

WHAT'S INSIDE



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PAGE 6

> Signs of Slowdown

Will the 'Great Moderation' Give Way to the 'Great Volatility?'

By Vivekanand Jayakumar, Ph.D.



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Economist Nouriel Roubini, a.k.a. Dr. Doom, recently stated that “the Great Moderation is dead and buried; the Great Stagflationary Debt Crisis is upon us.”¹ Meanwhile, Nobel Laureate Paul Krugman suggested that “there were fundamental reasons interest rates were so low three years ago [pre-pandemic]. Those fundamentals haven’t changed; if anything, they’ve gotten stronger. So it’s hard to understand why, once the dust from the fight against inflation has settled, we won’t go back to a very-low-rate world.”² There is considerable disagreement among economists and financial market analysts in regards to what comes after the current inflationary shock dissipates.

At the start of the 21st century, several economists highlighted the fact that the U.S. economy had experienced a long and steady decline in macroeconomic volatility from the mid-1980s onward. Blanchard and Simon (2001) and Stock and Watson (2002, 2003), in particular, helped propel an investigation into the causes of the long-term decline in output growth volatility and inflation volatility. In 2004, then vice chairman of the

Federal Reserve, Ben Bernanke, gave a widely-noted speech³ that popularized the usage of the term “the Great Moderation” (the term was initially introduced in Stock and Watson (2002)) to describe the post-1983 era of long expansionary cycles that were only briefly interrupted by shallow contractions.

In the speech, Bernanke highlighted the benefits arising from reduced macroeconomic volatility: “Lower volatility of inflation improves market functioning, makes economic planning easier, and reduces the resources devoted to hedging inflation risks. Lower volatility of output tends to

Table 1A: Summary Statistics for U.S. Real GDP Growth Rate (% Change from Same Quarter a Year Ago; Annualized Rate)

Time Period	Average (%)	Standard Deviation (%)
1948-1983	3.6	3.12
• 1948-1959	3.9	3.79
• 1960-1969	4.5	2.05
• 1970-1983	2.7	2.91
1984-2019	2.8	1.77
• 1984-1995	3.4	1.77
• 1996-2007	3.3	1.31
• 2010-2019	2.3	0.64

Table 1B: Summary Statistics for U.S. CPI Inflation Rate (Inflation Rate: % Change from a Year Ago)

Time Period	Average (%)	Standard Deviation (%)
1948-1983	4.3	3.72
• 1948-1959	2.3	3.01
• 1960-1969	2.3	1.47
• 1970-1983	7.4	3.20
1984-2019	2.7	1.32
• 1984-1995	3.6	1.09
• 1996-2007	2.6	0.80
• 2010-2019	1.8	0.85

Continued from page 1

Will the 'Great Moderation' Give Way to the 'Great Volatility?'

the era of "Great Moderation." Following a brief spike in volatility during the Great Recession, the U.S. economy, however, quickly returned to its pre-crisis mode of subdued output and inflation fluctuations. In fact, the period between June 2009 and February 2020 saw the longest business cycle expansion on record (see **Figure 1**) even as inflationary pressures remained largely dormant.

As shown in **Table 1A** and **Table 1B**, the U.S. economy, between 1984 and 2019, experienced much lower output growth and inflation volatility (as measured by the standard deviation in quarterly real gross domestic product (GDP) growth rate and in monthly consumer price index (CPI)-based inflation rate, respectively) relative to that observed between 1948 and 1983. The period from 2010 to 2019 was especially quiescent from a macroeconomic volatility perspective. An alternative approach to measuring macroeconomic volatility, suggested by Blanchard and Simon (2001), involves the usage of five-year rolling standard deviations to highlight the long-term shifts in key economic indicators. **Figure 2** provides the 20-quarter rolling standard deviation of the growth rate of real GDP, and **Figure 3** indicates the 60-month rolling standard deviation in the CPI inflation rate. It is clear from the figures that both output growth and inflation experienced a sustained long-term decline in volatility between the mid-1980s and 2019 (with a brief spike during the Great Recession). Also, worth noting is the nearly four-decade long decline in long-term bond yields. Following a period of wild fluctuations in the 1970s and early 1980s, the yield on the benchmark 10-year U.S. Treasury note fell quite steadily between 1984 and 2020 (see **Figure 4**).

The pandemic shock and its aftermath appear to have brought forth an abrupt end to Great Moderation as indicated by a substantial recent surge in macroeconomic volatility (see **Figures 2, 3, and 4**). Do recent developments herald the arrival of a new era of heightened fluctuations in output growth rates and inflation rates alongside persistently higher interest rates (referred to by some as "Great Volatility"⁴), or, are we likely to see a quick return to the low growth, low inflation and low interest dynamic that was prevalent during the decade prior to the pandemic shock? This is a question of fundamental importance to macroeconomists, investors and policymakers.

Whether the recent rise in macroeconomic volatility is temporary or more long-lasting depends crucially on the underlying causes of the shift. If the Great Moderation era has indeed come to an end, it is most likely due to the fact that one or more factors responsible for the moderation is no longer at work. While there is no consensus regarding the primary factor responsible for the Great Moderation, the three main candidates are structural changes in both the domestic and the global economy, better monetary policy, and good luck (smaller/fewer exogenous shocks). Examining each of these forces carefully

imply more stable employment and a reduction in the extent of economic uncertainty confronting households and firms."

Many feared the 2008-09 financial crisis would bring forth an end to

Figure 1: Length of Economic Expansions (Months)
Data Source: NBER and CBPP

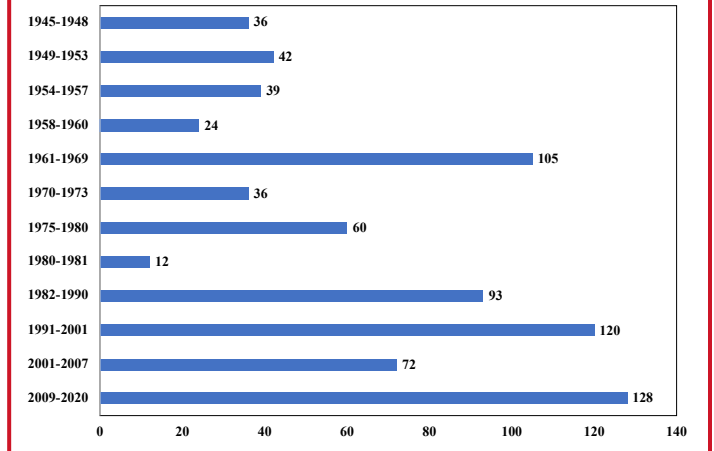


Figure 2: Output Volatility: 20-Quarter Rolling Standard Deviation of GDP Growth Rate (GDP Growth Rate: % Change from a Year Ago)

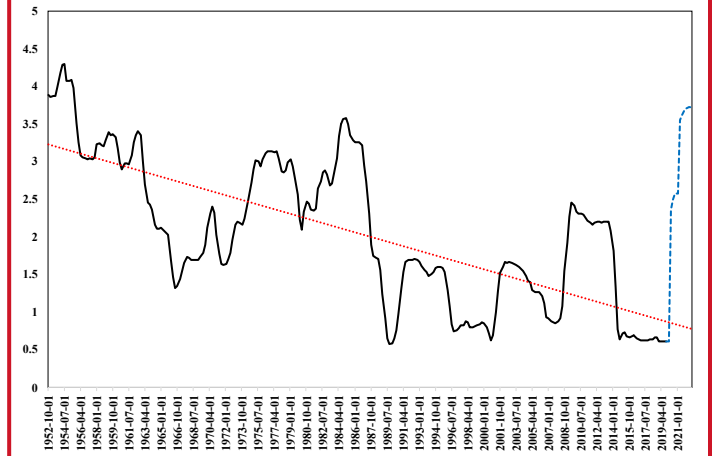
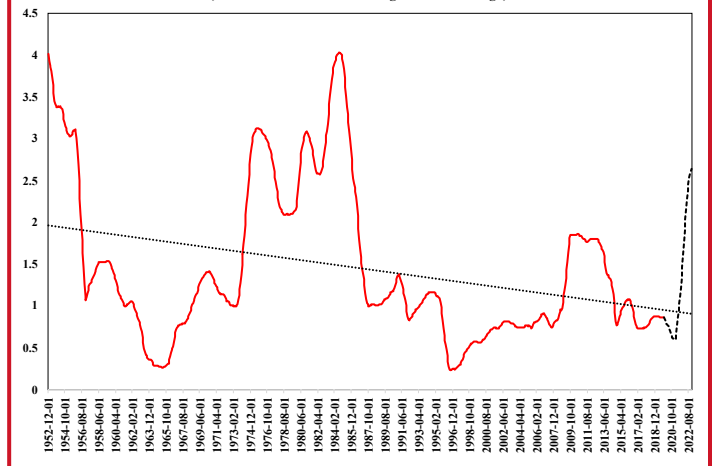
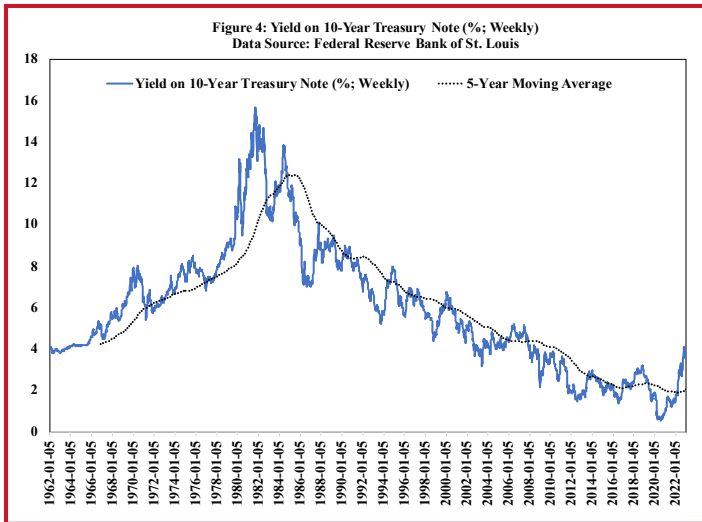


Figure 3: Inflation Volatility: 60-Month Rolling Standard Deviation - CPI Inflation Rate (Inflation Rate: Percent Change from a Year Ago)





will help illuminate the past and also offer insights regarding the future.

In the structural changes camp, technological shifts, institutional changes, globalization, financial innovation, and evolving business practices are understood to have played a role in bringing about a moderation in economic volatility. Globalization, in particular, acted as a huge shock absorber – the integration of billions of workers into the global trading system following the collapse of the Soviet Union and the implementation of economic liberalization measures in China and India, the establishment of intricate global supply chains aided by the information and communication technology (ICT) revolution, and the sustained push to lower trade barriers worldwide in the 1990s and 2000s generated tremendous efficiencies, especially in the production of goods.

Alongside these developments, the widespread adoption of just-in-time (JIT) inventory practices (Perez-Quiros and McConnell, 2000) and growing usage of supply-chain management techniques contributed to improved inventory management that led to a decline in output volatility in the goods-producing sector (Davis and Kahn, 2008). The gradual decline in the role of the manufacturing sector and the growing dominance of the innately more stable service sector in the U.S. (and other advanced economies) since the 1970s also contributed to overall decline in output

that was able to further enhance the relative position of capital owners.

Controversially, a few have argued that financial innovation contributed to the Great Moderation. For instance, Dynan, et al. (2006, pg. 124) note that “Improved assessment and pricing of risk, expanded lending to households without strong collateral, more widespread securitization of loans, and the development of markets for riskier corporate debt have enhanced the ability of households and businesses to borrow funds. Moreover, these developments have been complemented by changes in government policy, including the demise of Regulation Q, which had restrained bank lending whenever market interest rates increased. Shifting social attitudes seem to have increased the willingness to borrow as well. Greater use of credit could foster a reduction in economic volatility by lessening the sensitivity of household and business spending to downturns in income and cash flow.”

Besides structural shifts, improved monetary policymaking is surmised to have contributed to the Great Moderation. Emergence of independent central banks and the widespread adoption, first in advanced economies and later in emerging markets, of implicit or explicit inflation targeting monetary regimes gave rise to the perception that many monetary authorities either formally or informally favored a hierarchical mandate

volatility. Institutional changes (such as the decline in private sector unionization rates in the U.S., the rise of offshoring and outsourcing, and the increased usage of flexible wage contracts and contract workers) led to increased labor market flexibility as well as a decline in the bargaining power of labor vis-à-vis capital. International financial integration gave rise to footloose capital

that prioritized the maintenance of price stability (Meyer, 2001). Unsurprisingly, many central bankers have promoted the argument that improved monetary policymaking was primarily responsible for the Great Moderation.

In his 2004 speech⁵, Bernanke listed reasons for emphasizing the role of better monetary policies: “First, monetary policies that brought down and stabilized inflation may have led to stabilizing changes in the structure of the economy as well. . . . Second, changes in monetary policy could conceivably affect the size and frequency of shocks hitting the economy. . . . Third, monetary policy can also affect the distribution of measured shocks by changing the sensitivity of pricing and other economic decisions to exogenous outside events. . . . Fourth, changes in inflation expectations, which are ultimately the product of the monetary policy regime, can also be confused with truly exogenous shocks in conventional econometric analyses.”

Stock and Watson (2002, 2003) are, however, skeptical of the notion that better monetary policies were primarily responsible for driving the decline in output growth and inflation volatility. Specifically, Stock and Watson (2002, pg. 162) note that “changes in U.S. monetary policy seem to account for some of the moderation, but most of the moderation seems to be attributable to reductions in the volatility of structural shocks. Altogether, we estimate that the moderation in volatility is attributable to a combination of improved policy (10-25%), identifiable good luck in the form of productivity and commodity price shocks (20-30%), and other, unknown forms of good luck that manifest themselves as smaller reduced-form forecast errors (40-60%).”

In regards to the “good luck” hypothesis, the unipolar moment that emerged in the aftermath of the collapse of the Soviet-bloc gave the U.S. a period of hegemonic supremacy. The absence of major geopolitical rivalries and the emphasis on establishing and improving economic ties even with potential competitors like China and Russia was a hallmark of the 1990s and 2000s. The emergence of a more elastic global energy

Continued from page 3

Will the 'Great Moderation' Give Way to the 'Great Volatility?'

supply dynamic also was a critical development in ensuring a decline in macroeconomic volatility. In a recent speech⁶, European Central Bank's Isabel Schnabel noted that "following the oil price shocks of the 1970s, the distribution of global oil supply changed drastically. OPEC's global market share fell from 53% in 1973 to 28% in 1985 as Mexico, Norway and other countries started producing significant amounts of oil. The "Shale Revolution" in the U.S., which started at the turn of the century, changed the oil market once again. It is estimated to have resulted in a significant increase in the price elasticity of oil and gas supply."

To varying degrees, it is likely that all three candidates—favorable structural changes, better monetary policies and smaller and less frequent shocks (good luck)—contributed to the Great Moderation trend. Recent developments, however, appear to presage the arrival of a new more volatile era as all three forces responsible for the Great Moderation are now reversing or dissipating.

The geopolitical landscape has undergone a dramatic shift of late. Roubini offered a gloomy assessment recently⁷ stating that the "world is going through a form of 'geopolitical depression' topped by the escalating rivalry between the West and aligned (if not allied) revisionist powers such as China, Russia, Iran, North Korea and Pakistan. Cold and hot wars are on the rise."

Even before the pandemic, the emerging dual threat of political populism (highlighted by Brexit and the election of Donald Trump in 2016) and trade protectionism suggested that globalization had peaked. In the pandemic aftermath, U.S. and its allies are seeking strategic autonomy and supply chain resilience. Near-shoring and friend-shoring have thus become both strategic and political priorities. U.S. Treasury Secretary Janet Yellen recently highlighted America's stance.⁸ "We are concerned about vulnerabilities that result

from over-concentration, geopolitical and security risks, and violations of human rights," Yellen said. "Through an approach called 'friend-shoring,' the Biden administration aims to maintain the efficiencies of trade while promoting economic resilience for the United States and its partners."

A fundamental reappraisal of global supply chains and an increased reliance on economic sanctions and trade protectionism to attain strategic goals suggest that the world economy is headed for a period of partial de-globalization and increased economic turbulence.

The pandemic shock also highlighted widespread pay disparities and the decades-long absence of real wage growth for many low- and middle-skilled workers. Dramatic recent shifts in labor market dynamics have finally allowed workers to attain some degree of bargaining power. For the first time since the early 1980s there is a sustained push to boost unionization rates amongst U.S. private sector workers. Demographic shifts (aging population and declining birth rates) and a backlash against large-scale immigration is likely to restore some bargaining power to U.S. labor, especially as the threat of offshoring/outsourcing recede. These developments, while notable from a redistribution perspective, will, however, raise inflationary pressures going forward.

Climate change implies that weather-related shocks are likely to be more frequent and more severe in the future. Food security concerns are once again more likely to take centerstage as sudden and dramatic shifts in seasonal weather patterns wreak havoc on traditional agricultural cycles worldwide. Climate change and wildlife habitat destruction may also raise the frequency of pandemic breakouts in the future.

The green transition needed to fight climate change will, however, raise production and energy costs in the short to medium run as incentives to undertake longer term investment in the fossil fuel industry diminish even as renewable energy struggles to achieve scale and reliability. With demand expected to remain high, the absence of sufficient energy buffers will leave the global economy vulnerable to unexpected supply-side shocks.

Rising geopolitical risks and ongoing climate change imply that the lengthy period of good luck may have run its course. We may no longer have the good fortune of experiencing shocks that are small and infrequent. Naturally, this raises the likelihood that both output growth and inflation will become much more volatile and a return to the Great Moderation-type dynamic may not be on the cards for the foreseeable future.

Monetary policy has also become more erratic in recent years as central banks have taken upon themselves to expand both their toolkit and the scope of their mandate. Unconventional monetary tools, such as large-scale asset purchase programs (LSAPs), or quantitative easing (QE), were deployed by the Federal Reserve and other major central banks for prolonged periods in the aftermath of the 2008 financial crisis and during the pandemic shock. Policy tools originally intended for financial emergencies were deployed by monetary authorities to try to directly affect the real economy.

Critically, since the early 2000s, the Federal Reserve's proclivity to tolerate asset bubbles and financial distortions and its willingness to step in and inject liquidity following any sharp market corrections has given credence to the notion that a "Fed Put" actually exists. During the past two decades, the belief amongst market participants in the existence of a "Fed Put" allowed serial asset bubbles to develop and caused the economy to experience multiple boom-bust cycles. Dormant inflationary pressures, however, allowed the central bank to step in and clean up the mess following the bursting of asset bubbles.

As inflation is likely to remain above the central bank's two-percent target for the foreseeable future, the Federal Reserve may no longer be able to deploy ultra-accommodative monetary policies to bailout speculators and financial sector risk takers. Furthermore, after flattening for nearly two decades, the Phillips curve (which describes an inverse relationship between inflation (or change in inflation) and unemployment (or unemployment gap)) has started to steepen of late.

For the past four decades or so, the presence of excess productive capacity (represented

by vast reservoirs of willing, accessible and relatively cheap labor in China and elsewhere) and its effective utilization via growing economic integration (global supply chains, outsourcing/offshoring, financial globalization) kept a lid on wage growth in advanced economies and contributed to the flattening of the Phillips curve. With the rapid aging of the global population, the emergence of a growing middle class in emerging markets, and the shift towards partial de-globalization, we are now entering a new era where global growth is more likely to be constrained by supply (and low productivity growth) rather than by inadequate demand. The return of a steeper Phillips curve will pose a challenge to the Federal Reserve and other major central banks.

Lulled in to overconfidence by the fact that historically low unemployment rates failed to trigger upward price pressures in 2019 and early 2020, several Federal Reserve officials began to make the case for running the economy hot in order to generate greater employment opportunities for disadvantaged minority groups and help tackle racial and economic inequality. For instance, San Francisco Fed president Mary Daly observed in a 2020 speech⁹ that “systemic biases related to race, ethnicity, gender and class

have led to unequal access to education, jobs, income and wealth. And these inequities have compounded over generations, as children born into poverty or low-income households carry that disadvantage through to adulthood and pass it on to their children. These trends—and their persistence over time—reflect fundamental choices we’ve made about public education, taxation and the social safety net. . . . So if these are our choices, what can institutions like the Federal Reserve do to change the landscape? The answer is: quite a lot.”

Expanding the scope of the central bank’s mandate to tackle politically charged issues such as racial inequality or climate change will expose the Federal Reserve to greater political interference and ultimately reduce its independence. As structural forces shift and geopolitical tensions rise, and as domestic political polarization intensifies, it may be wise for the U.S. central bank to limit its focus to maintaining price and financial stability.

In his 1974 Nobel Memorial Prize acceptance lecture, Friedrich Von Hayek offered a stark warning to economic officials regarding the dangers arising from the so-called “pretense-of-knowledge syndrome.” Hayek (1989, p. 7) observed that “to act on the belief that we possess the

knowledge and the power which enable us to shape the process of society entirely to our liking, knowledge which in fact we do not possess, is likely to make us do much harm.” Hayek’s cautionary stance on the ability of policymakers to fine tune or manage the economy is of particular salience at this moment in time.

To conclude, the U.S. and the world economy appear to have entered a new epoch. Are financial market participants and policymakers prepared for a potential new era characterized by much greater output growth and inflation volatility? Will asset prices reset in an orderly fashion as nominal interest rates normalize at levels well above those observed during the 2009-2020 period? Will the explosive growth in public and private sector debt-to-GDP ratios, enabled by the ultra-accommodative policy stance of major central banks, push the world economy into a stagflationary debt trap? A fundamental lack of clarity surrounding the medium term outlook implies that we are headed into a period of considerable economic uncertainty that may herald the return of macroeconomic volatility. 📈

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¹ Roubini, N. (2022). “More War Means More Inflation”, Project Syndicate, December 30. <https://www.project-syndicate.org/commentary/high-inflation-long-term-problem-owing-to-real-and-metaphorical-wars-by-nouriel-roubini-2022-12>

² Krugman, P. (2022). “Is the Era of Low Interest Rates Over?”, The New York Times, October 4. <https://www.nytimes.com/2022/10/04/opinion/interest-rates-inflation.html>

³ Bernanke, B. (2004). “The Great Moderation”, Remarks delivered at the Meetings of the Eastern Economic Association, Washington DC, February 20. <https://www.federalreserve.gov/boarddocs/speeches/2004/20040220/>

⁴ Schnabel, I. (2022). “Monetary Policy and the Great Volatility”, Remarks at the Jackson Hole Economic Policy Symposium organized by the Federal Reserve Bank of Kansas City, August 27. <https://www.ecb.europa.eu/press/key/date/2022/html/ecb.sp220827-93f7d07535.en.html>

⁵ Bernanke, B. (2004). “The Great Moderation”, Remarks delivered at the Meetings of the Eastern Economic Association, Washington DC, February 20. <https://www.federalreserve.gov/boarddocs/speeches/2004/20040220/>

⁶ Schnabel, I. (2022). “Monetary Policy and the Great Volatility”, Remarks at the

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⁸ Yellen, J. (2022). “Resilient Trade”, Project Syndicate, December 12. <https://www.project-syndicate.org/magazine/biden-trade-agenda-emphasizes-resilience-by-janet-l-yellen-2022-12>

⁹ Daly, M.C. (2020). “Is the Federal Reserve Contributing to Economic Inequality?”, Speech at a University of California, Irvine, Virtual Event, October 13. <https://www.frbsf.org/wp-content/uploads/201013-UC-Irvine-Address-FINAL-10-13.pdf>

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Signs of Slowdown

By John R. Stinespring, Ph.D.



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Talk of an economic slowdown permeates the news. Layoffs from large corporations, high inflation, and increases in both interest rates and consumer debt raise the likelihood of recession in the near term. On the other hand, historically low unemployment, increasing payrolls and higher average hourly earnings indicate an economy expanding well. In this update we look for recessionary signs in the recent and historical economic data for the Tampa Bay metropolitan area (TBE), which consists of Hernando, Hillsborough, Pasco, and Pinellas counties combined. A casual view of local construction-laden skylines and roadways might lead a resident to question any suggestions of a slowdown, so a deeper dive into the data is required. To do so, we examine Tampa Bay's labor, retail, and housing markets to determine where our economy is in terms of the business cycle and where it may be headed in the foreseeable future.

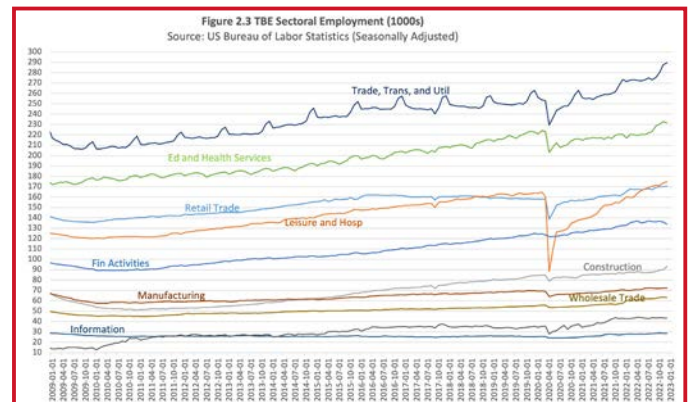
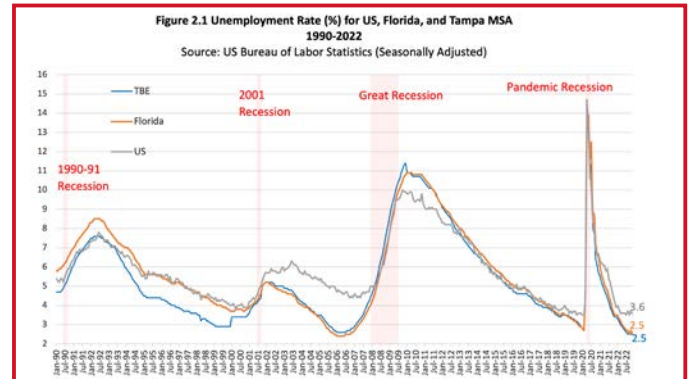
First consider the local labor market, which has experienced sustained employment growth and declining unemployment since the recovery from the 2020 pandemic. **Figure 2.1** shows recent data on local, state and national unemployment. As of December 2022, the unemployment rate stood at 2.5% for the TBE, 2.5% for Florida, and 3.6% nationally. The TBE rate is at its historic low since data was first collected in 1990, while Florida's is a mere 0.1% above its historic low of 2.4% achieved in 2006. Though the U.S. rate is not at its historic low, 3.5% is its low for this time period. These data suggest it is likely that unemployment is near, if not at, a bottom. As is clear from the plot, recent recessions (excluding the unusual pandemic) follow a few quarters after the bottoming out of unemployment and after the rate has begun to rise. The unemployment rate then nearly always peaks well after the recession, making it a lagging indicator of the business cycle.

The unemployment declines and plateaus are mirrored by payroll expansions and potential peaks in the TBE. **Figure 2.2** shows the historically

long increase in monthly payrolls that began in September 2010 and continued until the pandemic had recovered to its pre-pandemic trend. What is less visible is the beginning of what may be a plateau occurring in the last two months of data at 1.5 million payroll jobs. The growth trajectory, though positive, flattened in November and December of 2022. The contribution of individual industries to these trends is evident from **Figure 2.3** which shows TBE industry payroll levels from 2009 until December 2022. The leisure and hospitality industry shows the largest gains since March 2020, when the pandemic was ravaging that industry. Yet with the exception of trade, transportation, and utilities, most other industries have experienced only modest payroll gains of late.

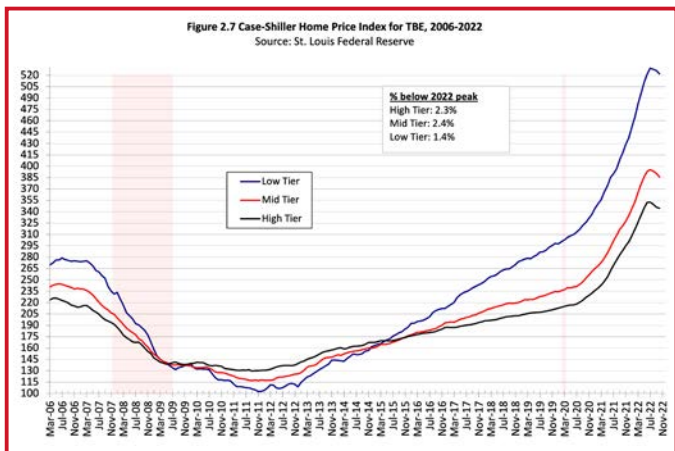
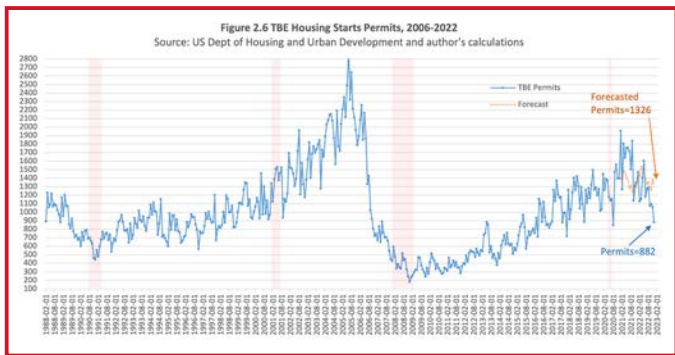
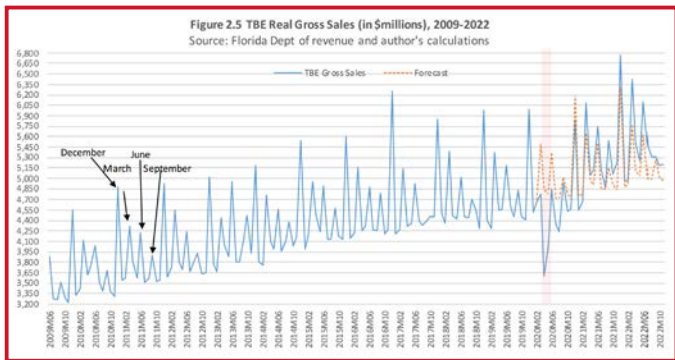
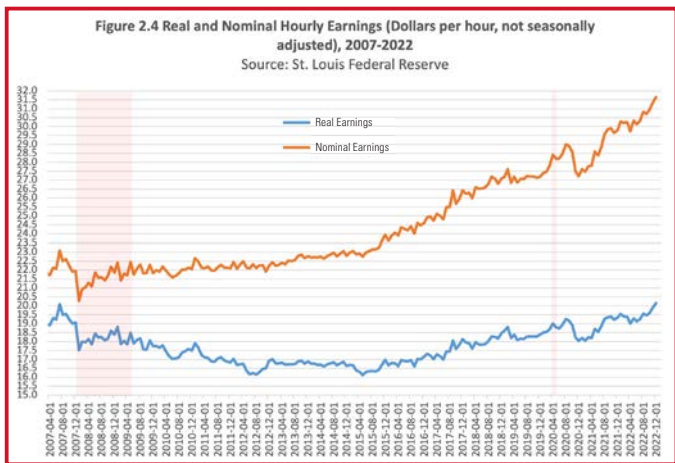
The job growth and low unemployment since the 2007-2009 Great Recession have combined to put upward pressure on nominal hourly earnings as seen in **Figure 2.4** (see next page). Real earnings—nominal earnings adjusted for the price level—tell a different story, one of relatively flat real earnings over the 2007-2022 period. Both series, however, followed a steady upward trajectory starting March 2015, which was only temporarily derailed during the 2020 pandemic. Whether the trajectory of real hourly earnings in the latter half of 2022 is upward or plateauing is less clear from the data.

The growing employment and wages since 2009 translated into higher aggregate demand within the TBE. The measure of overall demand adjusted for inflation,



THE TAMPA BAY ECONOMY

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real gross sales, is a coincident indicator that reveals the economy's current position in the business cycle. As **Figure 2.5** makes clear, real gross sales have trended upward since 2009 amid seasonal spikes in December, March, June and September. Given the precipitous and (hopefully) once-in-a-century drop in March and April 2020 from the pandemic, our forecast of real gross sales (shown in dotted line) is created with data prior to March 2020. The forecast shows sales were well above the prior expansionary trend since March 2021. For example, the forecasted value of \$6.3 billion for December 2021 was \$500 million below actual sales of \$6.8 billion. The one outlier in the last months of data is the unusually low September number. Rather than experiencing our typical back-to-school sales peak, the TBE experienced a decline. Moreover, the decline persisted through November 2022, the last month of data available. Reports as of January 2023 indicate real gross sales were much below expectations for December. This provides yet another indication of a slowing economy.

The housing market is an important leading indicator of where our local economy is in the business cycle. That is, sustained increases in construction lead economic expansions while recessions are presaged by sustained declines. **Figure 2.6** bears this out by showing TBE building permits going back to 1998. It is evident that the recessions of 1990-1991 and 2007-2009 were clearly precipitated by significant housing declines. To divine the direction of the economy from the most recent data, we forecast the trend of permits (dotted line) from the expansion of 2009 through February 2020. After the steep pandemic decline, permits made up losses by overshooting the trend in 2021. In 2022, however, every month but January and May were significantly below that trend. The year ended with actual permits at 882 in December, well below their forecasted value of 1326.

The below-trend growth in home construction has been followed by a steady decrease in home prices at all tiers starting in the summer of 2022. **Figure 2.7** shows the Case-Shiller housing price index increasing for low-, medium- and high-tier home prices since March 2006 (where index = 100 for year 2000). Since bottoming out in 2011, home prices in the TBE rose through July 2022, whereafter an abrupt decline began. Since then, high-tier, mid-tier and low-tier house prices have fallen 2.3, 2.4 and 1.4 percent below their July peaks, respectively. Significant declines in house construction and prices presage typical recessions as the graph makes clear from the home price declines preceding the 2007-2009 recession.

Overall, the TBE data show more indicators of a recession occurring in the next 12-months than an expansion. The labor market is strong but is at its historical threshold, suggesting much more downside potential than upside. Sales are above pre-pandemic trends but their trajectory appears to have flattened in the latest data. Housing prices and construction have both fallen significantly, the latter being likely to have ripple effects throughout the economy. This negative assessment is lent credence from similar forecasts given for the U.S. economy, such as the Conference Board's leading economic index that continues to "signal a recession within the next 12 months" (The Conference Board Leading Economic Index® (LEI) Update, Feb. 1, 2023), and the fact that the TBE's economy is highly correlated to the U.S. economy at 0.76 (a correlation of 1.0 would indicate they move in lockstep, see the Spring 2018 Tampa Bay Economy). Given this high

correlation, how would a U.S. recession impact the TBE? What historical data we have shows that our local economy would likely experience the recession sometime after the overall U.S. has begun but with a longer duration and depth. The TBE has been estimated by Federal Reserve economists (see the Spring 2018 Tampa Bay Economy) to have a “beta” of 1.5 with the U.S.,

indicating recessions and expansions impact the TBE about 50% more in terms of their duration and depth than the U.S. A 1 percentage point change in national economic activity is associated with a 1.5 percentage point change in the TBE economic activity. This estimate held true during the 2007-2009 Great Recession, which was 1.5 months longer for the TBE (at 32 months) than for the

U.S. (at 21 months). Will it hold true for the next recession? If so, the U.S. expansion will likely end before the TBE’s expansion, but the local recession that ensues will be longer and deeper. 📉

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