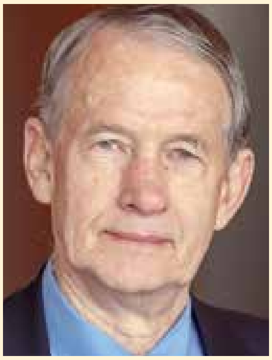
The policy has worked. Most importantly, central bankers nipped the incipient financial crisis upon the escalation of the pandemic in March 2020 in the bud. They can take some credit for the fact that, after each wave of the pandemic, economic activity rebounded faster than expected. That their unprecedented bond purchases boosted prices for bonds and equities is, at least to some extent, par for the course. Ultra-low financing costs and positive wealth effects are part and parcel of the transmission of monetary policy to the real economy and to inflation.

Still, the wave of liquidity and its impact raises two questions: Have central banks overdone it? And can they return to a more normal situation without causing some havoc in the process?

Much more so than the European Central Bank, the U.S. Federal Reserve has probably overdone it on two counts. First, the Fed failed to lean against an excessive U.S. fiscal stimulus in good time by ending its net asset purchases and starting with a first rate hike in 2021. As a result, rampant U.S. inflation is driven partly by excess demand on top of the global supply chain disruptions and other temporary factors that have caused the less pronounced spike in inflation in other regions including the eurozone. In the United States, inflation is much less temporary than elsewhere in the advanced world. Second, experience suggests that big asset purchases make a crucial difference in the early stages of a crisis when they prevent or stop financial turmoil. But in the subsequent economic recovery, they no longer matter much. They can—and should—thus be reduced early. Otherwise, the bubble risk may spread from corners of the financial markets (crypto?) to broader segments, which could jeopardize financial stability.

Can the Fed get out of it smoothly? In 2021, the Fed avoided a taper tantrum by shifting its stance and guidance in near-homeopathic doses. But as a result, the Fed is behind the curve. Stepping up the pace significantly in 2022 could occasionally unsettle markets. That should not be a reason to hold back. U.S. demand is strong, fuelled by excess savings of households, robust gains in employment and wage incomes, and a desire of companies to raise capacities and rebuild inventories on top of an ongoing fiscal stimulus.

By and large, economies on both sides of the Atlantic can cope with less-depressed bond yields and some market volatility. The positive outlook for corporate earnings and tax receipts should see to that. The global savings glut will likely keep real yields well below and price/earnings ratios for equities above their long-term averages anyway. The faster the Fed turns off the taps, the more it can contain the longer-term risks to inflation and to markets alike.



The liquidity wave has done wonders for one segment of society: owners of real and financial assets.

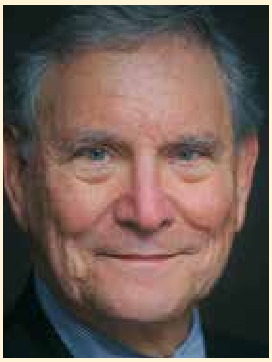
GARY CLYDE HUFBAUER
Nonresident Senior Fellow, Peterson Institute for International Economics

The liquidity wave has done wonders for one segment of society: owners of real and financial assets, mainly the top deciles of income and wealth distributions. Most *TIE* readers belong to these privileged groups, and for them times have not just been good, they have been great! According to a recent McKinsey report on the Global Balance Sheet, since 2000 assets have appreciated 43 percent beyond the combination of consumer inflation and net investment. Global asset values in 2020 reached 6.1 times global GDP, twice the ratio in 2000. What's not to like?

For starters, the craze in crypto and non-fungible tokens, along with ridiculous prices for meme stocks (GameStop, AMC, and more), stir memories of the Dutch Tulip mania (1634–1637), the dot.com bubble (1995–2000), and kindred episodes, all with devastating outcomes for investors.

But more important—from a social standpoint—is the global inflation of housing prices, which now account for almost half of global net worth. At current ratios between house prices and household incomes, many young families have faint hopes of ever owning a home. This cannot be good for the social fabric in the United States, China, Germany, or anyplace else. A better platform for populist politicians seeking wealth redistribution would be hard to find.

Defenders of quantitative easing and negative real interest rates will, of course, tell us that without the monetary flood, the world would have sunk into recession following the Great Financial Crisis (2008–2009), and fallen into depression when Covid-19 struck in 2020. If a liquidity wave was the only tool available, that's probably right. But far larger fiscal deficits through massive tax cuts (not a burst of government spending), with far smaller monetary ease, would have been a better way to stabilize the economy with less grotesque wealth inequality and fewer financial bubbles.



It was fiscal spending that ballooned savings, increased asset inelasticity, and drove breathtaking home and asset price increases that are powering inflation.

ROBERT DUGGER

Retired partner, Tudor Investment Corporation

Our understanding of quantitative easing is maturing. In early 2021, most commentators attributed U.S. stock market strength to household saving rate increases and barely mentioned Fed QE buying totaling $120 billion a month. The *New York Times'* Neil Irwin wrote, "Essentially, the rise in savings among the people who have avoided major economic damage … is creating a tide lifting the values of nearly all financial assets."

Commentators gave scant attention to QE because most economists thought it is Modigliani-Miller neutral and does not directly and permanently affect aggregate market values. Former Fed Chair Ben Bernanke once joked, "The problem with QE is it works in practice, but not in theory." Judgments about QE, however, have been shifting for years. During 2021, the work of two finance theorists highlighted a crucial feature.

Analyzing 1993 to 2018 U.S. stock market data, Xavier Gabaix and Ralph Koijen found that the aggregate stock market supply curve is very price-inelastic, so flows of "new money" in or out of the market have "multiplier effects" that increase or decrease stock market values by three to eight times the amount of the flow.

QE is a kind of "new money"—Treasury, mortgage-backed securities, and other securities are bought, but there are no offsetting sales of private market assets. QE buying takes certain assets out of the market, diverting flows into non-QE assets such as stocks.

Asset inelasticity helps explain inflation underforecasting. Even if economists had accurately anticipated supply-chain blockages and the Covid variants, their CPI and PCE estimates would have been too low if they did not consider how asset supply inelasticity would be aggravated by the unprecedented scale of Covid fiscal spending and QE buying and the market's limited time to accommodate it, and ultimately, its positive multiplicative effects on financial and home asset prices and, via wealth effects, on inflation generally.

Doubling QE tapering was a step in the right direction. The longer the Fed continues QE Treasury and mortgage-backed security buying, the larger the Fed's balance sheet becomes and the more it drives up financial asset and home prices, inflation, and instability risks. The sooner QE ends, the sooner the Fed balance sheet will stop artificially inflating markets and reduce injustices to those priced out of markets, especially socially disadvantaged and young people.

But it was fiscal spending that ballooned savings, increased asset inelasticity, and drove breathtaking home and asset price increases that are powering inflation.

Incorporating asset inelasticity in monetary policy is difficult. Top Fed strategists must weigh how much QE size and content and buying and selling affect asset supply curves. The Gabaix-Koijen results are linear equilibrium estimates. QE effects are nonlinear and dynamic and depend on market sentiment, financial sector structure, and the fiscal balance.

Three facts are important: Markets fall far faster than they rise because margin calls make deleveraging-down faster than leveraging-up. U.S. financial intermediaries can no longer soften market selloffs like they could in the past. And U.S. fiscal spending is certain to be a drag on growth in 2022 and 2023.

The Fed has become a prisoner of financial markets and it needs to break free.

RICHARD JERRAM
Chief Economist, Top Down Macro

We don’t have to look outside the United States in order to explain the behavior of financial markets—analysis of Federal Reserve policy is sufficient.

The Fed reacted with admirable creativity and resolve when the pandemic struck in early 2020, helping to prevent serious dislocation in the economy or financial system. However, by the end of last year it was evident the economy was performing far better than expected—financial markets were telling them as much, even if they didn’t trust the economic data or their own forecasts.

However, the Fed kept pouring in liquidity and telling the world that rate hikes were still far in the distance—not until 2024. This led to a rational response in markets—depending on your time horizon—by driving a bubble in everything. It wasn’t the liquidity breaking the rules in financial markets, so much as the Fed breaking the rules in central banking.

As Keynes supposedly said, “When the facts change, I change my mind.” The facts have changed massively over the past two years, and that is no surprise, given the scale of uncertainty we have faced. We can’t blame the Fed for that. Indeed we should probably thank them, for contributing to the rebound. However, after its initial response, the Fed has seemed uninterested in the changing facts (and forecasts).

Take one example. The inflation overshoot of the past year has already made up for the previous six years of undershooting. Six years. Perhaps it will soon fade (we can no longer use the word transitory), perhaps it won’t—we can’t have any great confidence in inflation forecasts, given the miss of the past year. But we can have confidence in saying that there is no justification in holding interest rates at such artificially low levels due to the Fed’s move to a flexible average inflation targeting regime.

So, what to do? Well, I wouldn’t start from here, as the joke goes, but here we are, with widespread labor shortages and inflation more than two percentage points above target. The Fed has become a prisoner of financial markets and it needs to break free. Signal an early and rapid normalization of interest rates and if that leads to a crash in the price of speculative assets and a broader equity bear market, then so be it. Ultimately, it will be less painful than continuing to ignore the changing facts.

It is very hard to conclude that there is some collective logic and consistency between the economics and the markets.

JIM O’NEILL
Former Commercial Secretary to the Treasury, United Kingdom, and former Chairman, Asset Management, Goldman Sachs International

The current financial market environment as we traverse through Covid-19 has added momentum to the often seemingly slightly bizarre financial market environment that we have experienced since 2008, along with the aggressive attempts to recover from the Great Financial Crisis and, indeed, on one level, the already remarkably odd environment that has existed in Japan since it adopted quantitative easing. What is clear is that the performance of financial markets during most of this period around the world has been quite favorable, especially for bond markets as well as many equity markets. This is despite what appears from published data to be a generally weak era of productivity growth, and slowing trend economic growth, with the exception of selected so-called emerging economies, such as China. Of course, as the last decade drew on into this health pandemic, even Chinese growth has slowed markedly.

There are so many central economic and social questions that are difficult to answer with confidence, and as the saying goes, for many, time will tell. But certainly, it is very hard to conclude, unless the rest of the western world has indeed been “Japanized,” that there is some collective logic and consistency between the economics and the markets. In Japan, with its very poor and deteriorating demographics, very low trend growth and weak productivity, and repeated difficulties in achieving even a very modest positive inflation target, low government nominal and real bond yields at least can be regarded as somewhat consistent with the poor domestic weak economic backdrop. Of course, there are inconsistencies within this framework, not least the Japanese government's high debt levels, and quite how the financial system can get off what appears to be an almost permanent addiction.

When you move to the rest of the western economies, unless you accept the direct parallels with Japan of weak and deteriorating demographics, superimposed by persistently weak productivity, it is much trickier to accept the financial market framework. Of course, on some levels, a number of European countries, including Germany and especially Italy, share many of Japan's parallels. But in contrast, they haven't experienced the scale of collapse of the financial sector, and crucially, their equity markets as well as bond markets have enjoyed very strong performance. In this regard, during the era of such weak productivity growth and generally weak low real incomes, the income and wealth distribution dilemma looms ever larger as a social issue. In this regard, the more the monetary environment stays along the same lines, it is being seen as responsible for evident weaknesses of global capitalist models. When you bring in the United States, where you have much better demographics, and considerable difficulty making comparisons with Japan, the ongoing financial framework seems odd.

Throw in inflation and the risks of a big change having started which reverses the background which has allowed major central banks to persist with this—narrow—generosity. Perhaps in a bizarre way, it might turn out to be helpful if it results in our monetary and fiscal policy framework shifting away from the issues of the past twelve to twenty years.

Asset markets are lifted by fundamental shifts, not a liquidity tidal wave.

JAMES E. GLASSMAN

Head Economist, JPMorgan Chase & Co., Commercial Bank

Bond yields have been falling for more than two decades. Former Fed Chair Alan Greenspan was among the first to sense something important was underway when he referred to a bond market conundrum. Demographic drags have slowed the economy's potential growth rate. Slower potential growth begets lower equilibrium interest rates. It's a textbook story. At the same time, central bank measures—asset purchases—to cushion the blow from the upheaval caused by the Covid-19 pandemic have temporarily pushed bond yields lower. Interest rates have not increased yet even though the Fed is ending its asset purchases, because the government's borrowing needs are declining more rapidly than the Fed's "tapering."

Asset markets are resilient, because market participants and professional forecasters agree with the Fed that current price pressures, which are caused by dislocations in the global supply chain, will pass. They aren't being propped up by an ocean of liquidity. Market-based inflation expectations remain near the Federal Reserve's 2 percent inflation target well out into the future. Professional forecasters predict that inflation will settle back down, according to the Federal Reserve Bank of Philadelphia. And equity investors implicitly see no 1970s red flags.

For sure, equities seem pricey. The Federal Reserve's latest *Financial Stability Report* noted that: "Across most asset classes, valuation measures are high relative to historical norms … the ratio of prices to forecasts of corporate earnings stands at the upper end of its historical distribution." Many observers seem to agree with that sentiment.

So what could market participants be responding to that would justify these valuations? Ironically, part of the answer to the high valuations can be found in the Fed's own research on the equilibrium level of real interest rates, which, by the way, shapes the price-to-earnings rules (multiples) that investors use to value companies. The Fed's research finds that the equilibrium level has fallen by several percentage points over the decades. Why? Demographics, as Japan, then Europe, and now the United States are finding. The aging of workforces in much of the world has slowed the potential growth of many economies. This, for example, is why the U.S. unemployment rate fell to its lowest level in half a century just prior to the pandemic, even though the U.S. economy grew at half the pace of the past century during the long recovery from the housing crisis.

Other developments likely have trimmed investors' discount rates and boosted price-to-earnings rules of thumb as well. Important monetary policy innovations, including a specific 2 percent longer-run inflation goal as well as the recent decision to target the average rate of inflation—taking account of the cyclical behavior of inflation during a business cycle—have contributed to a decline in various risk premia. Europe's successful unification project is a refreshing antidote to the scars of centuries of history. And rising prosperity in developing economies, while generating greater global competition, is a stabilizing force.

The evolution of interest rate fundamentals has profound implications for the rules of thumb that govern how investors value companies. For example, a decline in discount rates from 6 percent to 4 percent would justify price-to-earnings multiples closer to twenty-five times earnings rather than the sixteen-times-earnings multiples many used in the past.

Interest rates aren't the only factor challenging historical norms of valuation. Earnings tend to be very cyclical. Nonetheless, until the late 1990s, after-tax profits tended to revert to the post-World War II average of 6 percent of gross domestic income. Margins have been quite volatile in the new millennium amid significant economic shocks. Even so, they have climbed steadily over the last two decades to record levels. They haven't reverted back to historical norms. After-tax margins have been hovering near 10 percent of GDI for some time. The structural rise in after-tax earnings, from the 6 percent norm to 10 percent, goes a long ways toward explaining how the value of the U.S. equity market, once at parity with the size of the U.S. economy, has climbed to double the size of the U.S. economy. The "reversion" idea that has helped to shape historical norms appears to have gone with the wind. This trend likely has a lot to do with the rapid growth of economic opportunities beyond U.S. borders and with the disruptive technological innovation that is transforming economic life and that came to the rescue of many during the Covid-19 pandemic.

Valuation measures are high by historical norms. But historical norms need to be remolded. Would anyone who fell asleep thirty years ago and woke up today understand today's interest rate environment, the explosion of the online economy, the Fed's posture, the opening up of new economic opportunities, the growing interdependence of the global economy, or the persistent rise in business profitability to unprecedented levels? Probably not. Their first impression, before examining the fundamental backdrop, would tend to lean to the "bubble" idea.

Asset markets are lifted by fundamental shifts, not a liquidity tidal wave.

Negative real rates and QE will continue to be the norm, rather than exception.

CHEN ZHAO

Founding Partner and Chief Global Strategist, Alpine Macro

It is popular to argue that central bank quantitative easing has flooded the world economy and financial markets with liquidity, which is the reason why bond yields are low and stock prices are high.

I am not entirely convinced. Yes, the U.S. equity market has become expensive, and this may have something to do with the negative real rate and the rapid expansion of money supply, but we should not forget that corporate profits have also been booming since 2010, only to be temporarily interrupted by the Covid-19 pandemic in 2020.

Today, U.S. corporate earnings are surging anew from the pandemic crisis, along with share prices. No one has convincingly explained to me how QE has fueled corporate earnings growth.

In addition, Japan's QE has been much more aggressive since 2010, while Japanese stocks are only selling at sixteen times forward earnings. This is 30 percent cheaper than its U.S. counterparts. Again, no one has ever explained to me why Japan's QE programs have not inflated Japanese asset prices. To me, the linkage between liquidity creation and asset prices is far from conclusive and convincing.

Then there is the bond market. Many believe that the U.S. bond market is rigged by the central bank. I am doubtful about this observation. Statistically, the Fed's holdings of Treasury paper account for 24 percent of the total outstanding value of marketable Treasury paper. This is a significant amount, but not enough to dictate where bond yields should go.

Meanwhile, the experience since last decade has been that whenever the Fed increases QE, ten-year U.S. Treasury bond yields tend to rise, and vice versa. Should the Fed's QE have suppressed bond yields, the bond market should have rallied on increasing QE programs. This is another sign that repudiates the notion that the bond market is rigged.

In my view, most central banks in high-income economies have simply done what their underlying economies need them to do: to supply enough money to meet the ever-expanding money demand. We should remember that in a liquidity trap, money demand becomes infinite as per Keynes. Without QE, the private borrowing rates would soar, and economic activity would sink.

What about negative real rates? If an economy has chronic over-savings (saving is greater than desired or planned investment), then real interest rates must stay in the negative territory to clear the savings market, or price levels will fall. Most high-income economies with aging populations and stagnating or falling labor forces have been dealing with the over-savings problem for more than a decade, which is the key reason real rates in the developed world have been negative most of the time. I believe this will continue to be the case, even when the world returns to normal.

In other words, negative real rates and QE will continue to be the norm, rather than exception, for most developed countries.

The traditional trading rules will come back.

TAKESHI FUJIMAKI

Former Member, House of Councillors, Japan, and former Tokyo Branch Manager, Morgan Guaranty Trust Company of New York

There is an increasing chance that some central banks will be dismantled and new central banks will be established as a result of the dramatic expansion of central bank balance sheets. Traditional trading rules will come back sooner rather than later.

The traditional trading rules in markets are still valid in efficient markets. Today's markets, however, are not efficient at all, especially the Japanese government bond market.

The Bank of Japan did not participate in the JGB market twenty-five years ago, but it has become a monster participant today. It is the biggest JGB buyer these days. For example, in fiscal year 2017, the Japanese government issued ¥141.3 trillion of JGBs. Of that, the Bank of Japan bought ¥96.2 trillion in JGBs from the market. It now owns more than 50 percent of outstanding JGBs.

In any market, if a buyer buys almost 70 percent of the supply, the price will jump significantly, meaning the yield will drop significantly.

If the Bank of Japan were not in the JGB market, the ten-year JGB yield might have been greater than 10 percent, reflecting the Japanese government's credit risk.

Japanese institutional investors started to hunt for government bonds, which have more attractive yields than JGBs, by using the huge liquidity supplied by the Bank of Japan. Institutional investors, whose net external assets are the largest in the world, began to invest in the European and the U.S. markets. In other words, Japan exported low interest rates to the government bond markets worldwide.

Furthermore, central banks worldwide began buying long-term government bonds, to a greater or lesser extent, pushing down government bond yields further.

Central banks are artificially controlling the government bond markets. The traditional market rules, however, show that authorities cannot control long-term bond markets forever.

The Bank of Japan started debt monetization in April 2013 to avoid a default by the government. The Japanese government would not go bankrupt because the Bank of Japan can print all the money the government needs.

However, that does not mean central banks can print trusted currency forever. A currency loses its credibility when the central bank loses its credibility. The decisive moment that the central bank loses its credibility is when they have negative net worth.

Some central banks, particularly the Bank of Japan, will have negative net worth soon if inflation continues. This is the result of debt monetization.

If the long-term interest rate differential between the United States and Japan widens, the yen will depreciate, and Japan will suffer imported inflation, leading to higher long-term rates.

The Bank of Japan will have unrealized losses on a mark-to-market basis, because the average yield of bonds which the Bank of Japan holds is only 0.199 percent. If long-term rates go up a little bit further (0.05 percent as of early December), the Bank of Japan will have unrealized losses on its JGB portfolio. The Bank of Japan holds as much as ¥528 trillion in JGBs, of which ¥503 trillion are long-term bonds. The unrealized loss will be massive.

As a result, global investors will no longer trust the yen. Japan will suffer from hyperinflation.

Once the tapering finishes in the United States, the U.S. Federal Reserve will start raising interest rates. As long as the Fed has positive net revenue, it can raise short-term policy rates to control inflation.

But if the Fed continues to raise short-term policy interest rates, it will finally have negative interest revenue.

Then it will be a different story. The U.S. dollar will lose its credibility and depreciate, resulting in severe inflation.

The Fed raised policy interest rates from 2015 to 2018, 0.0 percent to 0.25 percent in 2015, 2.25 percent to 2.5 percent in 2018. During those periods, the Fed's interest earnings were $113.6 billion in 2015, $111.1 billion in 2016, $113.6 billion in 2017, and $112.3 billion in 2018.

The Fed held long-term fixed-rate bonds, so the interest received did not vary a lot.

But the interest amount paid increased substantially: $7.2 billion in 2015, $13.2 billion in 2016, $29.2 billion in 2017, and $43 billion in 2018.

As a result, net interest revenue decreased from $106.4 billion in 2015, $92.4 billion in 2016, $80.7 billion in 2017, and $63.1 billion in 2018.

If the Fed continues to raise interest rates, net interest revenue would have decreased further and resulted in negative net interest revenue.

If central banks stuck to traditional monetary policy, there would be almost no risk that central banks would have negative interest revenue.

The Bank of Japan is in a more serious situation because its annual net interest revenue is only ¥1.4 trillion ($12.2 billion), about one-tenth of the Fed's, because the yield on the bonds that the Bank of Japan holds is very low (0.199 percent).

On the other hand, the Bank of Japan's current account was ¥541.6 trillion ($4.75 trillion) as of the end of September. If the Bank of Japan raises the policy rate by 1 percent, it will have to pay interest of ¥5.41 trillion ($47.5 billion).

Current net interest revenue of ¥1.4 trillion yen ($12.2 billion) will easily be wiped out and it will have negative net revenue.

If the Bank of Japan wants to raise interest rates to control inflation, it will end up with a negative net worth, therefore, the Bank of Japan will not be able to raise policy rates.

Central banks that cannot control inflation are not allowed to exist, so the Bank of Japan will be dismantled and a new central bank will be established.

Other central banks, including the Fed, are more or less in the same situation.

So the era of dramatic expansion of central bank balance sheets will be over sooner rather than later with miserable inflation, and as a result, some central banks will be dismantled, and new central banks will be established to counter hyperinflation.

Then traditional trading rules will come back.

What's wrong with abundant liquidity?

J. W. MASON

Associate Professor of Economics, John Jay College of the City University of New York, and Fellow, Roosevelt Institute

Imagine a city that experiences a miraculous improvement in its transit system. Thanks to some mix of new technologies and organizational improvements, the subways and buses are now able to carry far more passengers at lower cost, with the same level of service. Would we see that as good news, or as bad? It's true that Uber drivers and gas station owners would be unhappy as abundant public transportation reduced demand for their services. And retailers and restaurants might face challenges in managing a sudden flood of new customers. But no one, presumably, would think the city should deliberately give up the improvements and return transit service back to its old level.

The point of this little fable should be obvious: liquidity, like transportation, is useful. Having more of it is better than having less.

What liquidity is useful for, fundamentally, is our capacity to make promises. It functions as a kind of collective trust. The world is full of socially useful projects that can't be carried out because even a well-grounded expectation of future benefits can't be turned into a claim on resources today. Liquidity is the fuel for these transactions. In a world of abundant credit and low interest rates, it's easier for me to turn my future income into ownership of a home, or for a business to turn future profits into new plant and equipment, or for a government to turn future revenue into improved public services.

Someone with a great business plan but no capital of their own might try to get the labor and inputs they need by promising workers and vendors a share in the profits. Unless the business can be launched with just the resources of immediate family and friends, though, it's not likely to get off the ground this way. The role of a bank is to allow strangers, and not just those who already know and trust each other, to contribute to the plan, by accepting—after appropriate scrutiny—the entrepreneur's promise, and offering its own generally negotiable promise to the suppliers of labor and other resources.

It's true that when it gets easier to make promises, we'll see more that don't pan out. Still, we would like people to make more provision for future needs, not less, even if our knowledge of those needs is less than perfect. The most dynamic parts of the economy are the ones where there are the most risky projects, some of which inevitably fail.

Of course, asset owners are unhappy about lower yields. But that's no different from the complaints we always hear from incumbents when production improvements make something cheaper. Asset owners' complaints are no more reason to deny us the socially useful services of liquidity than those of the proverbial buggy-whip makers were to deny us the services of cars. (Less reason, actually, given the concentration of financial wealth among the wealthiest families and institutions.)

Yes, interest rates today are lower than at almost any time in history. So are the prices of food and clothing. We should see abundant liquidity the same way we see other forms of abundance—as the fruit of the technological and institutional progress that has made us so much materially richer than our ancestors. ◆