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Fed's Dual Mandate: Maximum Employment and Price Stability

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Abstract

In this paper, we look at the dual mandate (price stability and maximum employment) as policy objectives of the central bank (the Fed) and we test mostly the effectiveness of policy instruments on these two ultimate objectives. We start from 1978 to 2008 and then, from 2009 (the year of major changes in monetary policy) to present to measure statistically the capability of the Fed to improve the economy's cycle and citizens' wellbeing. OLS and VAR models and at the end some measurements of correlations and causality are used to determine the effectiveness of the policy tools on the two objective variables, price and unemployment. The empirical results show that prices have been drastically affected (inflation and bubbles) by this expansionary monetary policy for so many years, but employment has not been improved. In general, our public policies have generated a social cost that exceeds the social benefits.

JEL classification numbers: E52, E58, E4, E44, C52, D6.
Keywords: Monetary Policy, Central Banks and Their Policies, Money and Interest Rates, Financial Markets and the Macro-economy, Model Evaluation and Testing, Social Welfare.

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1. Introduction

Legislation in the 1970s rolled along that Congress and gave the Fed the framework of what would later be known as a "dual mandate," [2] through the "Federal Reserve Reform Act of 1977"[3] and the **"**Full Employment and Balanced Growth Act of 1978 (Humphrey-Hawkins)**".**[4] That might come as a surprise to some consumers, given just how much the Fed stresses that it decides what to do with interest rates without political interference. But while the Fed's independence from government is true, it does not mean the Fed is independent of government, even though that it is a private bank.[5]

When the Humphrey-Hawkins Act was initially passed, lawmakers defined maximum employment as a jobless rate below 3% for people 20 years or older. The level at which prices are stable was generally regarded as an inflation rate of 3% or less. Today, however, the Fed's ideas about both of those thresholds have changed over time, amid ongoing research and changes in the labor market and in the measurement of unemployment (official = political) and the real (true) one. The Fed specifically adopted a 2% inflation target in 2012 following the global financial crisis, [6] basing it on year-over-year changes in the personal consumption expenditures (PCE) price index, rather than the consumer price index (CPI), though it keeps both measures in mind. Of course, the best will be if the target inflation was zero ($\bar{\pi} = 0\%$).

The Federal Open Market Committee (FOMC) says: "The maximum level of employment is a broad-based and inclusive goal that is not directly measurable and changes over time owing largely to nonmonetary factors that affect the structure and dynamics of the labor market. The Committee's policy decisions must be informed by assessments of the shortfalls of employment from its maximum level, recognizing that such assessments are necessarily uncertain and subject to revision. The Committee considers a wide range of indicators in making these assessments."[7]

Maximum employment must be the full employment or the natural level of unemployment (u^N), which is the highest level of employment the economy can

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[2] See, "Low unemployment or low inflation? The Fed's dual mandate, explained, and why officials could soon face an impossible choice." The Federal Reserve's Dual Mandate And Why It's Often Dueling | Bankrate

[3] See, "Federal Reserve Reform Act of 1977". This act was Signed by President Jimmy Carter on November 16, 1977, this amendment to the Federal Reserve Act was instrumental in shaping the current Fed. https://www.federalreservehistory.org/essays/fed-reform-act-of-1977

[4] See, "Full Employment and Balanced Growth Act of 1978 (Humphrey-Hawkins)". This amendment to the Employment Act of 1946 was signed on October 27, 1978, by President Jimmy Carter, establishing new goals for the nation's economic policymakers. https://www.federalreservehistory.org/essays/humphrey-hawkins-act

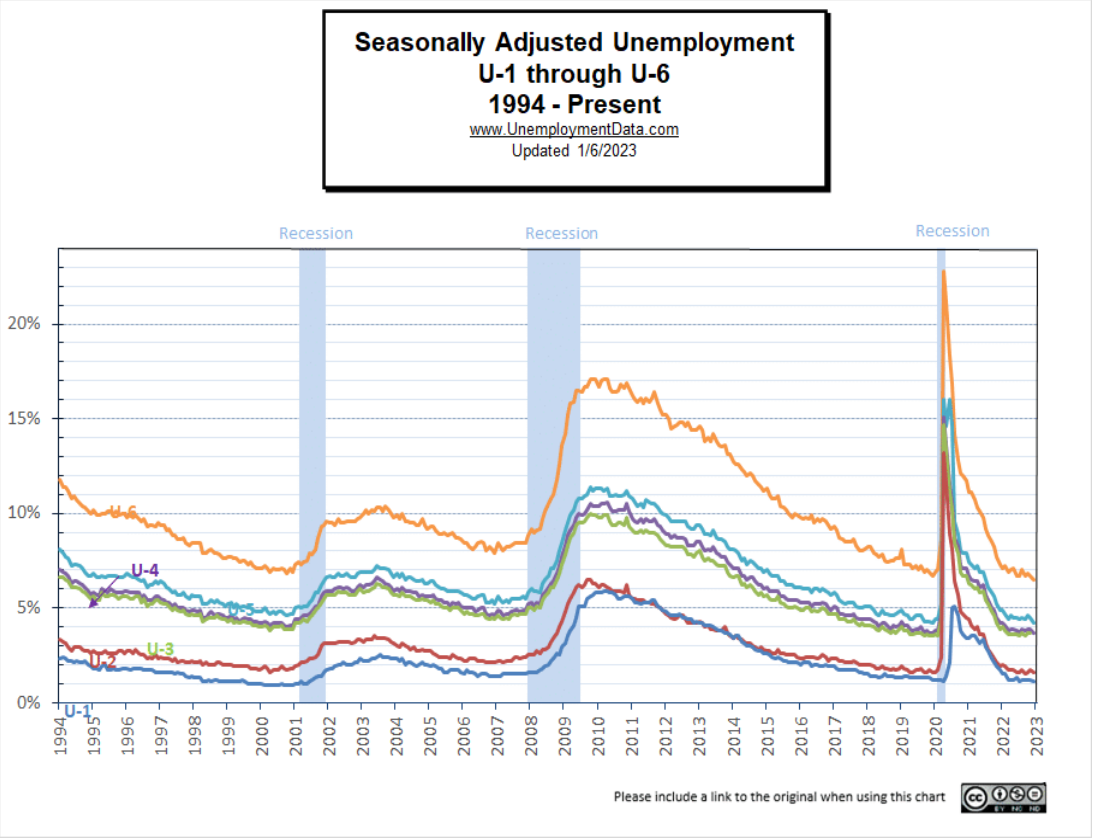
[5] See, (Goodson, 2019.

[6] See, (Engemann, 2019).

[7] See, "How does the Fed defines 'maximum employment'?" https://www.brookings.edu/articles/how-does-the-fed-define-maximum-employment/

sustain without generating unwelcome inflation. It describes an economy, in which nearly everyone who wants to work has a job.
This measure does not account for all idle workers and is not a sufficient measure of what is called slack in the labor market. It does not count workers who have given up looking for work or those who work part-time because they cannot find a full-time job. The BLS publishes several alternative measures.[8] For example, the U-6

[8] Graph 1: Unemployment Rates. See, "Table A-15. Alternative measures of labor underutilization", *U.S. Bureau of Labor Statistics*, https://www.bls.gov/news.release/empsit.t15.htm



Graph 1: Unemployment Rates

Note: January's 2024 official unemployment rate was 3.7% and the Unadjusted U-6 Unemployment Rate was 8.0%. Number of unemployed at 6.1 million in January 2024. U-6 is a broader measure of unemployment, including discouraged workers, and many consider U-6 to be "the Real Unemployment Rate" See: What is U-6 Unemployment? for the full definition of U-6 Unemployment. As you can see from the chart above, the unadjusted U-6 unemployment rate was 15.2% in December 2011 and 14.4% in December 2012. By July, it bounced up again to 15.2%, and in October, the U-6 miraculously fell back to 13.9% just in time for the election. But by January 2013, it was back to 15.4%. By January 2014, it was at 13.5%, and by October 2014, it was down to the 11% range. In January 2015, it bounced back up to 12% but promptly returned to 10.4% by April. Source: Civilian unemployment rate (bls.gov) and Current U-6 Unemployment Rate (unemploymentdata.com) , Number of unemployed at 6.1 million in January 2024 : The Economics Daily: U.S. Bureau of Labor Statistics (bls.gov)

measure counts the unemployed plus discouraged workers (those who would like to work but have given up looking because they believe there are no jobs available for them), those who are marginally attached to the labor force (those who would like to work but have stopped looking for work for any other reason), and those working part-time who would prefer full-time jobs (U-6 for December 2023 was 7.1%, a more real measure).[9]

2. Fed's Objectives: A Theoretical Model

Fed's objectives are the followings six, but we will deal more extensively with only two, here, the dual mandate (price stability and maximum employment):

(1) Price Stability is defined by the Fed as low and stable inflation, which considered the most important goal (objective) of monetary policy ($\pi^e = 2\%$).[10] On the subject of inflation, some economists believe that moderate inflation helps promote full employment, economic growth and stable financial markets. Inflation is seen as enabling labor and product markets to function more smoothly in the face of shocks that could otherwise reduce employment or output. Then, central banks can boost employment and output growth more or less permanently by allowing the inflation rate to rise.[11] In the 1960s, the data suggested the existence of an exploitable tradeoff between inflation and unemployment, the so-called Phillips Curve, eq. (9), named after the economist A.W. Phillips, who first documented that the unemployment rate and changes in wage rates moved in opposite directions in the United Kingdom. Some other economists argued that this menu could be improved upon if policymakers were willing to discard their old-fashioned obsession with price stability. Allow some inflation, these economists argued, and the labor market would operate more efficiently, employment would rise, and the economy would grow faster. The Fed puts too much emphasis on inflation control and not enough on other objectives (i.e., on reducing business cycle fluctuations or preventing recessions or financial market stability or on balance of trade). *Inflation targeting* is a strategy that recognizes price stability as the primary long-run goal of monetary policy.

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[9] The Shadow Government Statistics gives an unemployment ($u = 25\%$). See, Alternate Unemployment Charts (shadowstats.com). See also, Current U-6 Unemployment Rate (unemploymentdata.com). "Have you ever wondered why the CPI, GDP and employment numbers run counter to your personal and business experiences? The problem lies in biased and often-manipulated government reporting." (*Walter J. "John" Williams). See, "*Inflation, Money Supply, GDP, Unemployment and the Dollar - Alternate Data Series", Inflation, Money Supply, GDP, Unemployment and the Dollar - Alternate Data Series (shadowstats.com)

[10] See, (Engemann, 2019). There are other economists, who argue that the target inflation must be zero ($\boldsymbol{\pi \cong 0\%}$).

[11] See, (Poole and Wheelock, 2008).

(2) *High Employment (Maximum Employment)*[12] is the best goal because high unemployment destroys the economy and consequently, the lives of the people. If the output and production is declining, the human misery reduces the wellbeing of people. The economy must be at full employment ($u \cong 0$ or at least at u^N = natural rate of unemployment), when the economy is producing at the natural rate of output or potential output or full employment output (Q^F or Q^N).

The other four objectives are:

(3) Interest-Rate Stability (*Moderate Long-Term Interest Rate,* $\bar{i}_{L-T}$). The interest rate stability (small fluctuations) is important for the markets, for banks, for businesses, and individuals. Large fluctuations are increasing uncertainty and cost. The interest rate must cover the expected inflation and offer a risk premium to the investor for undertaking this investment. The zero-interest rate or a very high interest rate, are both causing problems to our society.[13]

(4) Economic Growth or Stable Real Economy (Maximum Sustained Output). Steady economic growth ($\bar{g}_{GDP}$) is closely related to the high employment goal. Businesses are investing when unemployment is low, people have high income and affect the aggregate demand (AD) positively (increase in demand for goods and services). This is the demand-side economics. The supply-side economics intend to stimulate growth by reducing taxes, cutting regulations, and interest rates, so businesses will borrow to invest, Figure 2. But, if the unemployment is high,[14] as it is now, and the personal income low, the AD is very low. Why are firms interested to invest? Who is going to buy their product? Then, in this case, the role of monetary policy is not very effective to boost economic growth.

(5) Stability of Financial Markets. Financial markets are providing funds to businesses to do their investments (bonds, stocks, etc.) and these instruments become available to people (suppliers of funds) for investment. But the stability of these markets ($\bar{g}_{DJIA}$) is very important because most of the investors are risk averse.

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[12] The Federal Reserve Act of 1977 modified the original act establishing the Federal Reserve in 1913 and clarified the roles of the Board of Governors and FOMC. Congress explicitly stated the Fed's goals should be "maximum employment, stable prices, and moderate long-term interest rates". See, U.S. Government Printing Office. "Public Law 95-188 95th Congress,"
It is these goals that have come to be known as the Federal Reserve's Dual Mandate, https://www.chicagofed.org/research/dual-mandate/dual-mandate

[13] The optimal interest rate on deposits (savings accounts) must be: $i^*_{D_t} = \pi^e_{t_+} + 1\%$ and the optimal interest rate on loans (the highest) must be: $i^*_{L_t} = i_{P_t} + 5\%$, where i^*_D = the optimal deposit rate, π^e = expected true inflation rate, i^*_L = the optimal loan rate, and i_P = the prime rate.

[14] Official unemployment, $u = 3.7\%$, with January 2024, https://www.bls.gov/charts/employment-situation/civilian-unemployment-rate.htm and Shadow Government Statistics, $u = 24.7\%$, Alternate Unemployment Charts (shadowstats.com)

The central bank has to stimulate these markets, but moderation is necessary; the bubbles from prolong easy money policy[15] are very dangerous for the financial markets, as follows:

$$i_{FF} \downarrow\downarrow \Rightarrow M^s \uparrow\uparrow \Rightarrow i_{L-T} \downarrow \Rightarrow k_a \downarrow \Rightarrow V \uparrow\uparrow$$

With

$$V = \frac{EBIT(1-T)}{k_a} \tag{1}$$

Or

$$V = D + P + S \tag{2}$$

The target federal funds rate must follow the reaction function that includes the DJIA:

$$\bar{i}_{FF_t} = \pi_t + r_t^* + \alpha_\pi(\pi_t - \pi_t^*) - \alpha_u(u_t - u_t^N) + \alpha_{DJIA}(g_{DJIA_t} - g^*_{DJIA_t}) \tag{3}$$

where, M^s = money supply, ($\downarrow\downarrow$) = drastic reduction, ($\uparrow\uparrow$) = enormous increase, i_{L-T} = long-term interest rate, V = value of the firm, $EBIT$ = earnings before interest and taxes, T = corporate tax rate, k_a = average cost of capital, D = the value of debt, P = the value of preferred stocks, S = the value of common stocks, $\bar{i}_{FF_t}$ = the target federal funds rate, π_t = the rate of inflation as measured by the GDP deflator, π_t^* = the desired rate of inflation,[16] r_t^* = the assumed equilibrium real interest rate, u_t = the unemployment rate, u_t^N = the natural level of unemployment, g_{DJIA_t} = the actual growth of the DJIA index, $g^*_{DJIA_t}$ = the optimal (the bubble prevention) growth of the DJIA.[17]

(6) *Stability in Foreign Exchange Markets and Equilibrium in the Balance of Payment* ($\bar{e}$ and $CA \cong 0$). The value of the dollar affects international trade, foreign investment, and many other functions (travel, tourism, etc.). A trade account balance is very important for our economy because it shows our self-sufficiency and independence, our production, our employment, and the competitiveness of the country.

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[15] The Fed had a zero-interest rate policy from December 15, 2008 to December 15, 2015 and then, again from March 15, 2020 to March 15, 2022; for 9 years. The liquidity was enormous. The M2 was $8,192.1 billion and reached $21,697.8 billion; a growth by $13,505.7 billion or 164.86% or 18.32% p.a. See, M2 (M2SL) | FRED | St. Louis Fed (stlouisfed.org)

[16] The Fed ultimately stated explicitly that its target was a 2% per year increase in the raw personal consumption expenditures deflator. See, (Williamson, 2014, p. 112).

[17] See, (Kallianiotis, 2020a).

$$TA_t = X_t - M_t = x(TOT_t, Y_t^*) - m(TOT_t, Y_t) \quad (4)$$

$$TOT_t = \frac{e_t P_t^*}{P_t} \quad (5)$$

The dollar return for an American investor depends on the value of the dollar with respect to the foreign currency (the exchange rate).

$$(1+i) = (1+i^*)(1+fp) \quad (6)$$

or

$$(1+i) = (1+i^*)(1-fd) \quad (7)$$

and

$$fd \text{ or } fp = f_t - s_t \quad (8)$$

where, TA = trade account, X = exports, M = imports, TOT = terms of trade, e = exchange rate, P = price, Y = income, i = interest rate, fp = forward premium, fd = forward discount, f_t = the ln of forward exchange rate, s_t = the ln of spot exchange rate, and a * = denotes the foreign variable.

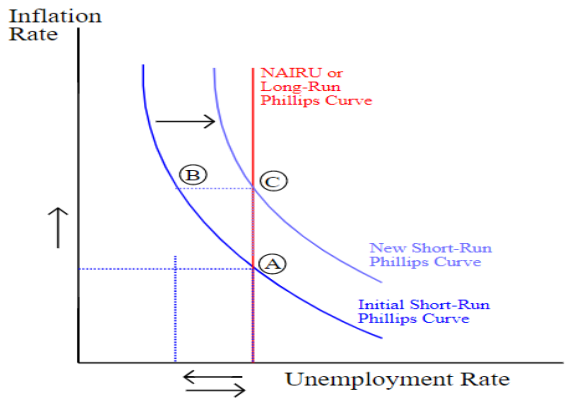
We start by testing the Phillips curve in our economy, which gives the following regression:[18]

$$\pi_t = \pi_t^e - \phi(u_t - u_t^N) + \varepsilon_t \quad (9)$$

[18] The Phillips curve regression:

$$\pi_t = 1.064^{***}\pi_t^e - 0.160^{**}(u_t - 4)$$
$$(0.039) \qquad (0.066)$$
$$R^2 = 0.373, SER = 3.258, D-W = 2.073, N = 719$$

The Phillips Curve is:



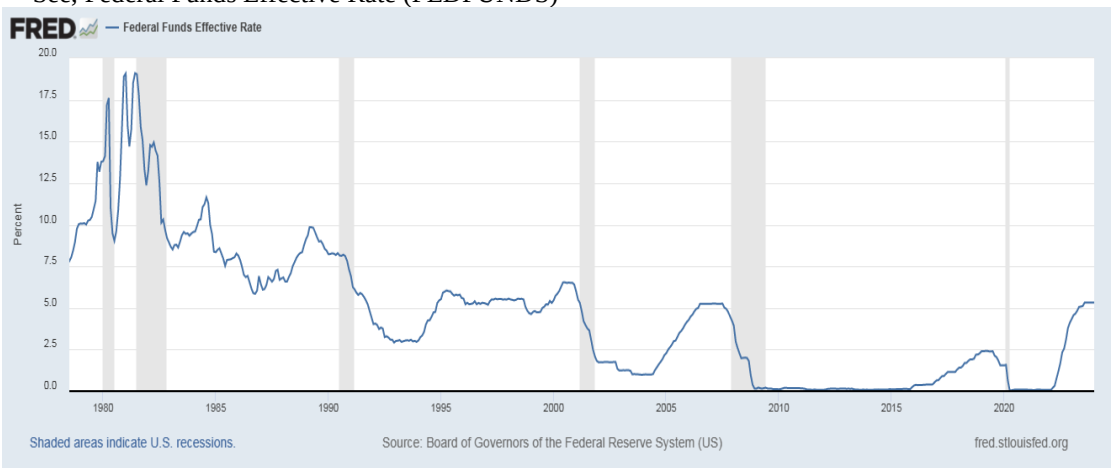
Graph 2: Phillips Curve

Source: phillips curve - Search Images (bing.com)

where, π_t = inflation rate, π_t^e = expected inflation rate, u_t= unemployment rate, and u_t^N= the natural level or full employment unemployment rate.

By looking during periods of different regimes (the inflation stabilization era, 1995-2008) with tools (OMO, i_{DR}, r_R, and r_m) and the zero-interest rate era (December 15, 2008-December 15, 2015, and again from March 15, 2020-March 15, 2022)[19] with instruments (OMO, i_{DR}, i_{IOR}, $i_{ON\ RRP}$, and r_m) we can test the Phillips curve and the significance of monetary policy on the dual mandate (p_t and u_t).[20]

[19] See, Federal Funds Effective Rate (FEDFUNDS)

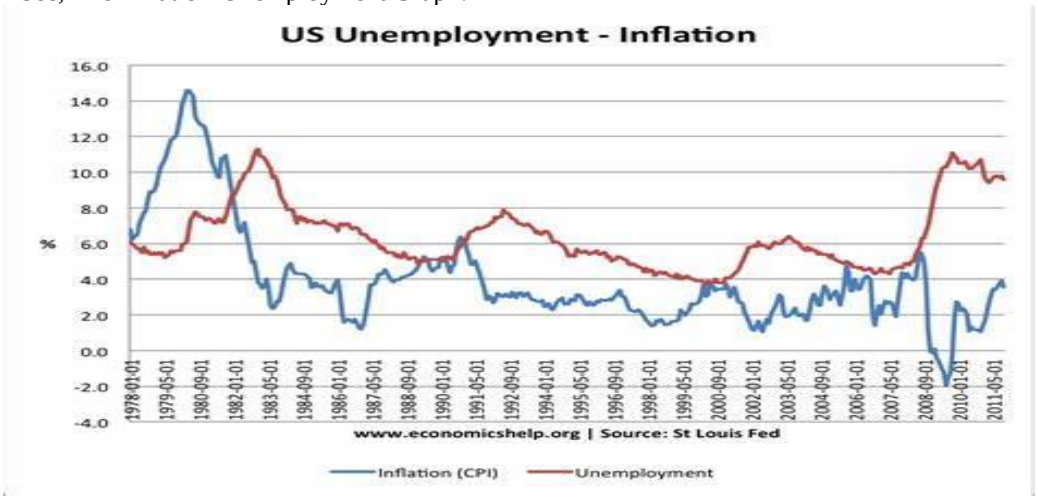


Graph 3: Federal Funds Effective Rate (FEDFUNDS)

Note: 1/1978: 7.81%, 12/1978: 10.03%, 1/1981: 19.10%, 12/2008: 0.16%, 11/2015: 0.12%, 5/2020: 0.05%, 2/2022: 0.08%, and 1/2024: 5.33%.

Source: Federal Funds Effective Rate (FEDFUNDS) | FRED | St. Louis Fed (stlouisfed.org)

[20] See, The Inflation-Unemployment Graph:



Graph 4: The Inflation-Unemployment

Note: The Phillips curve is obvious in the above Graph (high unemployment and low inflation).

Source: St. Louis Fed

Before 2007, the Fed implemented monetary policy with *limited reserves*, non-borrowed (R^*) and borrowing (R_B) reserves, in the banking system ($R^* + R_B = R_T^s$) and relied on *OMO*, as its key instrument (tool). After the financial crisis of 2008, the Fed implements monetary policy with *ample reserves*, Figure 1, by using many new instruments[21] and it relies since October 1, 2008 on interest on reserves (*IOR*)[22] and since September 17, 2014, on interest on overnight reverse repurchase (*ON RRP*),[23] too.

The Fed with its new monetary policy that is using since October 1, 2008,[24] it has as its administered rates, (1) interest on reserves (i_{IOR}) and later, (2) interest of overnight reverse repurchase ($i_{ON\,RRP}$), with which influences the federal funds rate (i_{FF}).

The demand for reserves curve ($R^d = R_R + R_E$)[25] turns flat between the new administered rates at point E_1, Figure 1, which helps to keep the i_{FF} into the *FOMC*'s target range ($5.25\% \leq \bar{\imath}_{FF} \leq 5.50\%$), today.[26] With these enormous "ample" reserves,[27] the Fed does not need to make daily *OMO* (*OMP* or *OMS*), as

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[21] Policy Tools. https://www.federalreserve.gov/monetarypolicy/policytools.htm . See, also, The Fed's New Monetary Policy Tools. https://research.stlouisfed.org/publications/page1-econ/2020/08/03/the-feds-new-monetary-policy-tools

[22] See, Federal Reserve Board - Interest on Reserve Balances

[23] See, Federal Reserve Board - Overnight Reverse Repurchase Agreement Facility

[24] In December 2008, they were, $i_{IOR} = 0.25\%$, $i_{ON\,RRP} = 0.05\%$, $i_{FF}^{eff} = 0.12\%$, and $i_{DR} = 0.50\%$. On July 26, 2022 they were, $i_{IOR} = 2.40\%$, $i_{ON\,RRP} = 2.30\%$, $i_{FF}^{eff} = 2.33\%$, and $i_{DR} = 2.50\%$. On October 21, 2022, they were: $i_{IOR} = 3.15\%$, $i_{ON\,RRP} = 3.05\%$, $i_{FF}^{eff} = 3.08\%$, and $i_{DR} = 3.25\%$. On November 7, 2022, the interest rates became: $i_{IOR} = 3.90\%$, $i_{ON\,RRP} = 3.80\%$, $i_{FF}^{eff} = 3.83\%$, and $i_{DR} = 4.00\%$. And in October 2023, they were: $i_{IOR} = 5.40\%$, $i_{ON\,RRP} = 5.30\%$, $i_{FF}^{eff} = 5.33\%$, and $i_{DR} = 5.50\%$. See, Interest Rates, Discount Rate for United States (INTDSRUSM193N) | FRED | St. Louis Fed (stlouisfed.org) . See, "Interest on Reserve Balances". https://www.federalreserve.gov/monetarypolicy/reserve-balances.htm . See also, "Effective Federal Funds Rate", https://www.newyorkfed.org/markets/reference-rates/effr . Further, "FRB Rates - discount, fed funds, primary credit", https://fred.stlouisfed.org/categories/118 and Overnight Reverse Repurchase Agreements Award Rate: Treasury Securities Sold by the Federal Reserve in the Temporary Open Market Operations | FRED | St. Louis Fed (stlouisfed.org); also, Discount Window Primary Credit Rate (DPCREDIT) | FRED | St. Louis Fed (stlouisfed.org).

[25] The $R_R = 0$ since March 26, 2020. See, Federal Reserve Board - Reserve Requirements

[26] See, Federal Funds Target Range - Upper Limit (DFEDTARU) | FRED | St. Louis Fed (stlouisfed.org) and Federal Funds Target Range - Lower Limit (DFEDTARL) | FRED | St. Louis Fed (stlouisfed.org) . In addition, see, Overnight Reverse Repurchase Agreements Award Rate: Treasury Securities Sold by the Federal Reserve in the Temporary Open Market Operations | FRED | St. Louis Fed (stlouisfed.org)

[27] See, Reserves of Depository Institutions: Total (TOTRESNS) SSOWNLOAD. With December 2008, $R_T = \$820.9$ billion, they reached \$4,193.2 billion (September 2021), 31.6% p.a. growth, and today (January 23, 2024), they are \$3,491.8 billion.
Source: Reserves of Depository Institutions: Total (TOTRESNS) | FRED | St. Louis Fed (stlouisfed.org)

it did before with the limited reserves to hit the i_{FF} target. Now, small shifts of the supply curve (R^s) have no effect on the i_{FF}. The main tool for keeping the i_{FF} on its target and driving the demand curve flat is the i_{IOR}. Banks invest their money short-term based on the interest rate and the risk. They can invest in Treasury Bills ($i_{RF} = 5.35\%$),[28] by offering loans to banks ($i_{FF}^{eff} = 5.33\%$),[29] or by depositing to the Fed ($i_{IOR} = 5.40\%$). Banks prefer to deposit their money to the Fed because i_{IOR} is higher compared to the alternative S-T investments and it is also a safe overnight investment, but a bail-out social cost for the taxpayers.[30] (*Sic*). If the i_{FF} were to fall very far below the i_{IOR}, banks would borrow in the federal funds market and deposit those reserves at the Fed, earning a profit (arbitrage, π_A) on the difference ($\pi_A = i_{IOR} - i_{FF}$) This arbitrage ensures that the i_{FF} does not fall much below i_{IOR}, as follows: $[EX\ D_{FF} \Rightarrow i_{FF} \uparrow \ and \ \ EX\ S_{\text{Re serves}} \Rightarrow i_{IOR} \downarrow]$
Banks, before November 2008, were minimizing their holdings of excess reserves because $i_{IOER} = 0$. Then, with $i_{IOER} > 0$, banks have an incentive to hold more excess reserves. The i_{IOER} became a tool to influence banks to hold more excess reserves at the Fed. The Fed has since that time the i_{IOER} as a new tool for implementing monetary policy. Since November 2008, $i_{IORR} = i_{IOER}$ and since March 26, 2020, the Fed abandoned the required reserves ($R_R = 0$).[31]

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[28] The T-Bill rate in the secondary market was, $i_{RF} = 0.02\%$ on June 30, 2021 and became in one year $i_{RF} = 4.06\%$ (November 7, 2022). On December 1, 2023, it was: $i_{RF} = 5.27\%$, and on February 21, 2024, it became, $i_{RF} = 5.24\%$. See, https://tradingeconomics.com/united-states/interest-rate and https://ycharts.com/indicators/3_month_t_bill and https://fred.stlouisfed.org/series/TB3MS . See, also, Interest Rate on Reserve Balances (IORB) | FRED | St. Louis Fed (stlouisfed.org)
In addition, see, 3 Month Treasury Bill Rate (ycharts.com)

[29] See, Effective Federal Funds Rate - FEDERAL RESERVE BANK of NEW YORK (newyorkfed.org)

[30] See, (Kallianiotis, 2021c and 2022).

[31] See, "Reserve Requirements", https://www.federalreserve.gov/monetarypolicy/reservereq.htm. Also, "The Financial Services Regulatory Relief Act of 2006 authorized the Federal Reserve Banks to pay interest on balances held by or on behalf of eligible institutions in master accounts at Reserve Banks, subject to regulations of the Board of Governors, effective October 1, 2011. The effective date of this authority was advanced to October 1, 2008, by the Emergency Economic Stabilization Act of 2008." See, "Interest on Reserve Balances", https://www.federalreserve.gov/monetarypolicy/reserve-balances.htm

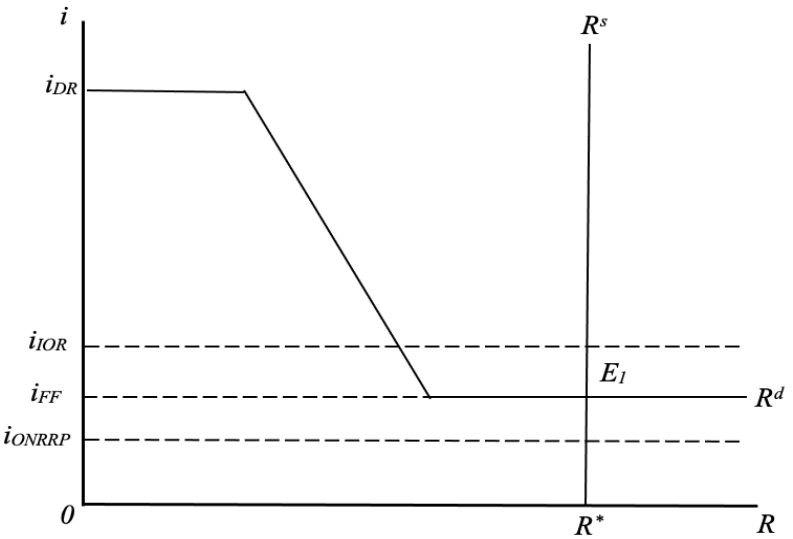


Figure 1: New Monetary Policy with Ample Reserves

Note: i = interest rates, i_{FF} = federal funds rate, i_{DR} = discount rate, i_{IOR} = interest rate on reserves, i_{ONRRP} = interest rate on overnight reverse repurchase, R = reserves, R^d = demand for reserves, R^s = supply of reserves, R^* = non-borrowed reserves, E_1 = equilibrium ($R^s = R^d$).

This interest on required reserves ($IORR$) made Fed's policy effectiveness irrelevant for banks (more deregulations). The Fed shifted to an ample-reserves framework and reserve requirements (r_R) are not anymore, a tool of monetary policy. Thus, now, we have only IOR (i_{IOR}). The reserves are still remained "ample",[32] Figure 1.

We can test the effect of the monetary instruments (i_{FF}^{eff}, mb, and M^s) on prices (p) and unemployment (u) and see if the Phillips curve effect exists, by running the following regressions:

$$p_t = \alpha_0 + \alpha_1 u_t + \alpha_2 i_{FF_t}^{eff} + \alpha_3 mb_t + \alpha_4 m_t + \varepsilon_t \qquad (10)$$

[32] In January 2019, the FOMC released a statement saying, it would continue to implement policy with ample reserves in the long run. See, Board of Governors of the Federal Reserve System. "Statement Regarding Monetary Policy Implementation and Balance Sheet Normalization." Press release, January 30, 2019;
https://www.federalreserve.gov/newsevents/pressreleases/monetary20190130c.htm
More recently, in response to the COVID-19 pandemic, reserves have grown substantially. By May 2020, reserves expanded and stood above $3.218 trillion, at a higher level than their peak during the aftermath of the Great Recession; on January 28, 2021, they were $3.135 trillion; on February 23, 2021, they were $3.154 trillion; on March 23, 2021 became $3.346 trillion; on June 28, 2022, they became $3.318 trillion, on July 26, 2022 they fell to $3,228.4 billion, on September 27, 2022, they became $3,305.9 billion, on 10/24/2023, they were $3,239.4 billion, and on January 23, 2024, they were $3,491.8 billion. https://fred.stlouisfed.org/series/TOTRESNS

and

$$u_t = \beta_0 + \beta_1 p_t + \beta_2 i_{FF_t}^{eff} + \beta_3 mb_t + \beta_4 m_t + \varepsilon_t \tag{11}$$

where, i_{FF}^{eff} = effective federal funds rate, mb = ln of monetary base, and m^s = ln of money supply (M2).

Now, we can run the following two equations, eqs. (12), as an OLS and as a VAR model by considering the 3 monetary policy tools (i_{FF}^{eff}, mb, and m^s) and the 6 ultimate objective variables ($djia$, $rgdp$, i_{10YTB}, p, u, and ta) as independents.

$$p_t = \delta_0 + \delta_1 djia_{t-1} + \delta_2 rgdp_{t-1} + \delta_3 i_{10YTB_{t-1}} + \delta_4 p_{t-1} + \delta_5 u_{t-1} + \delta_6 ta_{t-1} + \delta_7 i_{FF_t}^{eff} + \delta_8 mb_t + \delta_9 m_t + \varepsilon_t$$

$$u_t = \lambda_0 + \lambda_1 djia_{t-1} + \lambda_2 rgdp_{t-1} + \lambda_3 i_{10YTB_{t-1}} + \lambda_4 p_{t-1} + \lambda_5 u_{t-1} + \lambda_6 ta_{t-1} + \lambda_7 i_{FF_t}^{eff} + \lambda_8 mb_t + \lambda_9 m_t + \varepsilon_t \tag{12}$$

where, $djia$ = ln of DJIA, $rgdp$ = ln of real GDP, i_{10YTB}, = interest rate on 10-year Treasury bonds, p = ln of CPI, u = unemployment rate, and ta = ln of trade account.

Then, we can run the same way as OLS and as a VAR by taking the monetary (i_{FF}^{eff}, mb, and m^s) and fiscal (t and g) tools as independent variables, eqs. (13), to see also the effects of these two public (monetary and fiscal) policies on prices (inflation) and unemployment.

$$\begin{aligned} p_t &= \alpha_{41} djia_{t-j} + \beta_{42} rgdp_{t-j} + \gamma_{43} i_{10YTB_{t-j}} + \delta_{44} p_{t-j} + \zeta_{45} u_{t-j} + \eta_{46} ta_{t-j} + c_o \\ &\quad + \theta_{41} i_{FF_t}^{eff} + \kappa_{42} mb_t + \lambda_{43} m_t + \mu_{44} t_t + \xi_{45} g_t + \varepsilon_{4t} \end{aligned}$$

$$\begin{aligned} u_t &= \alpha_{51} djia_{t-j} + \beta_{52} rgdp_{t-j} + \gamma_{53} i_{10YTB_{t-j}} + \delta_{54} p_{t-j} + \zeta_{55} u_{t-j} + \eta_{56} ta_{t-j} + c_o \\ &\quad + \theta_{51} i_{FF_t}^{eff} + \kappa_{52} mb_t + \lambda_{53} m_t + \mu_{54} t_t + \xi_{55} g_t + \varepsilon_{5t} \end{aligned} \tag{13}$$

where, t = ln of taxes (government revenue) and g = government spending.

3. Empirical Results

We start testing eq. (9), the Pillips curve from 1971:01 to 2008:11, the period before the change of the monetary policy, due to the global financial crisis in 2008. As the results show, Table 1, Colum I, the Phillips curve holds. An increase in unemployment causes a reduction in inflation. Now, we run the same equation starting in 1978, when the dual mandate was introduced, until 2008. The Phillips curve holds again, Table 1, Colum II. An improvement of the one objective (reduction in unemployment) affects negatively the other (increases inflation). Then, we estimate the Phillips curve starting in December 2008, the period of the new monetary policy (zero interest rate regime) up to now. The Phillips curve does not hold during this period,[33] Table 1, Colum III, which means that the new monetary policy is "ideal", it is improving both objectives, it reduces unemployment and inflation simultaneously. (*Sic*).

Table 1: The Phillips Curve, Eq. (9)

	π_t(I)	π_t(II)	π_t(III)
π_t^e	1.099^{***}	1.149^{***}	0.802^{***}
	(0.048)	(0.54)	(0.130)
$u_t - 4$	-0.240^{**}	-0.354^{***}	0.125
	(0.097)	(0.105)	(0.082)
R^2	0.431	0.462	0.114
SER	3.289	3.164	3.102
$D-W$	1.976	1.738	2.015
N	455	371	146

Note: π_t = inflation rate, π_t^e = expected inflation rate, u_t = the unemployment rate, $u_t - 4$ = $u_t - u_t^N$ = unemployment minus the natural level of unemployment rate, *** = significant at the 1% level, ** = significant at the 5% level, * = significant at the 10% level, R^2 = R-squared, SER = S.E. regression, $D-W$ = Durbin-Watson statistic, and N = number of observations.
Source: Economagic.com, Bloomberg, and FRED.

Further, we test the effect of the monetary instruments (i_{FF}^{eff}, mb, and m) on the dual mandate objective variables, prices (p) and unemployment (u), eq. (10) and eq. (11), Table 2. The results show that Phillips curve (negative relationship between u_t and p_t) holds (columns II and IV) and they are statistically significant at 5% level. The i_{FF}^{eff} is significant on u_t at 10% level, but it has wrong sign. The mb is having significant effects on p_t at 1% level, but with a wrong sign. The mb has significant effect on u_t, but wrong signs again. The money supply (m_t) has

[33] These results are a little suspicious because the unemployment and inflation rates are the official and not the true ones, Graphs 7 and 8. Then, how can we trust the official (political) measures?

significant positive effect on p_t at 1% level. Thus, the money supply is causing inflation. The m_t has insignificant effects on u_t. Then, the monetary policy instruments are not improving these dual mandate variables (p_t and u_t).

Table 2: Effects of Monetary Instruments on the Dual Mandate, Eqs. (10) and (11)

	p_t	p_t	u_t	u_t
c	-1.030***	3.347	6.592***	-0.564
p_t	(0.048)	(5.283)	(1.088) 3.141***	(17.428) -10.886**
			(0.659)	(4.970)
u_t	0.009***	-0.001**	-	-
	(0.002)	(0.001)		
i_{FF}^{eff}	-0.001	0.001	0.035	-0.086*
	(0.001)	(0.001)	(0.024)	(0.047)
mb_t	-0.205***	-0.026***	0.485*	6.264***
	(0.014)	(0.005)	(0.291)	(0.454)
m_t	0.868***	0.165***	-2.313***	2.402
	(0.016)	(0.019)	(0.647)	(1.622)
$AR(1)$	-	0.999***	-	0.998***
		(0.003)		(0.004)
$MA(1)$	-	0.482***	-	-
		(0.028)		
R^2	0.986	0.999	0.054	0.940
SER	0.089	0.003	1.624	0.411
F	12,656.13	4,932,824	10.638	1,912.553
$D-W$	0.007	1.587	0.076	2.049
N	745	745	745	745
$RMSE$		0.003424		0.409284

Note: c = constant term, p_t = price level (ln of CPI), u_t = the unemployment rate, i_{FF}^{eff} = effective federal funds rate, mb_t = monetary base, and m_t = money supply (ln of M2), $AR(1)$ = autoregressive 1 process, $MA(1)$ = moving average 1 process, *** = significant at the 1% level, ** = significant at the 5% level, * = significant at the 10% level, R^2 = R-squared, SER = S.E. regression, F = F-statistic, $D-W$ = Durbin-Watson statistic, N = number of observations, and $RMSE$ = root mean square error.
Source: Economagic.com, Bloomberg, and FRED.

Now, we run OLS estimations of each equation in the system of eqs. (12), Table 3; and then, we run these two equations as a VAR model, Table 5, by considering the 3 monetary policy tools (i_{FF}^{eff}, mb, and m^s) and the 6 ultimate objective variables ($djia$, $rgdp$, i_{10YTB}, p, u, and ta) as independents. The results show that i_{FF}^{eff} has no significant effect on p_t and u_t. The mb_t has no effect on p_t, but it causes u_t. The m_t causes inflation (0.258^{***}), but no effect on u_t.[34] The $rgdp_t$ has a significant positive effect on p_t, but not on u_t.

Also, the OLS results, Table 3, show that m_t has a significant positive effect (at 1% level) on p_t and insignificant effect on u_t. The i_{FF}^{eff} has no significant effects on p_t and u_t, after the correction for the serial correlation of the error term. The mb_t has a significant positive effect (at 1% level) on u_t. Then, the policy instruments cause inflation and unemployment. The $rgdp_{t-1}$ has a significant positive effect (at 1% level) on p_t and no significant effect on u_t. The p_{t-1} has a significant negative effect (at 1% level) on u_t. The u_{t-1} has no significant effect, after the correction for the serial correlation of the error term, on p_t or u_t. Thus, money supply causes inflation, but no positive effects on u_t by any monetary instrument. The Phillips curve holds.

Table 3: OLS Estimations Eqs. (12)

	p_t	p_t	u_t	u_t
c	-3.543***	0.388***	206.718***	117.992***
	(0.175)	(0.142)	(16.262)	(34.231)
$djia_{t-1}$	-0.043***	0.002	-0.113	0.887
	(0.005)	(0.005)	(0.440)	(1.057)
$rgdp_{t-1}$	0.890***	0.263***	-43.179***	-0.484
	(0.025)	(0.019)	(3.444)	(2.636)
$i_{10YTBt-1}$	-0.001	0.001	-0.198*	-0.177
	0.001	(0.001)	(0.109)	(0.379)
p_{t-1}	-	-	42.974***	-29.461***
			(3.592)	(11.300)
u_{t-1}	0.008***	0.002***	-	-
	(0.001)		(0.001)	
ta_{t-1}	0.127***	0.002	-8.725***	-2.193
	(0.013)	(0.007)	(1.062)	(1.584)
i_{FF}^{eff}	0.004***	0.002	-0.332	-0.408
	(0.001)	(0.001)	(0.061)	(0.423)
mb_t	0.009**	0.007	0.680*	5.216***
	(0.005)	(0.008)	(0.389)	(1.221)
m_t	0.069^{***}	0.258^{***}	-2.111^{**}	0.462
	(0.009)	(0.014)	(0.872)	(4.152)

[34] This shows again the suspicious measurement of unemployment.

$AR(1)$	-	-	-	0.951***
				(0.031)
$MA(1)$	-	1.791***	-	-
		(0.049)		
$MA(2)$	-	1.809***	-	-
		(0.081)		
$MA(3)$	-	1.195***	-	-
		(0.090)		
$MA(4)$	-	0.467***	-	-
		(0.063)		
R^2	0.996	0.999	0.718	0.906
SER	0.011	0.005	0.958	0.555
F	11,939.1	34,306.51	108.055	324.757
$D-W$	0.374	1.678	0.576	2.075
N	348	348	348	348
$RMSE$		0.005711		0.546842

Note: c = constant term, p_t = price level (ln of CPI), u_t = the unemployment rate, $djia_{t-1}$= DJIA index, $rgdp_{t-1}$= real GDP, $i_{10YTBt-1}$= 10-year government bond rate, i_{FF}^{eff}= effective federal funds rate, mb = monetary base, and m^s= money supply (ln of M2), $AR(1)$ = autoregressive 1 process, $MA(1)$ = moving average 1 process, *** = significant at the 1% level, ** = significant at the 5% level, * = significant at the 10% level, R^2 = R-squared, SER = S.E. regression, F = F-statistic, $D-W$ = Durbin-Watson statistic, N = number of observations, and $RMSE$ = root mean square error.
Source: Economagic.com, Bloomberg, and FRED.

Further, we run OLS estimations of each equation in eqs. (13), Table 4, and then, we run these two equations as a VAR model by considering the 3 monetary policy tools (i_{FF}^{eff}, mb, and m^s), 2 fiscal policy tools (t and g), and the 6 ultimate objective variables ($djia$, $rgdp$, i_{10YTB}, p, u, and ta) as independents. The OLS results show, Table 4, that i_{FF}^{eff} has a positive significant effect on p_t (wrong sign) and a significant negative effect on u_t (wrong sign). The mb_t has significant effects on p_t and u_t. The m_t has significant positive effect on p_t (causes inflation) and significant positive effect on u_t (wrong sign). Taxes (t_t) have no effect on p_t, but they have negative effect on u_t. The g_t (AD) has a significant effect on p_t (inflation), Figure 2, and similar positive effect on u_t. Thus, the fiscal policy is similar to the monetary one, they are both not very effective.

Table 4: OLS Estimations Eqs. (13)

	p_t	p_t	u_t	u_t
c	1.379***	0.710**	61.655***	41.499***
	(0.459)	(0.292)	(11.397)	(9.211)
$djia_{t-1}$	0.002	0.005	-0.225	-0.525**
	(0.008)	(0.005)	(0.198)	(0.208)
$rgdp_{t-1}$	0.071	0.186***	-11.492***	-6.407***
	(0.081)	(0.042)	(1.989)	(1.599)
$i_{10YTBt-1}$	-0.002*	0.001	0.058**	0.029
	0.001	(0.001)	(0.026)	(0.042)
p_t	-	-	5.086***	1.681
			(1.849)	(2.645)
u_{t-1}	0.003	-0.001	-	-
	(0.003)	(0.001)		
ta_{t-1}	0.068***	0.008	-0.279	0.047
	(0.015)	(0.009)	(0.412)	(0.479)
i_{FF}^{eff}	0.002	0.003**	-0.181***	-0.221***
	(0.001)	(0.001)	(0.028)	(0.031)
mb_t	0.197***	0.062**	-2.138***	-2.678***
	(0.021)	(0.024)	(0.637)	(0.777)
m_t	-0.063	0.133***	5.978***	4.141***
	(0.041)	(0.032)	(1.036)	(1.242)
t_t	0.063**	0.001	-2.646***	-1.986***
	(0.021)	(0.013)	(0.513)	(0.466)
g_t	0.263***	0.147***	1.479	2.394**
	(0.037)	(0.024)	(0.982)	(1.100)
$AR(1)$	-	0.904***	-	0.621***
		(0.042)		(0.061)
$MA(1)$	-	0.552***	-	-
		(0.074)		
R^2	0.997	0.999	0.973	0.982
SER	0.006	0.003	0.160	0.132
F	6,064.647	24,259.43	635.144	791.858
$D-W$	0.446	2.068	0.907	2.097
N	188	188	188	188
$RMSE$		0.002626		0.127377

Note: c = constant term, p_t = price level (ln of CPI), u_t = the unemployment rate, i_{FF}^{eff} = effective federal funds rate, mb = monetary base, and m^s = money supply (ln of M2), t_t = taxes (government revenue), g_t = government spending, $AR(1)$ = autoregressive 1 process, $MA(1)$ = moving average 1 process, *** = significant at the 1% level, ** = significant at the 5% level, * = significant at the 10% level, R^2 = R-squared, SER = S.E. regression, F = F-statistic, $D-W$ = Durbin-Watson statistic, N = number of observations, and $RMSE$ = root mean square error.
Source: Economagic.com , Bloomberg, and FRED.

Lastly, we run equations (12) and (13), Table 5, as VAR models by considering, in eq. (12) the 3 monetary policy tools (i_{FF}^{eff}, mb, and m^s) and the 6 ultimate objective variables ($djia$, $rgdp$, i_{10YTB}, p, u, and ta) as independents. In eq. (13), we also use the fiscal policy tools (t_t and g_t). The empirical results show that i_{FF}^{eff} has a significant effect on p_t; m_t has significant positive effect on p_t (it causes inflation) and significant positive effect on u_t. The t_t has no effect on p_t or u_t; the g_t causes inflation (increases the AD), but it reduces unemployment.

Table 5: Vector Autoregression (VAR) Estimates of Eqs. (12) and (13)

	p_t	p_t	u_t	u_t
p_{t-1}	1.356^{***}	-16.969	1.254^{***}	-0.217
	(0.051)	(11.265)	(0.069)	(3.616)
p_{t-2}	-0.409^{***}	19.231^{*}	-0.382^{***}	3.409
	(0.050)	(11.223)	(0.069)	(3.569)
u_{t-1}	0.001^{**}	0.925^{***}	-0.001	0.566^{***}
	(0.001)	(0.060)	(0.001)	(0.076)
u_{t-2}	0.001	-0.076	-0.001	0.117
	(0.001)	(0.054)	(0.001)	(0.074)
c	-0.183^{***}	-6.621	0.209	31.547^{***}
	(0.060)	(12.450)	(0.172)	(8.968)
$djia_{t-1}$	-0.001	-0.684^{***}	0.002	-0.036
	(0.001)	(0.272)	(0.003)	(0.150)
$rgdp_{t-1}$	0.045^{***}	0.904	0.009	-6.898^{***}
	(0.013)	(2.831)	(0.030)	(1.566)
$i_{10YTB\,t-1}$	-0.001	-0.084	-0.001	0.027
	(0.001)	(0.067)	(0.001)	(0.020)
ta_{t-1}	0.007^{**}	0.710	0.010^{*}	-0.273
	(0.003)	(0.762)	(0.001)	(0.314)
$i_{FF\,t}^{eff}$	0.001^{**}	-0.058	0.001	-0.032
	(0.001)	(0.040)	(0.001)	(0.025)
mb_t	-0.001	-0.218	0.019^{*}	-0.550
	(0.001)	(0.243)	(0.010)	(0.518)
m_t	0.005^{**}	-0.509	-0.008	4.377^{***}
	(0.002)	(0.539)	(0.015)	(0.806)
t_t	-	-	-0.011	-0.519
			(0.008)	(0.436)
g_t	-	-	0.052^{***}	-1.429^{*}
			(0.015)	(0.804)
R^2	0.999	0.895	0.999	0.985
SEE	0.003	0.586	0.002	0.120
F	159,822.9	261.673	35,066.09	881.459
N	348	348	188	188

Note: See, Table 4.
Source: See, Table 4.

In addition, we look at the correlation and causality between the instruments and objective variables, before and after 2008. (1) Before 2008, Tables 6 and 7, the $i_{FF\,t}^{eff}$ cause p_t (inflation) and u_t (unemployment), improves production ($rgdp_t$) and keeps the i_{L-T} at a moderate level. The mb_t causes inflation, improves employment, causes bubbles in financial markets, improves growth in $rgdp_t$ and reduces i_{L-T}. The m_t causes inflation, bubbles, improve growth, and keeps moderate long-term interest rate. Taxes increase p_t, reduce u_t, create bubbles in the stock market, and keep low the i_{L-T}. Government spending (g_t) causes inflation, reduces unemployment, improves $rgdp_t$ and keeps low the i_{L-T}. (2) After 2008, Tables 6 and 8, the results are different. The $i_{FF\,t}^{eff}$ has significant positive effect (causes) on p_t, negative on u_t, positive on $rgdp_t$ and on ta_t. The mb_t causes employment to improve and also $rgdp_t$ to go up. The m_t causes inflation, bubbles in the stock market, improvement in production and in international trade. The g_t causes inflation, improves employment, and contributes to the stock market bubble. It seems that the social cost exceeds the benefits of our modern public policies.

Table 6: Correlation between Instruments and Objective Variables

	(1978:01-2008:11)					**(2008:12-2018:09)**				
	$i_{FF\,t}^{eff}$	mb_t	m_t	t_t	g_t	$i_{FF\,t}^{eff}$	mb_t	m_t	t_t	g_t
p_t	-0.206	0.990	0.985	0.956	0.988	0.652	0.917	0.980	-	0.963
u_t	-0.535	-0.550	-0.439	-0.748	-0.448	-0.642	-0.863	-0.969	-	-0.913
$djia_t$	-0.014	0.901	0.854	0.955	0.833	0.672	0.902	0.964	-	0.955
$rgdp_t$	-0.203	0.993	0.980	0.967	0.973	0.709	0.877	0.991	-	0.975
$i_{10YTB\,t}$	0.539	-0.821	-0.833	-0.696	-0.790	0.054	-0.509	-0.469	-	-0.395
ta_t	0.423	-0.948	-0.953	-0.839	-0.934	0.124	0.659	0.582	-	0.485

Note: See, Table 3.
Source: See, Table 3.

Table 7: Causality Tests between Instruments and Objective Variables

(1978:01-2008:11)

$i_{FF\,t}^{eff} \Rightarrow (2.986^{*})p_t, \Rightarrow (6.989^{***})\ u_t, \Rightarrow (9.214^{***})\ rgdp_t, \Rightarrow (3.231^{**})\ i_{10YTB\,t}$
$mb_t \Rightarrow (16.344^{***})\ p_t, \Rightarrow (3.588^{**})\ rgdp_t, \Rightarrow (7.626^{***})\ i_{10YTB\,t}$
$m_t \Rightarrow (3.713^{**})\ p_t, \Rightarrow (7.581^{***})\ rgdp_t, \Rightarrow (12.710^{***})\ i_{10YTB\,t}$
$t_t \Rightarrow (10.128^{***})\ p_t, \Rightarrow (3.677^{**})\ u_t, \Rightarrow (4.392^{**})\ djia_t, \Rightarrow (11.638^{***})\ i_{10YTB\,t}$
$g_t \Rightarrow (2.955^{*})\ p_t, \Rightarrow (5.767^{***})\ rgdp_t, \Rightarrow (7.509^{***})\ i_{10YTB\,t}$

Note: See, Table 3. F-Statistic in parenthesis.
Source: See, Table 3.

Table 8: Causality Tests between Instruments and Objective Variables

(2008:12-2018:09)

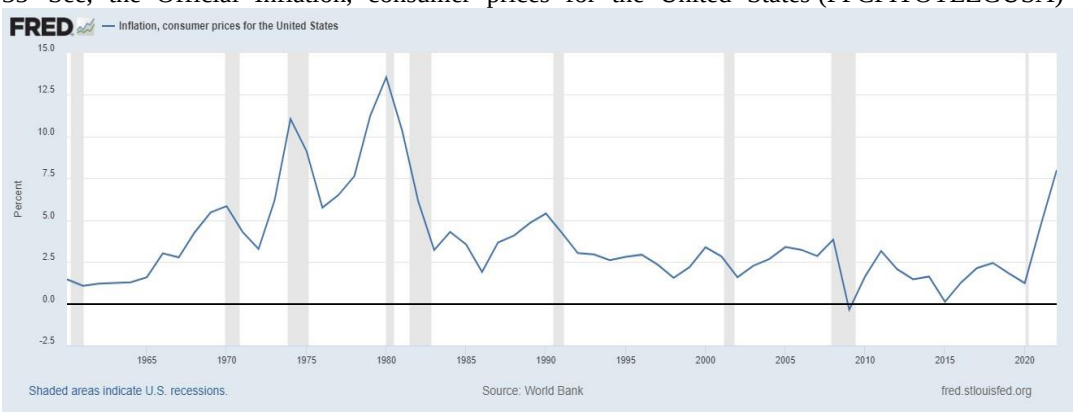
$i_{FF\,t}^{eff} \Rightarrow (4.347^{**})p_t, \quad \Rightarrow (25.024^{***})\ u_t, \Rightarrow (19.978^{***})\ rgdp_t, \Rightarrow (10.634^{**})\ ta_t$
$mb_t \Rightarrow (9.040^{***})\ u_t, \Rightarrow (11.366^{***})\ rgdp_t$
$m_t \Rightarrow (10.262^{**})\ u_t, \Rightarrow (3.030^{*})\ djia_t\ , \Rightarrow (18.508^{***})\ rgdp_t, \Rightarrow (9.8757^{***})\ ta_t$
$g_t \Rightarrow (12.521^{*})\ u_t, \Rightarrow (2.974^{*})\ djia_t$

Note: See, Table 3. F-Statistic in parenthesis.
Source: See, Table 3.

4. Policy Implications

The paper tries to measure the effectiveness and efficiency of the Fed to satisfy the "dual mandate" (price stability and maximum employment), Graphs 5 and 6[35] and Tables A1 and A2, which gives unemployment and recessions over history (1948-2020) and unemployment, GDP, and inflation.

35 See, the Official Inflation, consumer prices for the United States (FPCPITOTLZGUSA)



Graph 5: Official Inflation, consumer prices for the United States

Note: In 1978, the inflation was 7.63%, in 2008, it was 3.84%, in 2022 it was 8.01% and now (January 2024), it is 3.1%.
Source: FRED, Inflation, consumer prices for the United States (FPCPITOTLZGUSA) | FRED | St. Louis Fed (stlouisfed.org). See also, Current US Inflation Rates: 2000-2024 (usinflationcalculator.com) and $1 in 1978 → 2024 | Inflation Calculator (in2013dollars.com)
And the Official Unemployment Rate (UNRATE)

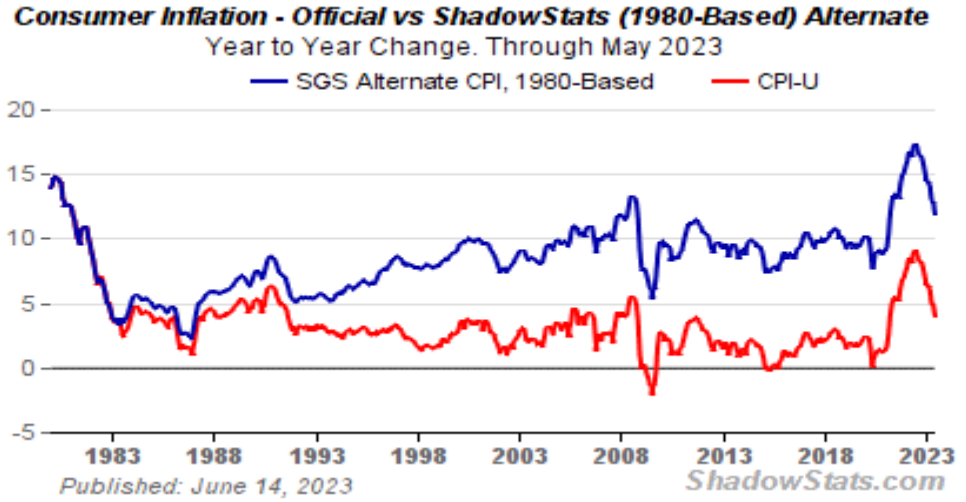
Graph 6: Official Unemployment Rate

Source: FRED, Unemployment Rate (UNRATE) | FRED | St. Louis Fed (stlouisfed.org)

Independent sources give completely different inflation and unemployment rate (Graphs 7 and 8).[36]

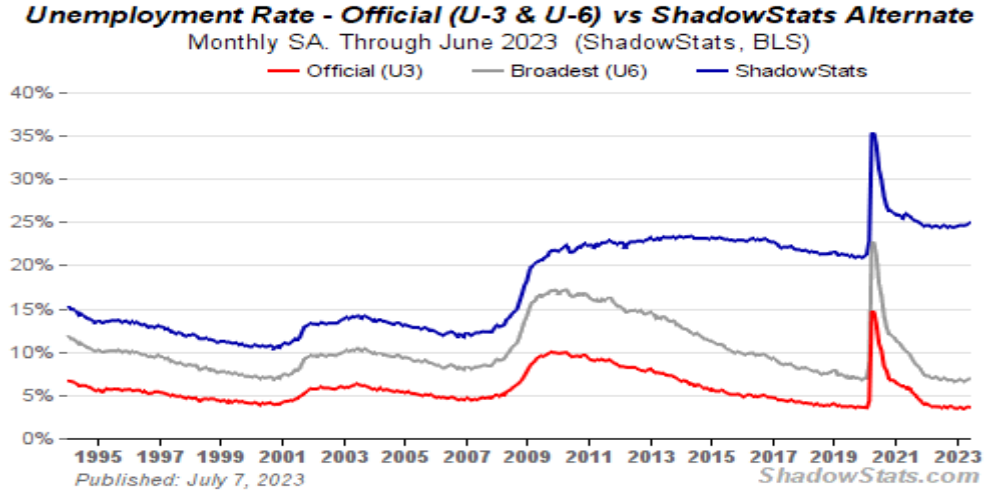
We exam these two objective variables from 1978 to 2008 and from 2008 to 2023. Together with prices and employment, we look at many other macro-variables to see their performance during these two periods of our analysis. It is obvious that the Fed's money printing fueled artificial and excess demand via rapid credit expansion. In turn, that led to rising prices and a cascade of self-fueling price-wage-cost spirals in the domestic economy,[37] Figure 2, which affects negatively our international trade.

[36] See, Alternate Inflation Chart:



Graph 7: Alternate Inflation

Source: Shadow Government Statistics, Alternate Inflation Charts (shadowstats.com)
and the Alternative Unemployment Rate Chart:



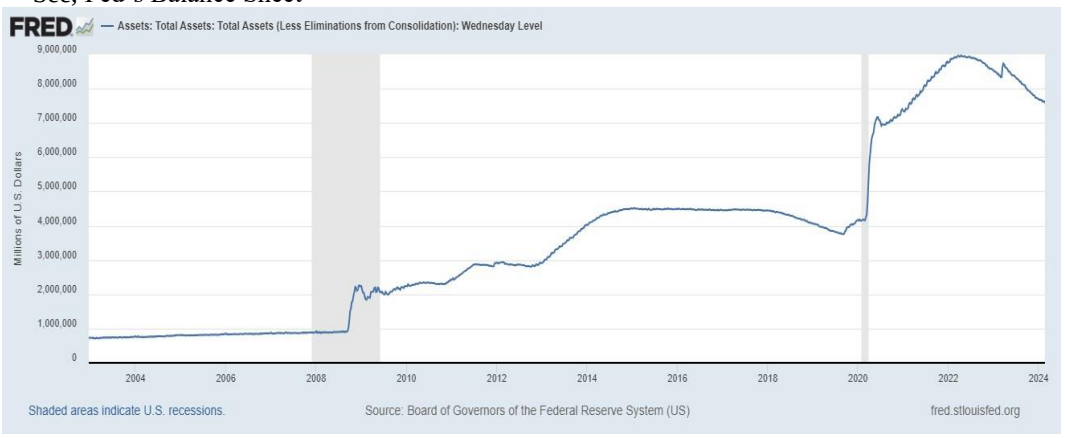
Graph 8: Alternative Unemployment Rate

Source: Shadow Government Statistics, Alternate Unemployment Charts (shadowstats.com)

[37] See, (Stockman, 2022).

This easy money policy for 15 years with an enormous purchase of domestic credit (Fed's balance sheet), Graph 9,[38] and a huge money supply have changed the liquidity forever (M2 = $8,231.5 billion in December 2008, reached $21,848.1 billion in April 2022),[39] Graph 10; then, there is no hope that the inflation rate will decline, even though that the official data are "political" data and not the true (real) ones.

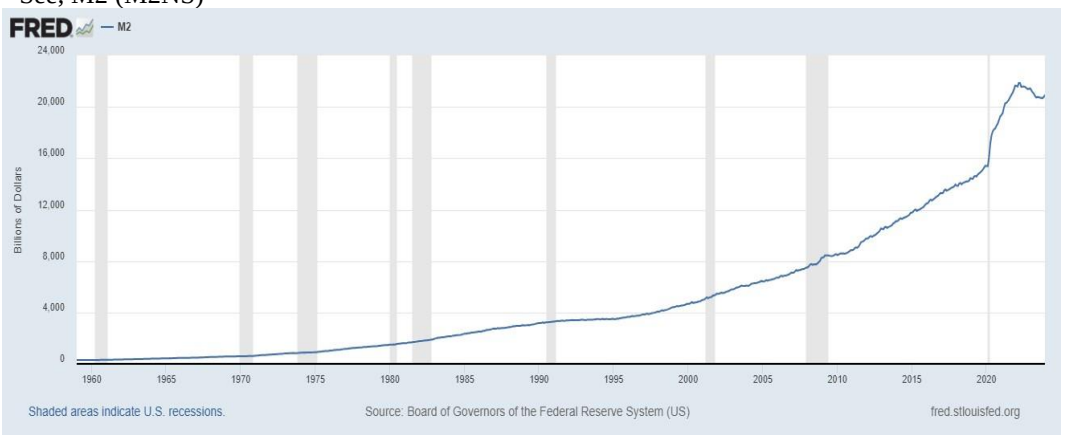
[38] See, Fed's Balance Sheet



Graph 9: Fed's Balance Sheet

Note: Assets: Total Assets: Total Assets (Less Eliminations from Consolidation) In 12/2002: $719.542 billion, 9/2008: $925.725 billion, a growth of 28.65% (4.78% p.a.). Then, from 2008 to 4/2022: $8,965.487 billion, a growth of 868.48% (63.95% p.a.), and 2/2024: $7,581.683.
Source: Assets: Total Assets: Total Assets (Less Eliminations from Consolidation): Wednesday Level (WALCL) | FRED | St. Louis Fed (stlouisfed.org)

[39] See, M2 (M2NS)



Graph 10: U.S. M2

Note: Growth of money: 1978: $$1,358.1 billion and 2008: $8,231.5 billion, Growth 506.10% (16.87% p.a.). From 2008 to 4/2022: $21,848.1 billion, the growth was: 165.42% (or 12.48% p.a.).
Source: https://fred.stlouisfed.org/series/M2NS#

This enormous liquidity was a very big mistake by the Fed to satisfy its targets (ultimate objectives). While monetary policy must be combined with fiscal and exchange rate reforms to fully restore macroeconomic stability and allow a non-inflationary resumption of the growth momentum, Table A2 and Graph A3; the least the government can do at this time is to stop the thoughtless spending and waste, which have an enormous social cost to taxpayers and a crowding out effect, and the Fed tries to finance them by an OMP, and by doing this it tries to keep the interest rate low. The best public policy now it is to let monetary policy work with prudence. The seeds of inflationary pressures were sown since late 1980 and during the expansionary monetary and credit policies that made it very high after 2008 and during the COVID-19 periods (2020-2023). The rapid growth of money, which is the main component of transaction demand for money, and domestic credit injected substantial liquidity into the system and the market (Graph A1). The liberal funding of the Treasury deficit through money creation combined with the "allies first" policy, the environmental obsession, the war against the fossil fuel and the agricultural and live-stock production,[40] the unethical financing of wars in Ukraine and Israel,[41] instead of negotiating a peace agreement, the open borders (millions of illegal immigrants) policy, facilitated this Fedflation and Bidenflation, Figure 2, inflation at P_4. Public sector borrowing (ND = $23.224 trillion in 2020) reached new heights (ND = $34.234 trillion in February 2024); growing at an unprecedented $11.01 trillion or 47.41% or at an annual average rate of 11.85%, Graph A4 and Table A4. The private sector took advantage of low-cost bank borrowing to finance private spending even though private investment growth has been sluggish. Additionally, low deposit rates encouraged households to switch from bank deposits to other assets including real estate and stocks markets.

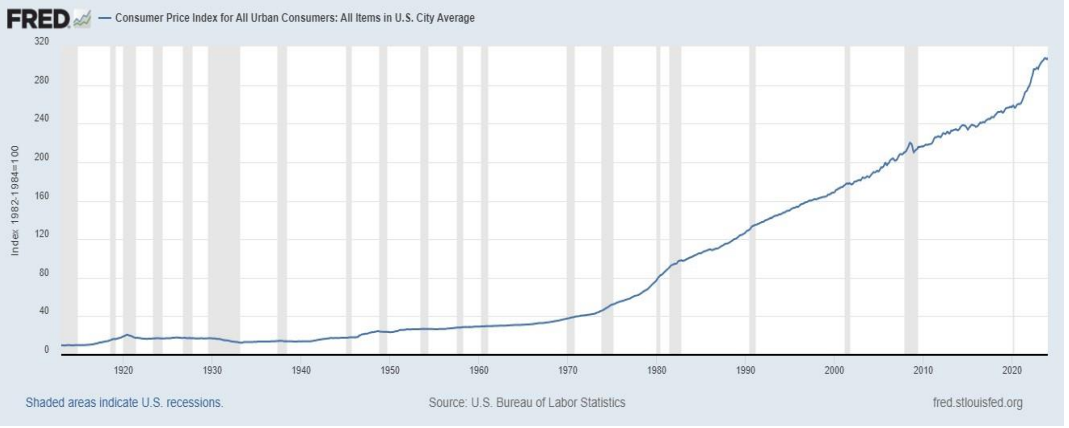
[40] See, *Fox News*, 2/27/2024.

[41] Our moral and ethical culture is necessary to help people to avoid sins. Their dirty "new culture" is forcing people to sin by law, otherwise you are punished because you do not accept their outrageous DEI. The problem is that there is no love for God and even no fear for God (the Holly Trinity). This is the most serious global crisis: IGNORANCE. We need Ταπείνωσιν, Μετάνοιαν, Ἀγάπην.

Overall, this build-up of domestic liquidity fueled inflation, Graph 11,[42] and exerted pressure on the financial markets (bubbles).[43]

While this belated effort to control inflation and stabilize the economy through monetary tightening is a welcome move, but it was too late to celebrate and declare victory because the bubbles are here and persist.[44] There is still a long way to go as the inflation rate remains high and the bubbles to lose substantial air, which will be socially very costly, too. Moving forward, the most important challenge is to maintain this tight monetary stance until the target inflation rate of 2% and even zero (0%) will be achieved. There are already countervailing actions that tend to undermine the monetary policy implementation. These include U.S. Treasury financing of wars (against Christians), [45] illegal immigrants, environmental protection (energy, fossil fuel), DEI virus,[46] and many other liberal ideologies, procurements through issuance of government bonds and injection of liquidity. Politicians no longer care about the public debt.[47]

[42] See, Consumer Price Index for All Urban Consumers: All Items in U.S. City Average (CPIAUCNS)



Graph 11: Consumer Price Index for All Urban Consumers: All Items in U.S. City Average
Source: Consumer Price Index for All Urban Consumers: All Items in U.S. City Average (CPIAUCNS) | FRED | St. Louis Fed (stlouisfed.org)

[43] See, Graph A1: Dow Jones Industrial Average (DJIA)

[44] See, (Stockman, 2022).

[45] The question is here, how is it possible the Christian EU and the Christian U.S. are against Christians? See, (Mearsheimer and Walt, 2007).

[46] The University of Florida has fired all employees in its diversity, equity, and inclusion positions, in accordance with Florida state law. An official statement said that the university had "closed its office of the chief diversity officer, eliminated DEI positions and administrative appointments, and halted DEI-focused contracts with outside vendors." Florida Gov. Ron DeSantis was a proponent of the law and signed the legislation banning Florida colleges and universities from spending money on DEI initiatives last May. See, https://jointheflyover.com/

[47] The Treasury Secretary, Janet Yellen, said that deficit and debt do not matter. See, Yellen insists nothing to worry about as US debt hits $33trn for first time in history (msn.com) . The same ideas were expressed by the extreme liberal economist, Paul Krugman.

They do not fear the possibility that large, persistent fiscal deficits will drive up interest rates and crowd out household and business borrowers.

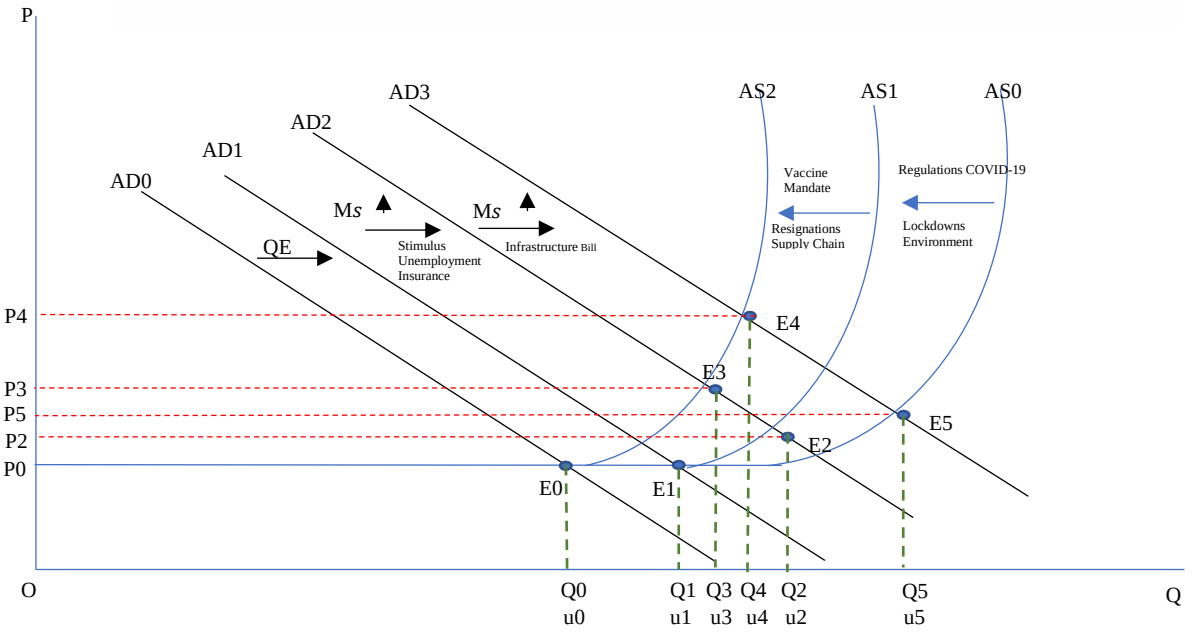


Figure 2: U.S. Current Aggregate Demand and Supply

Note: The quantitative easing (QE) moved the AD_0 to AD_1 from point E_0 to E_1. The continue increases in money supply and the COVID-19 stimulus increase the AD to AD_2; Biden's regulations and businesses' lockdowns shifted the AS_0 to AS_1 and the equilibrium output (Q_2) and employment (u_2) to point E_2. Then, the new money supply and the "infrastructure" bill moved the AD to AD_3 and the vaccine mandates, resignations, layoffs, supply chain problems, "protection of the environment" by going against fossil fuels, etc., reduce the AS to AS_2 and the equilibrium to E_4 (Bidenflation), which cause reduction in output (Q_4) and high unemployment (u_4) and at the same time an enormous inflation in P_4 (stagflation). If the AS had been at AS_0 and the AD at AD_3, the output would have been to E_5 (Fedflation), with the economy almost at full employment and moderate inflation at P_5. Then, moderation is the only solution, but our policy makers do not follow these historic traditions, values and virtues. Their policies are anti-social and anti-American.

Fiscal policy must be efficient and be aligned properly with the implementation of the monetary policy, Graph A3. Quasi fiscal deficits financed through Treasury bonds indirectly create pressure on total liquidity growth, as Graph A4 and Table A4 show. The Treasury should adhere to the credit growth target set and avoid all forms of borrowings, (the excess supply of S-T instruments, T-Bills has caused an increase in T-Bill rate above the L-T bonds rate, negatively sloped yield curve)[48] that risk creating additional liquidity in the system.

Finally, this inflation had made the real deposit rate negative, the real earnings of

[48] On February 26, 2024, The Treasury yields were: $i_{3MT-Bill} = 5.410\%$, $i_{6MT-Bill} = 5.345\%$, $i_{12MT-Bill} = 4.994\%$, $i_{2YN} = 4.712\%$, $i_{3YN} = 4.480\%$, $i_{5YN} = 4.307\%$, $i_{7YN} = 4.302\%$, $i_{10TB} = 4.273\%$, and $i_{30YTB} = 4.388\%$. See, Bonds & Rates (wsj.com)

workers very low, and the economy towards stagflation. Then, along with coordinated use of monetary and fiscal policy, we need a fair-trade policy to ensure the stability of the balance of payments, Graph A5, which must depend mostly on domestic production, self-sufficiency, repatriation of multinational firms, reduction in taxes, "the Americans first", improvement in education, law and order, and a value oriented true democratic system.

5. Conclusion

The paper examines the period from 1978 to 2024, the dual mandate act and the effectiveness of the Fed's monetary policy. The monetary instruments used in different periods have many deficiencies. The old regime, before 2008, had created a relatively price stability and low unemployment. After the global financial crisis (2008), the Fed changed the instruments of monetary policy and created an unfair and risky economy with enormous liquidity, which has affected negatively all the sectors of the economy (financial and real) by generating huge bubbles (stock market) and enormous inflation. The unemployment has not been improved, too. There is a big gap between the official (political) data and the true (real) data. The lies cannot improve the real (Main Street) sector of the economy, except for some artificial euphoria in the Wall Street. The wars (Ukraine and Israel) have caused serious public policies problems in the country, and worst of all are the deaths of people and the destruction of the countries involved in these wars, because we are forced by the global elites to finance them.[49] The Appendix gives many different macro-variables and their growth over time.

Also, the Phillips curve does not hold after 2008 (with the new monetary policy). The money supply has significantly affected prices (caused inflation) but has insignificant effect on unemployment. The monetary base affects prices and unemployment. Taxes (fiscal policy) reduce unemployment and government spending causes inflation and reduces unemployment. The results are different after 2008. They are beyond inflation and bubbles by improving production and international trade. For many years, the Fed had a campaign against a nonexistent deflationary threat and with their 2% inflation target created the bubbles that we have lately. Thus, the monetary policy instruments are not improving these dual mandate variables (p_t and u_t). Overall, the modern public policies (monetary and fiscal) have a social cost that exceeds the social benefits. These must be the results of the latest liberalism, injustice, new value system, DEI philosophies and canceled culture, and corruption and controls, as instruments to reach globalization (global control).

[49] One of these 13 global elites, "Financier and philanthropist Jacob Rothschild dies at 87", Financier and philanthropist Jacob Rothschild dies at 87 (yahoo.com)

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Appendix

Table A1: Unemployment and Recessions Over History

Peak Month	Unemployment Rate	Trough Month	Unemployment Rate
Nov 1948	3.8%	Oct 1949	7.9%
Jul 1953	2.6%	May 1954	5.9%
Aug 1957	4.1%	Apr 1958	7.4%
Apr 1960	5.2%	Feb 1961	6.9%
Dec 1969	3.5%	Nov 1970	5.9%
Nov 1973	4.8%	Mar 1975	8.6%
Jan 1980	6.3%	Jul 1980	7.8%
Jul 1981	7.2%	Nov 1982	10.8%
Jul 1990	5.5%	Mar 1991	6.8%
Mar 2001	4.3%	Nov 2001	5.5%
Dec 2007	5.0%	Jun 2009	9.5%
Feb 2020	3.5%	Apr 2020	14.7%

Note: Over the last 12 business cycles, the unemployment rate averaged 4.7% at the peak and 8.1% during the trough. The below table shows how the unemployment rate changed over various U.S. business cycles, with data from NBER:
Source: Charted: Unemployment and Recessions Over 70 Years (visualcapitalist.com)

Graph A1: Dow Jones - DJIA - 100 Year Historical Chart

Note: In 1978: DJIA=3,667.63, in 2008: 12,874.96, a growth by 251.04% (8.37% p.a.), from 2008 to present (2/23/2024: 39,131.53), the growth is 203.94%, (13.60%).
Source: Dow Jones - DJIA - 100 Year Historical Chart | MacroTrends

Table A2: Unemployment, GDP Growth, and Inflation

YEAR	UNEMPLOYMENT RATE (DECEMBER)	ANNUAL GDP GROWTH	INFLATION (DECEMBER, YOY)	NOTABLE EVENTS
1929	3.2%	NA	0.6%	Market crash
1930	8.7%	-8.5%	-6.4%	Smoot-Hawley
1931	15.9%	-6.4%	-9.3%	Dust Bowl
1932	23.6%	-12.9%	-10.3%	Hoover's tax hikes
1933	24.9%	-1.2%	0.8%	FDR's New Deal
1934	21.7%	10.8%	1.5%	Depression eased, thanks to New Deal
1935	20.1%	8.9%	3.0%	
1936	16.9%	12.9%	1.4%	
1937	14.3%	5.1%	2.9%	Spending cuts
1938	19.0%	-3.3%	-2.8%	FLSA starts minimum wage
1939	17.2%	8.0%	0%	Drought ended
1940	14.6%	8.8%	0.7%	U.S. draft
1941	9.9%	17.7%	9.9%	Pearl Harbor
1942	4.7%	18.9%	9.0%	Defense spending tripled
1943	1.9%	17.0%	3.0%	Germany surrendered at Stalingrad
1944	1.2%	8.0%	2.3%	Bretton Woods
1945	1.9%	-1.0%	2.2%	War ends. Min wage $0.40
1946	3.9%	-11.6%	18.1%	Employment Act
1947	3.6%	-1.1%	8.8%	Marshall Plan negotiated
1948	4.0%	4.1%	3.0%	Truman re-elected
1949	6.6%	-0.6%	-2.1%	Fair Deal; NATO
1950	4.3%	8.7%	5.9%	Korean War; Min wage $0.75
1951	3.1%	8.0%	6.0%	Expansion
1952	2.7%	4.1%	0.8%	Expansion
1953	4.5%	4.7%	0.7%	Korean War ended
1954	5.0%	-0.6%	-0.7%	Dow returned to 1929 level
1955	4.2%	7.1%	0.4%	Unemployment fell
1956	4.2%	2.1%	3.0%	Minimum wage $1.00
1957	5.2%	2.1%	2.9%	Recession
1958	6.2%	-0.7%	1.8%	
1959	5.3%	6.9%	1.7%	Expansion
1960	6.6%	2.6%	1.4%	Recession
1961	6.0%	2.6%	0.7%	JFK; Min wage $1.15
1962	5.5%	6.1%	1.3%	Cuban Missile Crisis
1963	5.5%	4.4%	1.6%	LBJ; Min wage $1.25
1964	5.0%	5.8%	1.0%	Tax cut
1965	4.0%	6.5%	1.9%	U.S. enters Vietnam War
1966	3.8%	6.6%	3.5%	Expansion
1967	3.8%	2.7%	3.0%	Min wage $1.40
1968	3.4%	4.9%	4.7%	Min wage $1.60
1969	3.5%	3.1%	6.2%	Nixon took office

YEAR	UNEMPLOYMENT RATE (DECEMBER)	ANNUAL GDP GROWTH	INFLATION (DECEMBER, YOY)	NOTABLE EVENTS
1970	6.1%	0.2%	5.6%	Recession
1971	6.0%	3.3%	3.3%	Emergency Employment Act; Wage-price controls
1972	5.2%	5.3%	3.4%	Ongoing Stagflation; Watergate break-in
1973	4.9%	5.6%	8.7%	CETA; Gold standard; Vietnam War ended
1974	7.2%	-0.5%	12.3%	Nixon resigns; Min. wage $2.00
1975	8.2%	-0.2%	6.9%	Recession ended
1976	7.8%	5.4%	4.9%	Expansion
1977	6.4%	4.6%	6.7%	Carter took office
1978	6.0%	5.5%	9.0%	Fed raised rate to 20% to stop inflation
1979	6.0%	3.2%	13.3%	
1980	7.2%	-0.3%	12.5%	Recession
1981	8.5%	2.5%	8.9%	Reagan tax cuts; Min. wage $3.35
1982	10.8%	-1.8%	3.8%	Job Training Partnership Act; Garn-St.Germain Act
1983	8.3%	4.6%	3.8%	Reagan increased military spending
1984	7.3%	7.2%	3.9%	
1985	7.0%	4.2%	3.8%	Expansion
1986	6.6%	3.5%	1.1%	Tax cuts
1987	5.7%	3.5%	4.4%	Black Monday
1988	5.3%	4.2%	4.4%	Fed raised rate
1989	5.4%	3.7%	4.6%	Reforms made to address S&L Crisis
1990	6.3%	1.9%	6.1%	Recession
1991	7.3%	-0.1%	3.1%	Desert Storm; Min. wage $4.25
1992	7.4%	3.5%	2.9%	NAFTA drafted
1993	6.5%	2.8%	2.7%	Omnibus Budget Reconciliation Act
1994	5.5%	4.0%	2.7%	School to Work Act
1995	5.6%	2.7%	2.5%	Expansion
1996	5.4%	3.8%	3.3%	Welfare reform
1997	4.7%	4.4%	1.7%	Min. wage $5.85
1998	4.4%	4.5%	1.6%	LTCM crisis
1999	4.0%	4.8%	2.7%	Euro; Serbian airstrike
2000	3.9%	4.1%	3.4%	NASDAQ hit record high
2001	5.7%	1.0%	1.6%	Bush tax cuts; 9/11 attacks
2002	6.0%	1.7%	2.4%	War on Terror
2003	5.7%	2.8%	1.9%	JGTRRA
2004	5.4%	3.9%	3.3%	Expansion
2005	4.9%	3.5%	3.4%	Bankruptcy Abuse Prevention Act; Katrina
2006	4.4%	2.8%	2.5%	Expansion

YEAR	UNEMPLOYMENT RATE (DECEMBER)	ANNUAL GDP GROWTH	INFLATION (DECEMBER, YOY)	NOTABLE EVENTS
2007	5.0%	2.0%	4.1%	
2008	7.3%	0.1%	0.1%	Min. wage $6.55; Financial crisis
2009	9.9%	-2.6%	2.7%	ARRA; Minimum wage $7.25; Jobless benefits extended
2010	9.3%	2.7%	1.5%	Obama tax cuts
2011	8.5%	1.5%	3.0%	26 months of job losses by July; Debt ceiling crisis; Iraq War ended
2012	7.9%	2.3%	1.7%	QE; 10-year rate at 200-year low; Fiscal cliff
2013	6.7%	1.8%	1.5%	Stocks up 30%; Long term = 5% unemployment
2014	5.6%	2.3%	0.8%	Unemployment at 2007 levels
2015	5.0%	2.7%	0.7%	Natural rate
2016	4.7%	1.7%	2.1%	Presidential race
2017	4.1%	2.3%	2.1%	Dollar weakened
2018	3.9%	2.9%	1.9%	Trump tax cuts
2019	3.6%	2.3%	2.3%	Goldilocks economy
2020	8.05%	-3.4%	1.4%	COVID-19 pandemic and recession
2021	5.35%	5.7%	7.0%	COVID-19 pandemic and recovery
2022	3.7% 1.9%			
2023	3.7% 2.5%			

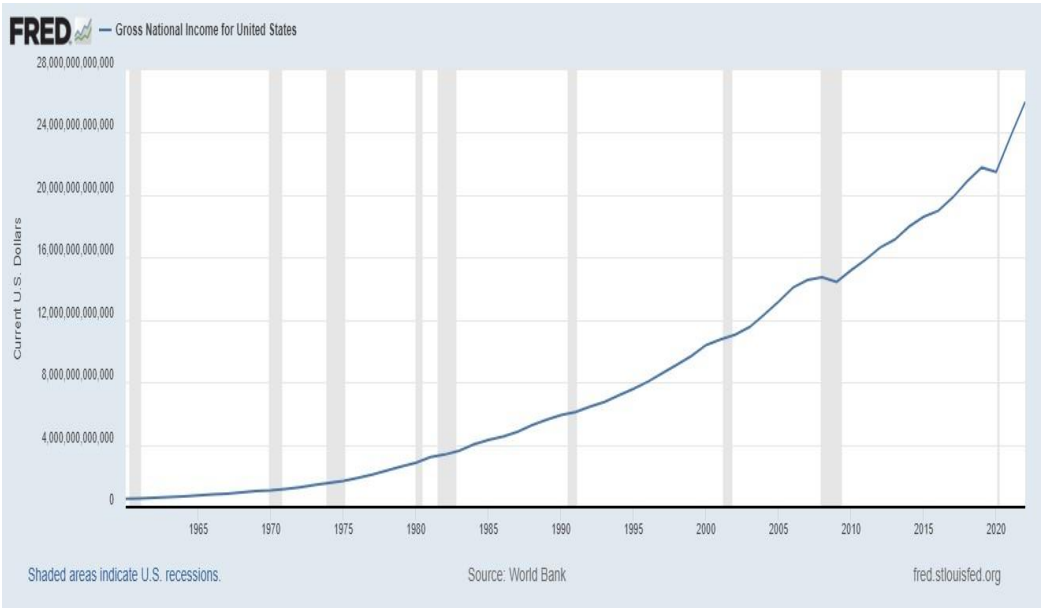
Note: 2020: u = 8.05%, g_{GDP}= -3.4%, $\pi = 1.4\%$; 2021: u = 5.35%, g_{GDP}= 5.7%, $\pi = 7.0\%$; 2022: u = 3.7%, g_{GDP}= 1.9%, $\pi = 6.5\%$; and 2023: u = 3.7% g_{GDP}= 2.5%, $\pi = 3.4\%$.
Source: Historical US Unemployment Rate by Year (thebalancemoney.com) and Civilian unemployment rate (bls.gov) and Annual unemployment rate U.S. 2022 | Statista

Table A3: U.S. GDP Growth Rate - Historical Data (1978-2023)

Year	GDP Growth (%)	Annual Change
2023	2.50%	0.60%
2022	1.90%	-4.05%
2021	5.95%	8.71%
2020	-2.77%	-5.06%
2019	2.29%	-0.65%
2018	2.95%	0.70%
2017	2.24%	0.57%
2016	1.67%	-1.04%
2015	2.71%	0.42%
2014	2.29%	0.45%
2013	1.84%	-0.44%
2012	2.28%	0.73%
2011	1.55%	-1.16%
2010	2.71%	5.31%
2009	-2.60%	-2.72%
2008	0.12%	-1.89%
2007	2.01%	-0.77%
2006	2.78%	-0.70%
2005	3.48%	-0.37%
2004	3.85%	1.06%
2003	2.80%	1.10%
2002	1.70%	0.74%
2001	0.95%	-3.12%
2000	4.08%	-0.72%
1999	4.79%	0.31%
1998	4.48%	0.03%
1997	4.45%	0.67%
1996	3.77%	1.09%
1995	2.68%	-1.34%
1994	4.03%	1.28%
1993	2.75%	-0.77%
1992	3.52%	3.63%
1991	-0.11%	-1.99%
1990	1.89%	-1.79%
1989	3.67%	-0.50%
1988	4.18%	0.72%
1987	3.46%	0.00%
1986	3.46%	-0.71%
1985	4.17%	-3.07%
1984	7.24%	2.65%
1983	4.58%	6.39%

1982	-1.80%	-4.34%
1981	2.54%	2.79%
1980	-0.26%	-3.42%
1979	3.17%	-2.37%
1978	5.54%	0.91%

Note: U.S. gdp growth rate for 2023 was **2.50%**, a 6**.28% increase** from 2022.
U.S. gdp growth rate for 2022 was 1**.90%**, a **3.88% decline** from 2021.
U.S. gdp growth rate for 2021 was **5.95%**, a **8.71% increase** from 2020.
U.S. gdp growth rate for 2020 was **-2.77%**, a **5.06% decline** from 2019.
U.S. gdp growth rate for 2019 was **2.29%**, a **0.65% decline** from 2018.
Source: U.S. GDP Growth Rate 1961-2024 | MacroTrends



Graph A3: Gross National Income for United States (MKTGNIUSA646NWDB)

Note: 1978: $2,349.856 million, 2008: $14,723.881 million, a growth by 526.587% (17.553% p.a.), In 2022, the GNI was $25,978.277, a growth since 2008 of 76.44% (5.46% p.a.). Subtracting inflation, it was a very low RGNI.
Source: Gross National Income for United States (MKTGNIUSA646NWDB) | FRED | St. Louis Fed (stlouisfed.org)

Graph A4: U.S. National Debt

Note: The national debt has grown by $25.73 trillion since 1993. The largest single-term increases took place under President Donald Trump, largely in response to the COVID-19 pandemic, and President Barack Obama's first term during the Great Recession.

- Under President Bill Clinton, the national debt began at approximately $4.23 trillion[1] and grew to $5.73 trillion, a 35.5% increase.
- Under President George W. Bush, the national debt grew from $5.73 to $10.63 trillion, a 85.5% increase.
- Under President Barack Obama, the national debt grew from $10.63 to $19.96 trillion, a 87.8% increase.
- Under President Donald Trump, the national debt grew from $19.96 to $27.77 trillion, a 39.1% increase.
- As of March 1, 2023, the national debt has grown from $27.77 trillion to $34.351 trillion under President Joe Biden, a 23.70% increase.

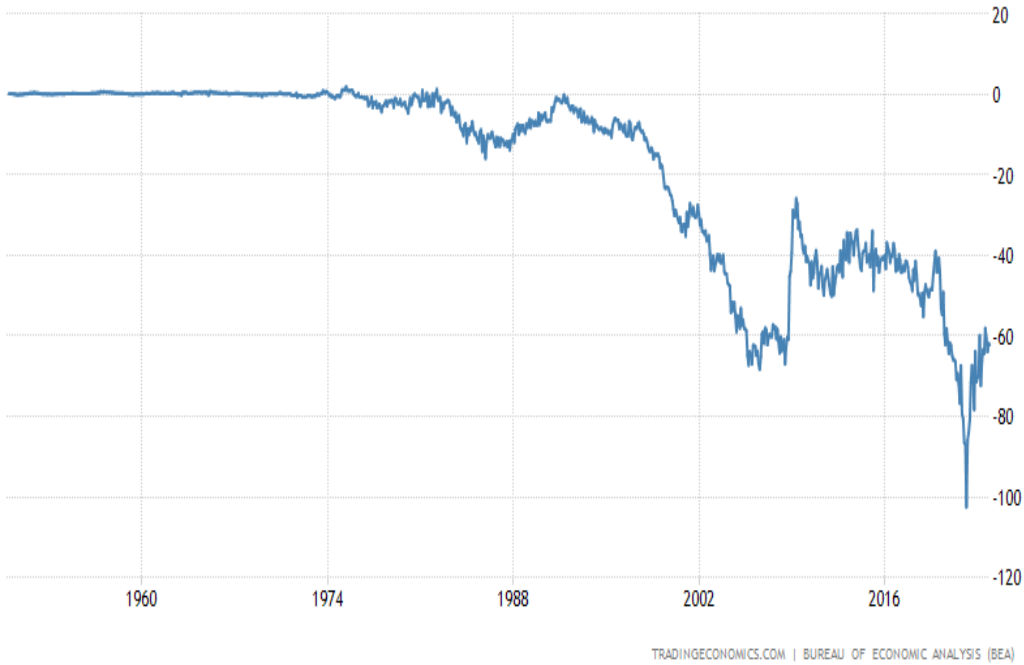
Source: Federal Debt: Total Public Debt (GFDEBTN), Federal Debt: Total Public Debt (GFDEBTN) | FRED | St. Louis Fed (stlouisfed.org) . Also, What is the US national debt and how has it grown over time? (usafacts.org). Further, U.S. National Debt Clock: Real Time (usdebtclock.org). In addition, Public debt U.S. by month 2023 | Statista

Table A4: Debt in Billions of Dollars and Debt to GDP Ratio

Debt (billion)			Debt to GDP Ratio
1978	$772	33%	Carter budgets and recession
1979	$827	32%	
1980	$908	32%	Volcker raised fed rate to 20%
1981	$998	31%	Reagan tax cut
1982	$1,142	34%	Reagan increased spending
1983	$1,377	37%	Jobless rate 10.8%
1984	$1,572	38%	Increased defense spending
1985	$1,823	41%	
1986	$2,125	46%	Reagan lowered taxes
1987	$2,350	48%	Market crash
1988	$2,602	50%	Fed raised rates
1989	$2,857	51%	S&L Crisis
1990	$3,233	54%	First Iraq War
1991	$3,665	58%	Recession
1992	$4,065	61%	
1993	$4,411	63%	Omnibus Budget Act
1994	$4,693	64%	Clinton budgets
1995	$4,974	64%	
1996	$5,225	64%	Welfare reform
1997	$5,413	63%	
1998	$5,526	60%	LTCM crisis and recession
1999	$5,656	58%	Glass-Steagall repealed
2000	$5,674	55%	Budget surplus
2001	$5,807	55%	9/11 attacks and EGTRRA
2002	$6,228	57%	War on Terror
2003	$6,783	59%	JGTRRA and Iraq War
2004	$7,379	60%	Iraq War
2005	$7,933	61%	Bankruptcy Act and Hurricane Katrina.
2006	$8,507	61%	Bernanke chaired Fed
2007	$9,008	62%	Bank crisis
2008	$10,025	68%	Bank bailout and QE
2009	$11,910	82%	Bailout cost $250B ARRA added $242B
2010	$13,562	90%	ARRA added $400B, payroll tax holiday ended, Obama Tax cuts, ACA, Simpson-Bowles
2011	$14,790	95%	Debt crisis, recession and tax cuts reduced revenue
2012	$16,066	99%	Fiscal cliff
2013	$16,738	99%	Sequester, government shutdown
2014	$17,824	101%	QE ended, debt ceiling crisis
2015	$18,151	100%	Oil prices fell
2016	$19,573	105%	Brexit
2017	$20,245	104%	Congress raised the debt ceiling
2018	$21,516	105%	Trump tax cuts

2019	$22,719	107%	Trade wars
2020	$27,748	129%	COVID-19 and 2020 recession
2021	$29,617	124%	COVID-19 and American Rescue Plan Act
2022	$30,824	123%	Inflation Reduction Act and student loan forgiveness
2023	$34,194	130%	Wars (Ukraine and Israel) and illegal immigrants

Source: US National Debt by Year (thebalancemoney.com)



Graph A5: U.S. Trade Balance 1970-2024

Note: External balance on goods and services (formerly resource balance) equals exports of goods and services minus imports of goods and services (previously nonfactor services). Data are in current U.S. dollars.

- U.S. trade balance for 2023 was **$-773.4B**, a 18**.69% decline** from 2022.
- U.S. trade balance for 2022 was **$-951.2B**, a 10**.39% increase** from 2021.
- U.S. trade balance for 2021 was **$-861.71B**, a **37.32% increase** from 2020.
- U.S. trade balance for 2020 was **$-627.50B**, a **8.42% increase** from 2019.
- U.S. trade balance for 2019 was **$-578.79B**, a **2.41% decline** from 2018.
- U.S. trade balance for 2018 was **$-593.08B**, a **10.5% increase** from 2017.

Source: U.S. Trade Balance 1970-2024 | MacroTrends and United States Balance of Trade (tradingeconomics.com) . Also, https://www.statista.com/statistics/220041/total-value-of-us-trade-balance-since-2000/