Monetary Policy Rules vs Discretion: Social Cost and Benefits

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«Ἐάν μή Κύριος οἰκοδομήσῃ οἶκον,
εἰς μάτην ἐκοπίασαν οἱ οἰκοδομοῦντες.
Ἐάν μή Κύριος φυλάξῃ πόλιν,
εἰς μάτην ἠγρύπνησεν ὁ φυλάσσων.»
Ψαλμός ρκς΄ 1-2

Abstract

In this article it is discussed the new monetary policy, the new instruments (monetary policy tools) that the Fed introduced after 2008 and 2020, the different monetary policy rules, and the social cost and benefits of this policy is measured. The first major Fed's changes were on 12/20/2008 by altering the fed funds market in a number of different ways: (1) Zero fed funds rate. (2) The Fed started paying interest on reserves held by the bank or on behalf of depository institutions at Reserve Banks, subject to regulations of the Board of Governors, effective October 1, 2011 and interest on the overnight reverse repurchase agreement in 2014. (3) The close to zero deposit rates. (4) The Fed abolished the required reserves by making them since March 26, 2020 zero. The social cost is very high with these "innovated" policies. This zero federal funds target rate monetary policy is against depositors (bail in cost) and taxpayers (bail out cost); it is an unfair public policy and an anti-social monetary policy; and at the same time it is a risky one because it has created enormous bubbles in the stock market and a creeping high inflation. The different monetary policy rules reveal the unjustifiable low policy target rates. The latest monetary policy combined with the loss of self-sufficiency, the outsourcing, the unfair international trade, the recent peculiar coronavirus pandemic, and the current divisions inside the country are generating many challenges and risks for the future, which will cause the social cost to exceed the social benefits.

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1. Introduction

«Οὐ σώζεται βασιλεύς διά πολλήν δύναμιν,
καί γίγας οὐ σωθήσεται ἐν πλήθει ἰσχύος αὐτοῦ.»
Ψαλμός 32, 16

Central banks, the most powerful establishments, as all the institutions and
international organizations, have very curious history, eccentric march, and
mysticism in their hidden "social" objectives. Monetary policy has passed many
different phases, revisions, and "improvements" since monetary authority's (Fed's)
creation in 1913,[2] and affects drastically depositors, borrowers, and taxpayers.
This Central Bank intended to serve as a formal "lender of last resort" to banks in
times of liquidity crises and panics, when depositors try to withdraw their money
faster than a bank could pay it out, as it happened many times in 19th century.[3] This
Act brought all banks in the United States under the authority of the Federal Reserve
(a quasi-governmental entity, actually a private bank) by creating the twelve (12)
regional Federal Reserve Banks,[4] which are supervised by the Federal Reserve
Board.[5] Of course, historically, the roles and functions of the Fed are given by the
Federal Reserve Act[6] and they are: (1) Market (Financial Market) Stabilization, (2)
Control of Money Supply, (3) Lender of Last Resort, (4) Supervisor of the Banking
System, and (5) Maintaining and Improving the Payment Mechanism.[7]

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[2] See, Kallianiotis (2017a). Also, see,
https://en.wikipedia.org/wiki/History_of_monetary_policy_in_the_United_States . Further,
https://www.federalreserveeducation.org/about-the-fed/history . Furthermore,
https://www.federalreserve.gov/monetarypolicy/historical-approaches-to-monetary-policy.htm .
In addition, https://www.clevelandfed.org/en/newsroom-and-events/speeches/sp-20140327-the-
federal-reserve-policy-approaches-then-and-now.aspx . And even more,
https://www.frbsf.org/education/teacher-resources/what-is-the-fed/history/
[3] Between 1863 and 1913, eight banking panics occurred in the money center of Manhattan. The
panics in 1884, 1890, 1899, 1901, and 1908 were confined to New York and nearby cities and states.
The panics in 1873, 1893, and 1907 spread throughout the nation. Regional panics also struck the
mid-western states of Illinois, Minnesota, and Wisconsin in 1896; the mid-Atlantic states of
Pennsylvania and Maryland in 1903; and Chicago in 1905. These crises disrupted or threatened to
disrupt the national banking and payments system. The Panic of 1907, was the shock that spurred
financial and political leaders to consider reforming the monetary system and eventually establish
the Federal Reserve. See, "Banking Panics of the Gilded Age",
https://www.federalreservehistory.org/essays/banking-panics-of-the-gilded-age
[4] See, The Federal Reserve Banks. https://en.wikipedia.org/wiki/Federal_Reserve_Bank
[5] See, The Federal Reserve Board.
https://en.wikipedia.org/wiki/Federal_Reserve_Board_of_Governors
[6] See, "Federal Reserve Act", https://www.federalreserve.gov/aboutthefed/fract.htm
[7] See, Kallianiotis (2017a).

This monetary authority of the U.S. has adopted a public policy, which is called the monetary policy.[8] It controls either the interest rate (federal funds rate, i_{FF}) payable for overnight or very short-term borrowing (borrowing by banks from each other to meet their short-term needs, the federal funds market) or the money supply (M^s, borrowing or non-borrowing reserves). These intermediate targets (i_{FF} and M^s) are used often as an attempt to reduce inflation or to contribute to maximum employment (since 1977), called the dual mandate[9] or to control the interest rate, to ensure price stability and general trust of the value and stability of the nation's currency. Also, to generate a stable real economic growth (to smooth the business cycle and offset economic shocks), a moderate long-term interest rate, an equilibrium in the current account, and a financial stability for our market.

The central bank, before October 1979, was targeting federal funds rate ($\bar{i}_{FF}$).

After that date, it started targeting the money supply directly (non-borrowed reserves, R^*). Later, after 1989, Fed targets the federal funds rate ($\bar{i}_{FF}$) and with this intermediate target rate, it influences all interest rates by expanding or contracting the monetary base (MB), which consists of currency (C) in circulation and banks' reserves (R) at the central bank, which affect the money supply (M^s). The primary tools of monetary policy that the central bank was using to affect the monetary base were open market operations (OMO), which are sales (OMS) and purchases (OMP) of government debt and later, mortgage-back securities, too, in the open market, or by changing the reserve requirements (R_R). Also, there are used the discount rate (i_{DR}), reserve requirements ratio (r_R), and margin requirements (r_m). If the central bank wishes to lower interest rates, it purchases government debt, thereby increasing the amount of cash in circulation or crediting banks' reserves; the R_1^s shifts to the right at R_2^s and i_{FF_1} falls to i_{FF_2}, Figure 1.

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[8] See, Monetary Policy. https://en.wikipedia.org/wiki/Monetary_policy
[9] See, "The Federal Reserve's Dual Mandate". https://www.chicagofed.org/research/dual-mandate/dual-mandate
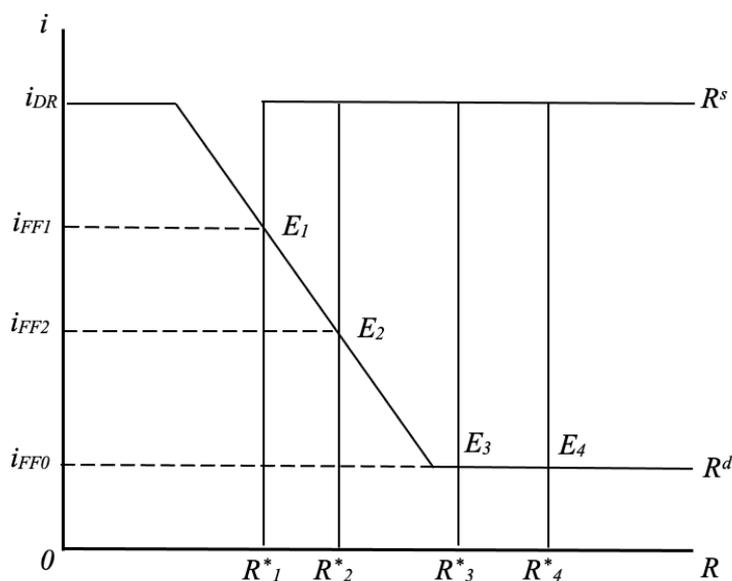
Figure 1: Monetary Policy with Limited Reserves and Federal Funds

Note: i = interest rates, i_{FF} = federal funds rate, i_{DR} = discount rate, R = reserves, R^d = demand for reserves, R^s = supply of reserves, E = equilibrium ($R^s = R^d$).

In the 1990s, central banks (Fed) began adopting formally, public inflation targets with the goal of making the outcomes, if not the process, of monetary policy more transparent. In other words, a central bank must have an inflation target of 2% for a given year. The Fed's target is based on the annual change in the overall, or "headline," PCE price index (Personal Consumption Expenditures inflation). Although the $FOMC$ did not explicitly name an inflation target until 2012. St. Louis Fed President James Bullard has argued that the U.S. had "an implicit inflation target of 2 percent after 1995".[10] In his presentation, Bullard noted that 2% became an international standard in the inflation targeting era that began in the 1990s.[11] In the 2016 version of the *Statement on Longer-Run Goals and Monetary Policy Strategy*,[12] the $FOMC$ clarified that its inflation target is symmetric (in other

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[10] See, Bullard (2018a). <u>presentation from Sept. 12, 2018</u>.

[11] See, Engemann (2019).

[12] "The Federal Open Market Committee (FOMC) is firmly committed to fulfilling its statutory mandate from the Congress of promoting maximum employment, stable prices, and moderate long-term interest rates. The Committee seeks to explain its monetary policy decisions to the public as clearly as possible. Such clarity facilitates well-informed decision-making by households and businesses, reduces economic and financial uncertainty, increases the effectiveness of monetary policy, and enhances transparency and accountability, which are essential in a democratic society." See, "Statement on Longer-Run Goals and Monetary Policy Strategy Adopted effective January 24, 2012; as amended effective January 26, 2016".
https://www.federalreserve.gov/monetarypolicy/files/FOMC_LongerRunGoals_20160126.pdf

words, it is not a floor or a ceiling). The $FOMC$ added: "The Committee would be concerned if inflation were running persistently above or below this objective." In August 2020, after undershooting its 2% inflation target for years, [13] the Fed announced it would be allowing inflation to temporarily rise higher, in order to target an average of 2% over the longer term. It is still unclear if this change will make much practical difference in monetary policy anytime soon. But, a zero interest rate and an enormous money supply how can keep inflation on 2% target? Other major Fed's changes took place on December 20, 2008, which altered the fed funds market in a number of astonishing ways: zero fed funds rate ($i_{FF} = 0.00\%$),[14] including the types of financial institutions that were trading, the rates at which they were borrowing and lending, and the new tools introduced by the $FOMC$ that could effectively influence these market rates. Last year on March 20, 2020, due to the suspicious Chinese coronavirus pandemic, which has been exploited so much by the liberal politicians, Fed went back to zero interest rate.[15] Because banks were overflowed with reserves, their desire to borrow effectively vanished, and bank -to-bank lending largely disappeared.[16]

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[13] But, in Summer 2020, the true unofficial inflation was about 10% p.a. and in December 2020, it fell to 8%. In June 2021, had risen to 13%. See, *SGS*, http://www.shadowstats.com/alternate_data/inflation-charts. See, also, https://ycharts.com/indicators/us_inflation_rate

[14] See, "Federal Funds Target Range", https://fred.stlouisfed.org/series/DFEDTARU

[15] The Federal Reserve left the target range for its federal funds rate unchanged at 0%-0.25%, as expected. Policymakers reiterated they are committed to using a full range of tools to support the U.S. economy in this challenging time. The so-called dot plot of funds rate projections showed rates are expected to remain at current levels through 2022 (another "expert", Bill Gates, said that the pandemic will be over in 2022). (*Sic*). The CDC is talking about a new Delta variant in Fall 2021, which is already here, to force vaccination and political control on all people and on children. The Fed also said it will continue to increase its bond holdings, targeting Treasury purchases at $80 billion a month and mortgage-backed securities at $40 billion. https://tradingeconomics.com/united-states/interest-rate . Further, the official unemployment with October 2020 was 6.9%, with February 2021, it was 6.2%, and with June 2021, it was 5.9%. The SGS gives the following values: May 2020 ShadowStats Alternate Unemployment was 34.0%, 36.5% net of BLS errors (Flash Nos. 1435 and 1439). In November 2020, the unemployment was 26.3% and in June 2021, it was u = 25.8%. http://www.shadowstats.com/alternate_data/unemployment-charts.
The Consumer inflation- Official was 0.55% with October 2020 and 1.7% with February 2021vs ShadowStats (1080-Based) Alternative, which was 8% with May 2020 and the same it was in October 2020, 8%; but, in February 2021, it was 9% and in June it became 13%. http://www.shadowstats.com/alternate_data/inflation-charts . See also, US Unemployment. https://www.deptofnumbers.com/unemployment/us/#:~:text=US%20Unemployed.%20The%20number%20of%20people%20unemployed%20in,of%20unemployed%20has%20now%20grown%20again%20by%200. Why would anyone trust officials again and especially the current liberal-globalists, which their life is a big lie?

[16] See, Key Features of the Federal Funds Market, *Liberty Street Economics*, https://libertystreeteconomics.newyorkfed.org/2018/07/size-is-not-all-distribution-of-bank-reserves-and-fed-funds-dynamics/comments/.

However, once the Fed started paying interest on reserves[17] to some (but not all) financial institutions, a new lending opportunity emerged. This Fed's "innovation" (paying interest of reserves, a bail out cost for the taxpayers) has kept the deposit rate closed to zero ($i_D = 0.05\%$) for twelve years[18] and because we are living in a free market economic system, banks charge an unethical (usurious) interest rate on credit cards up to 39.99%; a spread between deposit rate and credit card rate of 39.94%.

The latest "innovation" of the Fed came last year. It considered the required reserves as non-necessary monetary instrument and made them since March 26, 2020 zero ($R_R = 0$); the federal funds rate zero ($i_{FF} = 0.00\%$),[19] and the effective federal funds rate with May 2020 was $i_{FF}^{eff} = 0.05\%$; the discount rate was ($i_{DR} = 0.25\%$).[20] This means that it abandoned the reserve requirement ratio ($r_R = 0.00\%$), as a monetary policy tool.[21] This is a new major bank deregulation, which is very risky for the financial institutions and the economy, due to enormous liquidity. The Fed has substituted the required reserves with the excess reserves by supplying them in trillions of dollars, $R_E = \$3.218$ trillion (May 2020). The total reserves were \$3.035 trillion with November 2020 and reached \$3.872 trillion in June 22, 2021.[22] The interest on reserves that Fed is paying to the banks is now (June 18, 2021),

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[17] The Financial Services Regulatory Relief Act of 2006 authorized the Federal Reserve Banks to pay interest on balances held by or on behalf of depository institutions 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.

[18] See, https://www.valuepenguin.com/banking/average-bank-interest-rates

[19] Global and U.S. bank stocks fell on Thursday (6/11/2020); DJIA lost 1,861.82 points (-6.9%) to 25,128.17, a day after Fed officials indicated they had no plans to raise interest rates over the next two years. Shares of JPMorgan Chase JPM -8.34% & Co., Bank of America Corp. and Wells Fargo WFC -9.83% & Co. and Citigroup Inc. C -13.37% fell between 5% and 7%. Fed officials indicated that short-term rates would likely remain near zero through 2022, citing the coronavirus pandemic's potential to do long-term damage to the U.S. economy and a yearlong labor-market recovery. "We're not thinking about raising rates. We're not even thinking about   raising rates," said Fed Chairman Jerome Powell. See, "Bank Stocks Fall After Fed Projects No Rate Increases", https://www.wsj.com/articles/bank-stocks-fall-after-fed-projects-no-rate-increases-11591891477?mod=md_usstk_news . The DJIA continues to rise. It reached 34,996.18 (7/12/2021) and a week later (7/19/2021), it fell to 33,962.04. On July 23, 2021, it was 35,061.55. See, *Yahoo/ Finance.*

[20] The discount rate was ($i_{DR} = 0.25\%$). Updated: July 19, 2021.

See, https://fred.stlouisfed.org/series/INTDSRUSM193N

[21] See, "Fed sets 0% reserve requirement ratio, urges banks to use capital, liquidity buffers to bolster lending in face of coronavirus". https://www.regreport.info/2020/03/15/fed-sets-0-reserve-requirement-ratio-urges-banks-to-use-capital-liquidity-buffers-to-bolster-lending-in-face-of-coronavirus/ . The reserve requirements started on December 23, 1913 and were abolished on March 26, 2020. See also,

https://www.federalreserve.gov/newsevents/pressreleases/monetary20200315b.htm

[22] Total Reserves of Depository Institutions. See, https://fred.stlouisfed.org/series/TOTRESNS

$(i_{IOR} = 0.15\%)$.[23] The 3-month T-Bill rate (6/9/2020) was $i_{RF} = 0.19\%$ and in the secondary market, $i_{RF} = 0.10\%$; in November 2020, it became $i_{RF} = 0.09\%$; and in March 2021, it was $i_{RF} = 0.04\%$;[24] on July 14, 2021, it was $i_{RF} = 0.06\%$ and 0.05% in the secondary market;[25] money is free, due to its excess supply.[26] But is this monetary policy effective, fair, ethical, and riskless? What are the social benefits of this policy? The first perspective of required reserves concerns risk. Is the zero reserve requirement ratio riskless? The reason banks hold reserves is to have enough liquidity, in case that synchronization[27] fails. If synchronization exists, the bank does not need to hold a lot in reserves; it can take the money that someone has deposited and give it to the other person, when he comes in to make a withdrawal. This allows the bank to devote the bulk of its funds to long-term investments that pay high rates in interest.

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[23] Interest rate on excess reserves was ($i_{IOR} = 0.10\%$) with March 19, 2021 and became 0.15% with July 2021.
See, https://fred.stlouisfed.org/series/IOER
[24] See, 3-month Treasury Bills-Secondary Market.
http://economagic.com/em-cgi/data.exe/fedbog/tbsm3m
[25] See, https://www.treasury.gov/resource-center/data-chart-center/interest-rates/Pages/TextView.aspx?data=billrates and https://fred.stlouisfed.org/series/DTB3
[26] With June 1, 2020, the M2 was $18.153 trillion, with November 23, it became $19.121 trillion, with February 23, 2021, it was $19.414 trillion, with March 25, 2021, it had reached $19.670 trillion and with June 22, 2921, it was $20.278 trillion. With 2020:Q1, the GDP was $18.975 trillion, with 2020:Q3, it was $18.584 trillion, with 2020:Q4, it was $21.49 trillion, with 2021:Q1, it was $22.675 trillion and with 2021:Q2 it was $22.72 trillion. (*Economagic.com*)
and https://www.bea.gov/news/2021/gross-domestic-product-fourth-quarter-and-year-2020-second-estimate . Also, https://www.bea.gov/news/2021/gross-domestic-product-second-quarter-2021-advance-estimate-and-annual-update
[27] Synchronization means that on a given day, people are depositing about as much money as they are withdrawing.

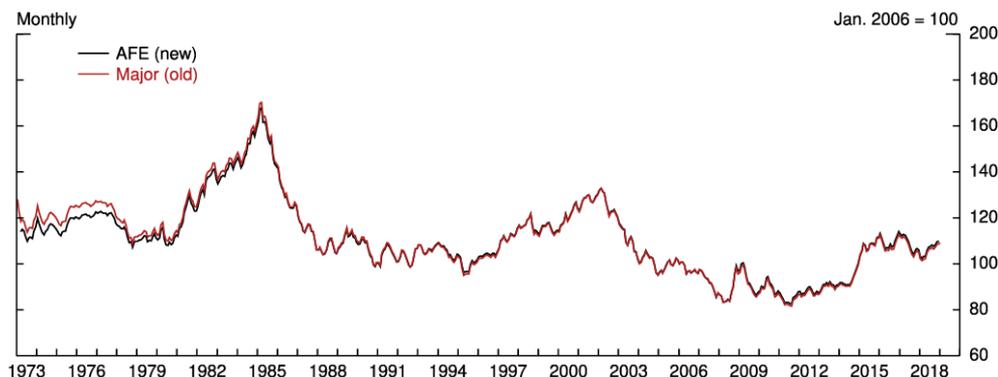## 2. Fed's Objectives, Tools, and Discretion vs Rules

«Ἔκκλινον ἀπό κακοῦ καί ποίησον ἀγαθόν
καί κατασκήνου εἰς αἰῶνα αἰῶνος.»
Ψαλμός 36, 27

The objectives of the Fed are: (1) Price stability by maintaining a sustained low inflation rate ($\pi \leq 2\%$).   (2) Maximum employment (but not full employment, $u \cong u^N$). These two goals of price stability and maximum sustainable employment are known collectively as the "dual mandate".[28]
(3) A Stable real economy, maximum sustained output ($\bar{g}_{GDP}$). (4) Stability of financial markets. (5) Moderate long-term interest rate ($\bar{i}_{L-T}$). (6) Equilibrium in the Balance of Payment ($CA \cong 0$) and stability of the foreign exchange rate ($\bar{e}$). Then, the Fed with its monetary policy is expected to smooth the business cycle and offset shocks to the economy. The best could have been, if it was possible to prevent financial and economic crisis; but this is beyond the abilities of any public policy in our complex and interdependent economy. Are the goals of maximum employment, stable prices, moderate interest rates and financial stability compatible with one another? Many people believe that they are not in concordance. Conventional wisdom holds that if monetary policy is too focused on controlling inflation; then, employment and output growth will likely fall below their potential, but financial markets will be more stable than they otherwise could be, due to liquidity control. Lately, we see very few (only one) of these objectives to be satisfied, even with the new monetary policy tools.

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[28] The Federal Reserve's Federal Open Market Committee (FOMC) has translated these broad concepts into specific longer-run goals and strategies. (i) Price stability: Inflation at the rate of 2%, as measured by the annual change in the Price Index for Personal Consumption Expenditures (PCE), is most consistent over the longer run with the Federal Reserve's statutory mandate. (ii) Maximum sustainable employment: Many nonmonetary factors affect the structure and dynamics of the labor market, and these may change over time and may not be measurable directly. Accordingly, specifying an explicit goal for employment is not appropriate. Instead, the Committee's decisions must be informed by a wide range of labor market indicators. Information about FOMC participants' estimates of the longer-run normal rate of unemployment consistent with the employment mandate can be found in the Summary of Economic Projections (SEP). Most recently, the median Committee participant estimated this rate to be 4.1%. See, "The Federal Reserve's Dual Mandate", https://www.chicagofed.org/research/dual-mandate/dual-mandate

Inflation is going up,[29] unemployment is high,[30] production very low,[31] financial markets very unstable with the creation of an enormous bubble,[32] huge trade deficits[33] and depreciation of the dollar, Graph 1. There is one objective that it is satisfied; the long-term interest rate, which is still low.[34]

Graph 1: Nominal AFE Dollar Indexes (FC/$)

Note: --- AFE (new)
    --- Major (old)
Source: https://www.federalreserve.gov/econres/notes/feds-notes/revisions-to-the-federal-reserve-dollar-indexes-20190115.htm

Banks hold currency (vault cash) and reserves (required reserves, R_R, and excess reserves, R_E). The Fed supplies reserves into the banking system through open

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[29] In May 2021, the official $\pi = 5\%$,. https://www.usinflationcalculator.com/inflation/current-inflation-rates/ .The SGS inflation was $\pi = 13\%$,
http://www.shadowstats.com/alternate_data/inflation-charts
[30] In May, the official u = 5.8%, https://tradingeconomics.com/united-states/unemployment-rate .
The SGS was u = 26%, http://www.shadowstats.com/alternate_data/unemployment-charts
[31] With 2021:Q1, the real GDP was $19,09 trillion and with 2021:Q2, it was $22.72 trillion. https://fred.stlouisfed.org/series/GDPC1 This growth was 6.3% in the 1st quarter and 6.5% in the 2nd quarter of 2021. https://tradingeconomics.com/united-states/gdp-growth . The real GDP and its L-T trend appear in Figure 2.
[32] The DJIA from 6,547.05 (3/9/2009) reached 34,777.76 (5/7/2021); a growth of 28,230.71 points or 431.20% (35.43% p.a.). See, Yahoo/Finance.
[33] In 2018, TA= -$878.749 billion; in 2019, TA= -861.514 billion; in 2020, TA= - 922.026 billion. See, https://www.bea.gov/sites/default/files/2021-06/trans121-annual-hist.pdf
[34] Daily Treasury Yield Curve Rates (06/24/2021):
$i_{1M} = 0.05\%$, $i_{2M} = 0.05\%$, $i_{3M} = 0.05\%$, $i_{6M} = 0.05\%$, $i_{1Y} = 0.08\%$, $i_{2Y} = 0.26\%$, $i_{3Y} = 0.48\%$, $i_{5Y} = 0.90\%$,
$i_{7Y} = 1.26\%$, $i_{10Y} = 1.49\%$, $i_{20Y} = 2.03\%$, $i_{30Y} = 2.10\%$,
See, https://www.treasury.gov/resource-center/data-chart-center/interest-rates/pages/textview.aspx?data=yield
Mortgage rates: $i_{30YM} = 2.849\%$ and $i_{15YM} = 2.134\%$.
See, https://www.nerdwallet.com/mortgages/mortgage-rates . See, Kallianiotis (2021a).

market operations (non-borrowing reserves, R^*) by purchasing securities in the open market (primary dealers) or by making loans (borrowing reserves, R_B) through the discount window. An open market purchase (OMP) leads to an expansion of reserves in the banking system and increases domestic credit (DC) in Fed's Balance Sheet.[35] An open market sale (OMS) leads to a contraction of reserves in the banking system and reduction in domestic credit. Banks' reserves are increasing when they borrow from Fed's discount window (borrowed reserves, R_B) by paying an interest rate (the discount rate, i_{DR}). This discount loan leads to an expansion of reserves and increases liquidity in the banking system. The opposite effects take place, when the bank repays the discount loan.

Now, proposals for policy rules are largely based on empirical research using economic models.[36] These models demonstrate the advantages of a-systematic approach to monetary policy and the proposed rules have changed and improved over time. Rules' objective is to help central bankers formulate monetary policy as they operate in domestic financial markets, institutions, and the economy. However, the line of demarcation between rules and discretion is difficult to establish in practice, which makes comparison of the two approaches difficult. Historically, research on policy rules has had an impact on the practice of central banking and its efficiency. Economic research also shows that monetary policy has not been enough to prevent swings away from rules-based policy and smooth the business cycle. Then, policy rules can improve effectiveness of monetary policy.
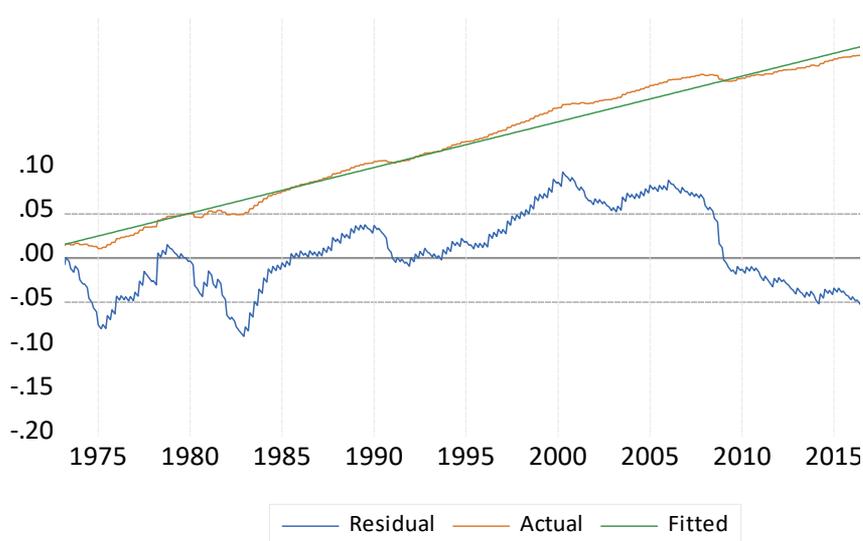

Figure 2: The Real GDP and its L-T Trend

Note: Actual = LUSRGDP2012, Fitted = L-T trend.
Source: *Economagic.com*

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[35] See, "Factors Affecting Reserve Balances of Depository Institutions",
https://www.federalreserve.gov/releases/h41/current/h41.htm
[36] See, Taylor (1993), Bullard (2018a and b), and Kallianiotis (2019c).

"In contrast, in the case of more discretionary policy making, decisions are less predictable and more ad hoc, and they tend to focus on short-term fine-tuning. Policymakers show little interest in coming to agreement about an overall contingency strategy for setting the instruments of policy, and the historical paths for the instruments are not well described by stable algebraic relationships."[37] In reality, rules or strategies are simply ways to help central bankers improve monetary policy as they operate and communicate with markets, citizens, and all the sectors of the economy in a democracy, and interact in a global monetary system. Experience, over time, shows that rules do improve financial stability and economic performance and thereby, improve people's lives (citizens' welfare).

In the U. S., where Congress has responsibility under the Constitution, the value of considering some legislation that would enhance reporting and discussions with Congress and the public about the strategy of monetary policy of the private central bank is necessary. A debate between rules and discretion will be helpful for the policy makers, too. The economic research has shown that it is important the U.S. monetary policy and the international monetary system must have a rules-based strategy, but it is difficult to be imposed. A rational discussion and more empirical work can contribute to the improvement of monetary policy through rules, which can move us onward to the goal of a better performing and fairer economy.

2.1   Open Market Operations

Open market operations (OMOs) [38] are the purchase and sale of securities (government bonds, agency bonds, and mortgage-back securities) in the open market by the central bank. The OMO is a key tool used by the Federal Reserve, daily, in the implementation of monetary policy. The short-term objective for OMO is specified by the Federal Open Market Committee (FOMC).[39] Before the global financial crisis in 2008, the Federal Reserve used OMOs to adjust the supply of reserve balances and to keep the federal funds rate (i_{FF}) around the target ($0.00\% - 0.25\%$ from December 16, 2008 to December 16, 2015 and from March 16, 2020 to present)[40] established by the FOMC.

The open market operations and the discount lending affect the federal funds rate by injecting reserves into the banking system; thereby changing the supply of reserves (R^s). The reserve requirements (R_R) were affecting the federal funds rate by changing the demand for reserves (R^d). The federal funds rate is affecting the interest rate paid on reserves. An open market purchase (OMP) leads to a greater quantity of reserves supplied and shifts the R^s curve from point E₁ to the right to

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[37] See, Taylor (2017).
[38] See, "Open market operations (OMOs)".
https://www.federalreserve.gov/monetarypolicy/openmarket.htm
[39] See, Federal Open Market Committee (FOMC),
https://www.federalreserve.gov/monetarypolicy/fomc.htm
[40] See, FOMC's target federal funds rate or range, change (basis points) and level.
https://www.federalreserve.gov/monetarypolicy/openmarket.htm

point E_2, Figure 1. The amount of non-borrowed reserves increases to R_2^* and the i_{FF_1} falls to i_{FF_2}. An open market sale (OMS) decreases the quantity of non-borrowed reserves supplied and the supply curve shifts to the left and the i_{FF} increases, Figure 1.

$$OMP \Rightarrow Securities \uparrow \Rightarrow R^* \uparrow \Rightarrow R^s \uparrow \Rightarrow i_{FF} \downarrow$$

$$OMS \Rightarrow Securities \downarrow \Rightarrow R^* \downarrow \Rightarrow R^s \downarrow \Rightarrow i_{FF} \uparrow$$

In a repurchase agreement (repo),[41] the Fed purchases Treasury securities with an agreement that the seller will repurchase them in a short period (from 1 to 15 days). Thus, the repo is a temporary OMP and is used for a defensive OMP, which will be reversed in a few days. When the Fed wants to conduct a temporary OMS, it engages in a reverse repurchase agreement (matched sale-purchase transaction), in which the Fed sells securities and the buyer agrees to sell them back to the Fed in a short period.

2.2   The Discount Window and Discount Rate

Federal Reserve lending to depository institutions (the "discount window") plays an important role in supporting the liquidity and stability of the banking system and contributes to the effective implementation of monetary policy. By providing ready access to funding, the discount window helps depository institutions manage their liquidity risks efficiently and avoid actions that have negative consequences for their customers, such as withdrawing their deposits and supplying credit during times of market stress. Thus, the discount window supports the smooth flow of credit to households and businesses. The discount rate (i_{DR})[42] is the interest rate charged to commercial banks and other depository institutions on loans they receive from their regional Federal Reserve Bank's lending facility, the discount window. All discount window loans are fully secured. Lately, with this enormous liquidity

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[41] See, "Repurchase Agreement Operational Details",
https://www.newyorkfed.org/markets/domestic-market-operations/monetary-policy-implementation/repo-reverse-repo-agreements/repurchase-agreement-operational-details .
See also, "Repo and Reverse Repo Agreements",
https://www.newyorkfed.org/markets/domestic-market-operations/monetary-policy-implementation/repo-reverse-repo-agreements

[42] See, "Discount Rate",
https://www.investopedia.com/terms/d/discountrate.asp#:~:text=While%20the%20discount%20rates%20for%20the%20first%20two,based%20on%20the%20prevailing%20rates%20in%20the%20market. Now, it is $i_{DR} = 0.25\%$. See, https://www.nasdaq.com/market-activity/fixed-income/disc/historical . See also, https://www.bankrate.com/rates/interest-rates/federal-discount-rate.aspx . The 3-month T-Bill rate was $i_{RF} = 0.08\%$ and lately, it became $i_{RF} = 0.04\%$. See,
https://ycharts.com/indicators/3_month_t_bill .
Then, $i_{DR} = i_{RF} + 0.20\% \cong 0.08\% + 0.20\% \cong 0.25\%$ or
$i_{DR} = i_{RF} + 0.20\% \cong 0.04\% + 0.20\% \cong 0.25\%$. See, current discount rate,
https://www.frbdiscountwindow.org/pages/discount-rates/current-discount-rates

by the Fed, which supplies non-borrowed reserves (R^*), point E_4, Figure 1, there is no need for borrowing from the discount window, there is free money ($i_{FF}^{eff} = 0.08\%$).[43]

The discount rate was 1% above the target federal funds rate ($i_{DR} = \bar{i}_{FF} + 1\%$); but due to the global financial crisis in 2007, the Fed lowered the i_{DR} to 0.50% above the federal funds rate ($i_{DR} = \bar{i}_{FF} + 0.50\%$) and in March 2008, it was reduced to 0.25% above the federal funds rate that it is today: $i_{DR} = \bar{i}_{FF} + 0.25\% = 0.00\% + 0.25\% = 0.25\%$. The use of the discount window was limited because it had a stigma on the banks that they are in trouble and have to borrow from the Fed. But, banks should use the discount window without making this action a public knowledge.[44]

Of course, the Fed was using the discount window to influence the amount of reserves (R_R) and also to prevent financial panics. But, this facility increases the social cost because banks are willing to take on more risk knowing that the Fed (and the FDIC) will come to their rescue. Hence, banks take on more risk, as it happened before 2008, and exposed taxpayers to enormous losses by bailing them out. This moral hazard problem is a serious social and ethical problem of our unregulated and corrupted banks and it is related to the "too big to fail" philosophy.

2.3   Reserve Requirements

The Federal Reserve Act[45] authorizes the Board to establish reserve requirements (R_R) within specified ranges for purposes of implementing monetary policy on certain types of deposits and other liabilities of depository institutions.[46] For many years, reserve requirements played a central role in the implementation of monetary policy by creating a stable demand for reserves. In January 2019, the FOMC announced its intention to implement monetary policy in an ample reserves regime. As announced on March 15, 2020,[47] the Board reduced reserve requirement ratios (r_R) to zero percent effective March 26, 2020. This action eliminated reserve requirements ($R_R = 0$) for all depository institutions and increased their riskiness.

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[43] See, "Effective Federal Funds Rate",   https://fred.stlouisfed.org/series/FEDFUNDS

[44] «Τά ἐν οἴκῳ μή ἐν δήμῳ.», discretion and discernment.

[45] See, Federal Reserve Act. https://www.federalreserve.gov/aboutthefed/fract.htm

[46] The reserve requirements (reserve requirement ratio) were: Net transaction accounts from $0 to $10.3 million, $r_R = 0\%$; more than $10.3 million to $44.4 million, $r_R = 3\%$; and more than $44.4 million, $r_R = 10\%$. Since March 26, 2020, the $r_R = 0\%$. See, "Reserve Requirements", https://www.educba.com/reserve-requirements/. In some countries, in 1970s, there were reserve requirements on loans to importers, too. These reserves were increasing the cost of borrowing and discouraged imports, which was a trade policy for the country and was improving the trade account. In those days, public policies were national; lately, they became global, anti-national.

[47] See, Federal Reserve Actions to Support the Flow of Credit to Households and Businesses, https://www.federalreserve.gov/newsevents/pressreleases/monetary20200315b.htm

2.4   Interest on Required and Excess Reserve Balances

The Federal Reserve Bank pays interest on required reserve balances and on excess reserve balances (IOR).[48] The Financial Services Regulatory Relief Act of 2006[49] authorized the Federal Reserve Banks to pay interest on balances held by or on behalf of depository institutions 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.[50]

The cost of holding reserves is their opportunity cost, the interest rate that could have been earned on lending these reserves out to business and individual borrowers. But, after 2008 and up to now, banks are receiving interest on their reserve balances; this IOR is:

$$IOR = R_T \ i_{IOR} \tag{1}$$

The supply of reserves (R^s) can be broken into two components, the amount of reserves supplying by the Fed's open market operations, non-borrowed reserves (R^*) and the amount of reserves borrowed from the Fed, borrowed reserves (R_B), eq. (2). The cost of borrowing from the Fed is the discount rate (i_{DR}). If the $i_{FF} < i_{DR}$, banks will not borrow from the Fed's discount window and $R_B = 0$; they will borrow from the federal funds market. Then, $R^s = R^*$.

$$R^s = R^* + R_B \tag{2}$$

If the federal funds rate (i_{FF_0}) is at the level of the flat demand for reserves (R^d), equilibrium point E_3, open market operations have no effect on the federal funds rate; from E_3, it goes to E_4 and the federal funds rate stays at i_{FF_0}, Figure 1. This is a floor for the federal funds rate, as it is now ($i_{FF} = 0\%$). There is only an increase in reserves (R), which raises the monetary base (MB) and through the money multiplier (m_M) increases the money supply (M^s); contributing enormous liquidity in the economy, bubbles in the stock market, and high inflation expectations. The risk is going up in the financial market because the bubble can very easily burst.

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[48] The Fed's interest on reserves was, $i_{IOR} = 0.10\%$ since 3/16/2020. Now, since 6/17/2021, it is $i_{IOR} = 0.15\%$. See, https://www.federalreserve.gov/monetarypolicy/reqresbalances.htm

[49] See, FINANCIAL SERVICES REGULATORY RELIEF ACT OF 2006, https://www.congress.gov/109/plaws/publ351/PLAW-109publ351.pdf

[50] DIVISION A - EMERGENCY ECONOMIC STABILIZATION, https://www.congress.gov/110/plaws/publ343/PLAW-110publ343.pdf

$$R^d \, flat \, \sec tion \Rightarrow OMP \Rightarrow Securities \uparrow \Rightarrow R^* \uparrow \Rightarrow R_3^* \Rightarrow R_4^* \Rightarrow i_{FF_0} \, (cons \tan t)$$

When the Fed reduces or increases the discount rate, but $i_{DR} > i_{FF}$, there are no effects on the federal funds rate and no effect on the reserves. Now, in case that a reduction of the discount rate takes place and $i_{DR} = i_{FF}$, the supply of reserves will fall ($R^s \downarrow$) and the borrowed reserves increase ($R_B \uparrow$).

$$i_{DR} \downarrow \Rightarrow Q_{R_B}^d \uparrow \Rightarrow R^d \uparrow \Rightarrow R \uparrow \Rightarrow MB \uparrow \Rightarrow M^s \uparrow$$

When the required reserve ratio (r_R) increases, required reserves (R_R) increase, and the quantities of reserves demanded (Q_R^d) increases and the federal funds rate (i_{FF}) increases. The opposite if r_R falls.

$$r_R \uparrow \Rightarrow R_R \uparrow \Rightarrow Q_R^d \uparrow \Rightarrow i_{FF} \uparrow$$

2.5   Overnight Reverse Repurchase Agreement Facility

In the Policy Normalization Principles and Plans[51] announced on September 17, 2014, the Federal Open Market Committee ($FOMC$) indicated that it intended to use an overnight reverse repurchase agreement ($ON\,RRP$) facility if needed, as a supplementary policy tool to help control the federal funds rate and keep it in the target range set by the $FOMC$. The Committee stated that it would use an $ON\,RRP$ facility only to the extent that it will be necessary and will phase it out when it is no longer needed to help control the funds rate. When the Federal Reserve conducts an overnight RRP, it sells a security to an eligible counterparty and simultaneously agrees to buy the security back the next day. The Federal Reserve currently conducts $ON\,RRP$ operations with many counterparties, covering a wide range of entities,[52] as it is discussed below and it is shown in Figure 3.

2.6   Margin Requirements

Under Regulation T, a security can generally be classified as belonging to one of three categories: (1) margin, (2) non-margin, and (3) exempted security. U.S. broker-dealers are prohibited from extending credit against non-margin securities, unless the loan is a non-purpose loan, that is, for a purpose other than buying,

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[51] See, "FOMC Communications Related to Policy Normalization". On October 11, 2019, the FOMC released a statement that outlined its plans to ensure that the level of reserves in the banking system remains ample. https://www.federalreserve.gov/monetarypolicy/policy-normalization.htm
[52] See, "Reverse Repo Counterparties".
https://www.newyorkfed.org/markets/rrp_counterparties.html

carrying, or trading in securities (see, section 220.6(e) of Regulation T).[53] Broker-dealers may extend purpose credit against margin and exempted securities. Exempted securities are defined in section 3(a)(12) of the Act to include government and municipal securities. Also, broker-dealers may extend up to 50% loan value against margin equity securities.[54] Further, broker dealers may extend "good faith" credit against debt and exempted securities. Margin requirements (r_m) are listed in section 220.12 of Regulation T. The $r_m = 50\%$ since 1974.[55] Then, it is an ineffective tool because it is not in use. This low margin requirement generates an artificial high demand for financial assets and is contributing enormously to the financial bubble, to the financial market risk, and to enormous bail out cost for saving banks' during a financial crisis. (Sic).

2.7   New Monetary Policy Instruments

Before 2007, the Fed implemented monetary policy with *limited 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* and relies on interest on reserves (*IOR*).

$$FOMC \Rightarrow sets \Rightarrow \bar{i}_{FF_t} \Rightarrow implementation\,regime \Rightarrow i_{S-T_t}\,and\,i_{S-T_{t+1}}^e \Rightarrow i_{L-T_t} \Rightarrow$$
$$and\,financial\,conditions \Rightarrow C\,and\,I \Rightarrow Q \Rightarrow u^N\,and\,\overline{P}$$

Banks held reserves to meet the Fed's regulatory reserve requirements (R_R) and some excess reserves (R_E) to meet the banking demands of their customers.[56] The interest on reserves ($R_R + R_E = R_T^d$) was zero ($i_{IOR} = 0$). When banks needed extra

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[53] Regulation T is a collection of provisions that govern investors' cash accounts and the amount of credit that brokerage firms and dealers may extend to customers for the purchase of <u>securities</u>. According to Regulation T, an investor may borrow up to 50% of the purchase price of securities that can be bought using a loan from a <u>broker</u> or dealer. The remaining 50% of the price must be funded with cash. See,
<u>https://web.archive.org/web/20170710145033/https://www.ecfr.gov/cgi-bin/text-idx?SID=b2233140b41b2612baec30f988b8357c&mc=true&node=se12.3.220_112&rgn=div8</u>   .
Also see,
<u>https://web.archive.org/web/20180621064548/https://www.ecfr.gov/cgi-bin/text-idx?tpl=%2Fecfrbrowse%2FTitle12%2F12cfr220_main_02.tpl</u>
And <u>https://www.investopedia.com/terms/r/regulationt.asp</u> , Further, Margin Requirements,
<u>https://www.firstrade.com/content/en-us/education/margin/marginrequirements/</u>
[54] See,
<u>https://www.federalreserve.gov/supervisionreg/legalinterpretations/margin_requirements20080305</u>
<u>.pdf</u> . See also, <u>https://www.finra.org/rules-guidance/key-topics/margin-accounts#overview</u> . In addition, <u>https://www.federalreserve.gov/supervisionreg/reglisting.htm</u>
[55] The Federal Reserve's margin requirements for purchasing equities with borrowed funds has been at 50% since 1974. See. <u>https://www.frbsf.org/economic-research/publications/economic-letter/2000/march/margin-requirements-as-a-policy-tool/</u>
[56] See, Kallianiotis (2017a).

reserves to meet their demands, they were borrowing these reserves from the federal funds market. If banks had excess reserves, they could lend them in the federal funds market at the i_{FF}^{eff}. The demand and supply of reserves are depicted in Figure 1. To raise the i_{FF}, the Fed decreases the supply of reserves (R_1^s) by selling U.S. Treasury securities in the open market. To lower the i_{FF}, the Fed increases the supply of reserves (R_2^s) by buying government securities in the open market.

Banks were before minimizing their holdings of excess reserves because $i_{IOER} = 0$. Now, 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 ($R_R = 0$).[57] Then, *IORR* was made effectiveness irrelevant. The Fed shifted to an ample-reserves framework and reserve requirements are not anymore a tool of monetary policy. Thus, now, we have only *IOR* (i_{IOR}). The reserves are still remained "ample",[58] Figure 3.

When there is a large quantity of reserves in the banking system, as it is lately, Figure 3, the Fed can no longer influence the i_{FF} by making small changes in the supply of reserves (R^s). Why we need all these non-borrowing reserves (R^*)? What is the reason of this enormous liquidity with the economy lockdown, an enormous demand for imports,[59] and a very anemic *AD*? The double digit inflation is already, here. How we will control the bubble in the financial market? The market manipulators will start taking advantage of this situation.

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[57] See, "Reserve Requirements", https://www.federalreserve.gov/monetarypolicy/reservereq.htm

[58] 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, and on March 23, 2021 became $3.346 trillion. https://fred.stlouisfed.org/series/TOTRESNS

[59] See, "United States Imports", https://tradingeconomics.com/united-states/imports . See also, "List of imports of the United States",

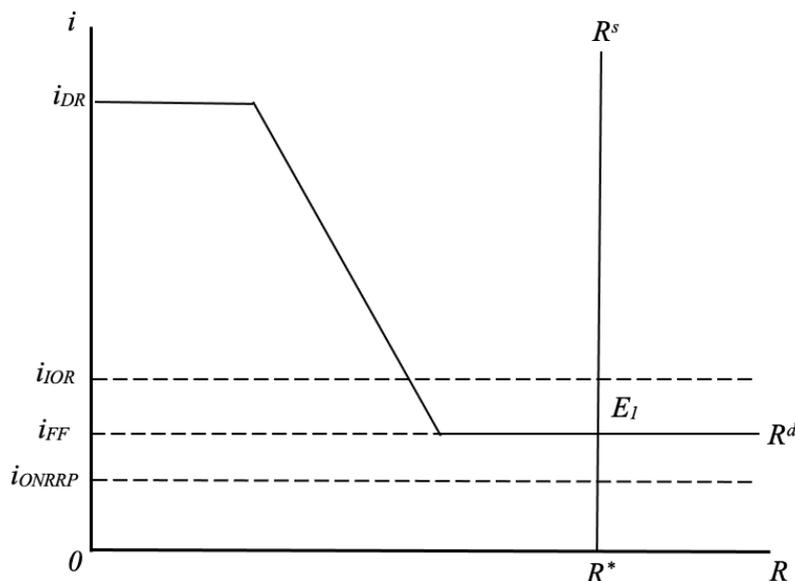https://en.wikipedia.org/wiki/List_of_imports_of_the_United_States . Further see, "What Are the Top 10 U.S. Imports?", https://traderiskguaranty.com/trgpeak/what-are-the-top-10-u-s-imports/

Figure 3: Monetary Policy with Ample Reserves

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

The Fed is using, now, its administered rates (i_{IOR} and i_{ONRRP}) to influence the i_{FF} The demand curve (R^d) turns flat between the new administered rates at point E_1, Figure 3, which helps to keep the i_{FF} into the *FOMC* 's target range ($0.00\% - 0.25\%$). With these enormous "ample" reserves, the Fed does not need to make daily *OMO* (*OMP* or *OMS*), as 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 ($i_{RF} = 0.04\%$), by offering loans to banks ($i_{FF} = 0.06\%$), or by depositing to the Fed ($i_{IOR} = 0.15\%$).[60] 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. (*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

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[60] These rates are with June 30, 2021. The T-Bill rates in the secondary market was, $i_{RF} = 0.02\%$.

$(\pi_A = i_{IOR} - i_{FF})$. This arbitrage ensures that the i_{FF} does not fall much below i_{IOR}

$$EX\ D_{FF} \Rightarrow i_{FF} \uparrow \quad and \quad EX\ S_{\text{Re}\,serves} \Rightarrow i_{IOR} \downarrow$$

Thus, when the Fed raises or lowers the i_{IOR}, the i_{FF} moves up or down, too. Consequently, the Fed can keep the i_{FF} into the target range set by the *FOMC* through adjustment of the i_{IOR}. The Fed sets the i_{IOR} directly, so this interest rate serves as an effective monetary policy tool. Now, this i_{IOR} [61] is the *primary tool* used by the Fed for influencing the i_{FF}, Figure 3. The old tools were satisfied the same objective without charging citizens with any cost, as they have to pay, now, the IOR (bail out).

In 2014, the *FOMC* announced that it will use the Overnight Reverse Repurchase Agreement Facility (*ON RRP*)[62] to help control the i_{FF}.

This facility is a form of *OMO*, where the Fed interacts with many nonbank financial institutions (large money market funds and government-sponsored enterprises).[63] When one nonbank financial institution uses the *ON RRP* facility, it deposits reserves at the Fed overnight receiving securities as collateral. The next day the transaction is "unwound";[64] the Fed buys back the securities and the institution earns the $i_{ON\,RRP}$, which the Fed sets, on the cash it deposited at the Fed, Figure 3.

This investment facility is a risk-free option and these institutions are willing to lend funds to this low rate, the $i_{ON\,RRP}$, but not lower. For this reason, the $i_{ON\,RRP}$ acts as a reservation rate and institutions can use it to arbitrage other short-term rates. Thus, the interest rate paid on *ON RRP* transactions and it is below the i_{IOR}, acts like a floor for the i_{FF} and serves as a *supplementary policy tool* by the Fed, Figure 3.

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[61] See, Board of Governors of the Federal Reserve System. "Interest on Required Reserve Balances and Excess Balances".
https://www.federalreserve.gov/monetarypolicy/reqresbalances.htm
[62] See, Board of Governors of the Federal Reserve System. "Overnight Reverse Repurchase Agreement Facility". https://www.federalreserve.gov/monetarypolicy/overnight-reverse-repurchase-agreements.htm.
[63] See, "What Is a Money Market Fund?", https://www.investopedia.com/investing/do-money-market-funds-pay/ and "Government-Sponsored Enterprise (GSE)",
https://www.investopedia.com/terms/g/gse.asp . See also, Federal Reserve Bank of New York, "Reverse Repo Counterparties". https://www.newyorkfed.org/markets/rrp_counterparties.
[64] Unwind: To close out a relatively complicated investment position.

3. Other Instruments and their Implications

«Ἐξεχύθη ἐξουδένωσις ἐπ' ἄρχοντας αὐτῶν,
καί ἐπλάνησεν αὐτούς ἐν ἀβάτῳ καί οὐχ ὁδῷ.»
Ψαλμός 106, 40

3.1   Quantitative Easing

Federal Reserve's asset purchases lead to an expansion of its balance sheet;[65] these asset purchase programs have been given the name "quantitative easing" (QE), Graph 2.

Graph 2: The Fed's Balance Sheet

Note: ----- Liabilities and Capital: Liabilities: Deposits: Other Deposits Held by Depository Institutions: Wednesday Level.
    ----- Liabilities and Capital: Liabilities: Deposits with F. R. Banks, Other than Reserve Balances: U.S. Treasury, General Account: Wednesday Level.
    ----- Assets: Securities Held Outright: U.S. Treasury Securities: Wednesday Level.
Source: FRED, https://fredblog.stlouisfed.org/2020/09/the-feds-balance-sheet/

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[65] The total assets with January 20, 2021, were: $7,414.942 billion, on March 8, 2021, they became $7,579.901 billion, and on July 21, 2021 were $8,174.231 billion. See, Credit and Liquidity Programs and the Balance Sheet,
https://www.federalreserve.gov/monetarypolicy/bst_recenttrends.htm . See,
https://www.federalreserve.gov/releases/h41/current/h41.htm. On January 20, 2021, the monetary base was $5,206.6 billion and the money supply $M2$ = $19,548.1 billion; on February 23, 2021, they were MB = $5,248 billion and $M2$ = $19,394.6 billion; on March 23, 2021, they were MB = $5,447 billion and $M2$ = $19,670 billion, and on June 22, 2021, they were MB = $6,042 billion and M2 = $20,278 billion. Thus, the money multiplier was, $m_M = 3.75$, then, it fell to m_M = 3.70, further to $m_M = 3.61$, and recently to $m_M = 3.36$. See,
https://fred.stlouisfed.org/series/BOGMBASE and https://fred.stlouisfed.org/series/WM2NS

This quantitative easing policy by the Fed since 2008 has made us all very skeptical.[66] Is this policy effective? The federal funds rate had hit zero-lower-bound when it fell to zero.

Thus, the expansion of the balance sheet, Graph 2, and the monetary base, could not lower short-term interest rates any further to stimulate the economy,[67] liquidity trap, Graph 3.
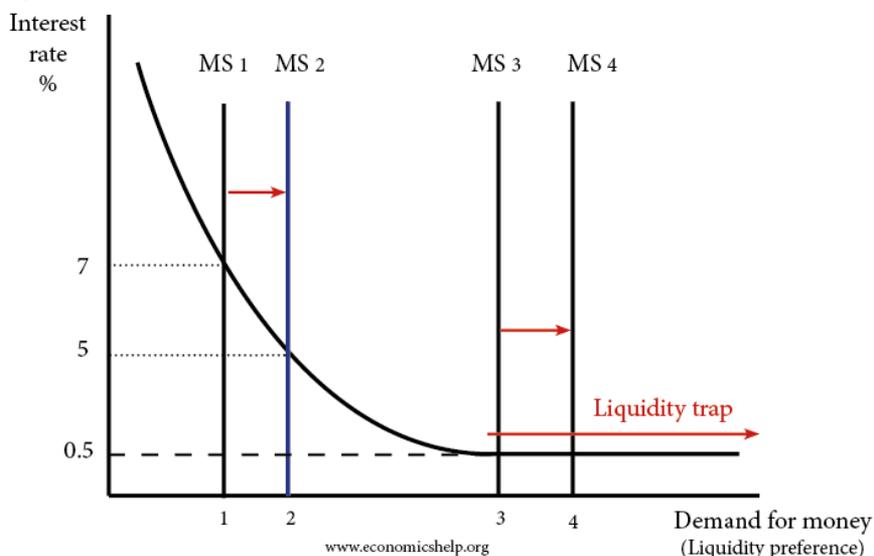
Graph 3: Liquidity Trap

Source: *www. economicshelp.org*.

Also, this increase in reserves did not result in an increase in lending; banks added to their holding of excess reserves instead of making loans and with the *IOR* , this became worse. There is not any reason to lend money, which is risky because they make a return from the Fed (taxpayers), they pay closed to zero interest rate on

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[66] On October 13, 2014, Bernanke said: "The problem with QE is it works in practice, but it doesn't work in theory. ... I think it's fair to say that, although these [steps] were effective ... Almost all find some impact on bond yields and, less clearly, on ...", See, "US quantitative measures worked in defiance of theory", *Financial Times*, https://www.ft.com/content/3b164d2e-4f03-11e4-9c88-00144feab7de

[67] This is the case of a *liquidity trap* that is a contradictory economic situation in which interest rates are very low, rendering monetary policy ineffective. First, it described by economist John Maynard Keynes. During a liquidity trap, consumers choose to avoid bonds and keep their funds in cash savings because of the prevailing belief that interest rates could soon rise (which would push bond prices down). Because bond prices have an inverse relationship to interest rates, many consumers do not want to hold an asset with a price that is expected to decline. At the same time, central bank efforts to spur economic activity are hampered as they are unable to lower interest rates further to incentivize investors and consumers. Lately, we have an *employment stimulus trap*, which keep people away from work because the unemployment insurance compensation is higher than the minimum wages. Then, the easy monetary policy is not effective on employment and production.

deposits ($i_D = 0.05\%$) and there is also no demand for loans by businesses, due to recession, closedowns, threats of a new Delta variant of virus, and a vaccine coercion. Then, this policy is ineffective at stimulating the economy.

The long-term interest rate fell, but the aggregate demand (AD) was and it is still (now with the lockdowns and the other crackdowns on people's freedoms) very low.

$$purchase\,of\ L-T\ gov\text{'}t\ and\ mortgage-backed\,securities\,(\,primary\,dealers) \Rightarrow$$
$$\Rightarrow EX\ D_{Bonds} \Rightarrow P_{Bonds} \uparrow \Rightarrow i_{FF} \downarrow \Rightarrow AD = C + I\ (low) \Rightarrow g_{GDP}\ (low) \Rightarrow u\ (high)$$

3.2   Forward Guidance

The Fed can lower long-term interest rates by keeping the federal funds rate at zero ($i_{FF} = 0.00\%$) for a long period of time in order to lower the market's expectations regarding the future short-term interest rates and through them to cause the long-term interest rates to fall.[68] This strategy is referred to as "forward guidance".

The Fed continued to announce that it will keep the interest rate to zero[69] and long-term interest rates fell, due to forward guidance or due to weakness in the U.S. economy. The monetary policy is too easy and for a very long time; then, we may see high inflation[70] after the open up of businesses, the trillion of dollars for coronavirus relief, the unemployment compensation programs, the artificial "infrastructure" bill, [71] and the improvements from this pandemic [72] (the coronavirus biological warfare). The current bubbles in the financial market and in

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[68] The short-term interest rates are closed to zero and the long-term ones very low since 2008.
$i_{FF} = 0.00\% - 0.25\%$, $i_{FF}^{eff} = 0.09\%$, $i_{RF} = 0.08\%$, $i_{MM} = 0.10\%$, $i_D = 0.05\%$,
$i_{DR} = 0.25\%$, $i_{5YCD} = 0.48\%$, $i_{CM} = 2\%$, $i_P = 3.25\%$, $i_{15YM} = 2.21\%$, $i_{30YM} = 2.77\%$,
$i_{2YGB} = 0.12\%$, $i_{5YGB} = 0.42\%$, $i_{10YGB} = 1.03\%$, $i_{30YGB} = 1.79\%$. See, *Wall Street Journal*,
January 27, 2021.   https://www.newyorkfed.org/markets/reference-rates/effr

[69] See, "Jerome Powell Sees Easy-Money Policies Staying in Place". Fed likely to hold interest rates near zero and continue asset purchases for some time, chairman says. *Wall Street Journal*, February 23, 2021. https://www.wsj.com/articles/jerome-powell-sees-easy-money-policies-staying-in-place-11614092400

[70] For 2020, the official inflation was 1.4%, See,
https://www.usinflationcalculator.com/inflation/current-inflation-rates/ . The SGS Alternative CPI, 1980-based gave an inflation of 8%. http://www.shadowstats.com/alternate_data/inflation-charts

[71] See, "Biden's $1.2 trillion infrastructure bill clears the Senate: Here's what's in it for you", https://www.cnet.com/personal-finance/bidens-1-2-trillion-infrastructure-bill-clears-the-senate-heres-whats-in-it-for-you/ . Also, "Here are the 17 Republican senators who voted to advance the $1 trillion infrastructure bill" and helped the Democrats to win next midterm elections, https://www.cnn.com/2021/07/28/politics/republicans-voted-for-infrastructure-package-debate/index.html . In addition, There is also a second funding package Congress is working on - a $3.5 trillion budget reconciliation bill which they are calling it a "human infrastructure" proposal - that could expand the redistribution of wealth, "by making education, health care, child care and housing more affordable" according to Senate Majority Leader Chuck Schumer.

[72] The "experts" (i.e., Bill Gates) and the "scientists" (i.e., Dr. Anthony Fauci) say that the pandemic will continue in 2022. (*Sic*). It seems that people will never trust pseudo-experts and pseudo-scientists in the future.

the housing one are very dangerous and their bursting will lead to devastation for our weak economy, due to strange public policies, and the worst, the unbridgeable and enlarging daily division inside the country (unorthodox liberalism, cancel culture, election integrity, control over information, misinformation, election irregularities, climate hysteria, open borders, controlled media, invasion of privacy, violation of medical privacy, "progressive justice reform", group thinking, censorship by the big tech, critical race theory, students indoctrination, "domestic terrorism", mandatory vaccination, vaccine coercion in colleges, authoritarianism, medical misinformation, "human engineering", crime, illegal migration, war on free speech, China's aggressiveness, etc.). (*Sic*). The future is boded very uncertain, due to public policies and the controlled policy makers.

3.3 Interest Rates on Deposits

Another inefficiency is the interest rate on deposits, which are close to zero since December 2008 ($i_D = 0.05\%$, $i_{6MCD} = 0.30\%$, and $i_{12MCD} = 0.48\%$) and the real (savings) deposit rate is negative ($r_D = -4.95\%$ with the official inflation or $r_D = -12.95\%$ with the SGS inflation), bail in cost. In other words depositors have to pay their banks to keep save the deposits in the banks. But, are these deposits safe? No! We saw 50% bail in of deposits in Cyprus during the European debt crisis.[73] (*Sic*). Many foreign central banks reduced their interest rates on deposits held by banks at them to negative.[74] With our negative real deposit rates, the Fed was expecting to stimulate the economy by encouraging banks to lend out the deposits they were having and to increase business investments and households spending; but the only effect was the increase in the stock prices (bubbles) and the enormous unfair bail in cost of the depositors. There was no or very little expansionary effect on our GDP growth.

Banks keep all these deposits as reserves and receive IOR by the Fed (bail out cost to taxpayers) or invest them to securities, they do not lend them out because there is no demand for loans and it is also risky. Actually, these negative interest rates became contractionary because banks cut back on lending, too.[75] It is, actually, a disincentive to save. This policy is not effective in stimulating investment, spending, growth, and employment. Also, it is ethically questionable.

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[73] See, "Bank of Cyprus depositors lose 47.5%", https://www.usatoday.com/story/money/business/2013/07/29/bank-of-cyprus-depositors-lose-savings/2595837/ . See also, "Failing banks, bail-ins, and central bank independence: Lessons from Cyprus", https://voxeu.org/article/bank-bail-ins-lessons-cypriot-crisis . In addition, see, Kallianiotis (2018).

[74] The ECB Deposit Facility rate is -0.50% since September 18, 2019. See, "Key ECB interest rates", https://www.ecb.europa.eu/stats/policy_and_exchange_rates/key_ecb_interest_rates/html/index.en.html

[75] The deposit rates must be positive and 1% above the expected inflation rate, ($i_D = \pi^e + 1\%$). The current policy is unfair, unethical, contractionary, and risky.

3.4   Asset-price Bubbles, Financial Crises, and Systemic Risk

The bubbles from "irrational exuberance" are smaller and less risky for the financial market. For example, these tech-stock or dot-com or internet bubbles in 1990s[76] caused less trouble. But, big bubbles are created from the enormous liquidity and the greediness ("greed & fear") of the market participants. These are the reasons that prices of financial assets are getting out of line with fundamentals. At this point the Fed has to stop increasing the money supply by increasing the interest rate, eq. (7). This increase in interest rate must be gradual; otherwise the higher interest rate can cause the bursting of the bubbles. This bubble creation by money supply (correlations and causality) can be seen in Table A1.[77] The monetary policy has to prevent bubbles because it will be difficult to control them. The Fed does not need to increase federal funds rate to control bubbles because it can harm the economy; but it can increase the margin requirements (i.e., to $r_m = 90\%$) and reduce the demand for securities. This instrument keeps the stock prices at a normal growth independent from the credit-driven and "irrational exuberance" bubbles. The bubbles can be controlled not only with monetary policy, but with financial market regulations. The low interest rate of the Fed from 2002 to 2005 and from 2008 to present is followed by excessive risk taking. Then, a too easy monetary policy promotes financial instability (bubbles) and it has also generated a liquidity trap, Graph 3.

If we allow banks to decide by themselves (another deregulation) how much they want to hold as reserves, they are going to hold the amount of reserves that minimizes the risk of not having money to give their depositors when they ask for withdrawals. The question is now. Is it good to let the market solve social economic problems rather, than regulators with their law? Banks maximize their objective ignoring the risk because the government will bail them out, as it happened in 2008 that cost to the taxpayers trillions of dollars. The government passaged into U.S. law, on October 3, 2008, a $700 billion financial-sector rescue plan that was the latest in the long history of U.S. government bailouts. The 2020 $COVID-19$ pandemic led to multi-trillion dollar bailouts of both businesses and financing "infrastructures"[78] and individuals in America and similar policies have been taken

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[76] The dotcom bubble, also known as the internet bubble, was a rapid rise in U.S. technology stock equity valuations fueled by investments in internet-based companies during the bull market in the late 1990s. During the dotcom bubble, the value of equity markets grew exponentially, with the technology-dominated NASDAQ index rising from under 1,000 to more than 5,000 between the years 1995 and 2000. In 2001 and through 2002 the bubble burst, with equities entering a bear market. See, https://www.investopedia.com/terms/d/dotcom-bubble.asp
See also, "4 Charts That Show This Tech Boom Is No Dot-Com Bubble",
https://www.capitalgroup.com/advisor/ca/en/insights/content/articles/tech-boom-no-dot-com-bubble.html

[77] From 2008:12-2015:11, the $\rho_{m,djia} = +0.943$ and $m \Rightarrow djia(F = 4.033^{**})$; and from 2015:12-2020:12, this correlation was, $\rho_{m,djia} = +0.777$.

[78] It was approved by the Senate a $1.2 trillion package. (*ABC News*, 8/10/2021).

across the globe (systemic risk). To date, over $4 trillion has been deployed to keep the economy running in the face of this suspicious Chinese pandemic, the Wuhan coronavirus.[79] How are going to pay all these debts? Who is going to pay, if businesses do not pay taxes?[80] Regulators (Fed, FDIC, comptroller of the currency, etc.) must concern about the systemic nature of risk in the banking system and should fear about policy, which is not being conducted in an orderly and reliable way, meaning that reserve requirements should exist to control MB and M^s,[81] together with higher margin requirements (since 1974, it is $r_m = 50\%$)[82] and many other regulations. Moderation and social welfare maximization must be the objective of every policy.

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[79] See, "US Government Financial Bailouts", https://www.investopedia.com/articles/economics/08/government-financial-bailout.asp . Also, "Emergency Economic Stabilization Act of 2008", https://en.wikipedia.org/wiki/Emergency_Economic_Stabilization_Act_of_2008 . Further, "Here's what's in the $2 trillion stimulus package — and what's next", https://www.politico.com/news/2020/03/25/whats-in-stimulus-package-coronavirus-149282 . A Chinese virologist, Dr. Li-Meng Yan said: "This virus came from a Wuhan Lab and it was intentional." (*Fox News*, 11/20/2020). A second bill of $1.9 trillion was signed by Biden. (*Sic*). https://www.nbcnews.com/politics/congress/what-s-1-9-trillion-covid-bill-biden-just-signed-n1260719 . A third infrastructure bill of $4 trillion: "Biden reportedly bumps infrastructure price tag to $4 trillion, with up to $3.5 trillion in tax hikes", https://www.businessinsider.com/biden-infrastructure-bill-package-4-trillion-with-tax-hikes-2021-3

[80] The following identified companies were "able to zero out their federal income taxes on $79 billion in U.S. pretax income," according to the ITEP report. "Instead of paying $16.4 billion in taxes, as the new 21 percent corporate tax rate requires, these companies enjoyed a net corporate tax rebate of $4.3 billion, blowing a $20.7 billion hole in the federal budget last year." To compile the list, ITEP analyzed the 2018 financial filings of the country's largest 560 publicly-held companies. https://publicintegrity.org/inequality-poverty-opportunity/taxes/trumps-tax-cuts/you-paid-taxes-these-corporations-didnt/ . See also, "55 Corporations Paid $0 in Federal Taxes on 2020 Profits". https://itep.org/55-profitable-corporations-zero-corporate-tax/. Our tax system is completely unethical and unfair. Here, is another example. A poor person (NJK), who was working part time and made $11,078 and received also an unemployment compensation of $27,737 for the 2020, paid Federal Income taxes $3,091 plus $349 State taxes and $377 City taxes. A total of $3,817 for the tax year 2020 and because he is still unemployed, he borrowed this money to pay taxes. Something is absolute wrong with the IRS and with the politicians in Washington. The business lobbyists bribe and control them and they pay no taxes for the billions of dollars revenue and instead they receive a tax refund. This is the reason that the national debt has reached (8/12/2021) the amount of $28.633 trillion. The U.S. total debt as a percent of the GDP is 383.23%. We pay interest on debt of $3.913 trillion per annum.

[81] The MB was $5.150 trillion with May 2020, it became $5.207 trillion with January 14, 2021, $5.248 trillion on February 23, 2021, $5.447 trillion on March 23, 2021, and $6.027 trillion with July 27, 2021. See, https://fred.stlouisfed.org/series/BOGMBASE. The money supply was $18.115 trillion, with May 2020, it became $19.172 trillion with January 14, 2021, it reached $19.548 trillion on January 21, 2021, it became $19.670 trillion on March 25, 2021, and lately, July 27, 2021 reached $20.541 trillion. See, https://fred.stlouisfed.org/series/WM2NS and https://www.federalreserve.gov/releases/h6/current/ .

[82] See, "Margin Requirements as a Policy Tool?", https://www.frbsf.org/economic-research/publications/economic-letter/2000/march/margin-requirements-as-a-policy-tool/

4. The New Monetary Policy and its Social Cost and Benefits

«Φύλαξόν με ἀπό παγίδος, ἧς συνεστήσαντό μοι,
καί ἀπό σκανδάλων τῶν ἐργαζομένων τήν ἀνομίαν.»
Ψαλμός 140, 9

As it was mentioned and it is known to every saver, the deposit rate is closed to zero ($i_D = 0.05\%$) since December 2008, more than twelve years. This negative real deposit rate is completely unethical and unfair for the depositors, who pay interest to the banks for keeping their deposits (bail in cost).[83] With an inflation of $\pi = 7\%$ for May 2020,[84] the real cost of deposits was $r_D = -6.95\%$, which is the amount paid to the banks.[85] (*Sic*). Now, the official $\pi = 5.4\%$ and the $r_D = -5.35\%$ and the SGS $\pi = 13\%$, which makes the $r_D = -12.95\%$. Also, these unethical policies have a negative effect on demand for deposits[86] and force risk-averse individuals to invest in risky financial assets (stocks) seeking to have a positive real return; but banks do not need deposits, they have all these strange excess reserves from the Fed.[87]. Deposits were declining in the U.S. banks until 2018.[88]

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[83] So far this kind of policy existed only in money (tax) havens, where they were accepted illegal money and were "helping" the depositors to avoid taxes back home, like Switzerland. Now, with our new monetary policies, we have these structures locally; we became Switzerland. See, file:///C:/Users/JK/AppData/Local/Microsoft/Windows/Temporary%20Internet%20Files/Content.IE5/QSJRY92C/Corporate-Tax-Dodgers-Report-Final.pdf

[84] See, *SGS,* http://www.shadowstats.com/alternate_data/inflation-charts

[85] The interest rate must be positive and above the inflation rate. Even the Bible is talking about positive interest rate: «Ἔδει οὖν σε βαλεῖν τό ἀργύριόν μου τοῖς τραπεζίταις, καί ἐλθών ἐγώ ἐκομισάμην ἄν τό ἐμόν σύν τόκῳ.» ("Then you ought to have invested my money with the bankers, and on my return I would have received what was my own with interest".). Matthew 25: 27.

[86] Depositors demand deposits (deposit accounts), upward sloping positive demand for deposits and banks supply deposits (deposit accounts), downward sloping negative supply of deposits. See, Hadjimichalakis (1982).

[87] The Excess Reserves had jumped to $3.218 trillion with May 2020 and with March 23, 2021 to $3.346 trillion. Now (July 27, 2021), the Total Reserves are $3,848 trillion.   See, https://fred.stlouisfed.org/series/TOTRESNS   and
https://fred.stlouisfed.org/series/EXCSRESNS . The required reserves became $0.000. This action eliminated reserve requirements for all depository institutions.
https://www.federalreserve.gov/monetarypolicy/reservereq.htm . See also,
https://fred.stlouisfed.org/series/REQRESNS . "Recently, the Federal Reserve announced they were reducing the reserve requirement ratio to zero percent across all deposit tiers, effective March 26, 2020. This comes as the COVID-19 pandemic continues to impact much of the way financial institutions both operate and serve their customers."
https://www.eidebailly.com/insights/articles/2020/4/federal-reserve-eliminates-reserve-requirements
Thus, now, the total reserves are equal to the excess reserves.

[88] See, Deposits, All Commercial Banks . https://fred.stlouisfed.org/series/H8B1058NCBCAG
See, also, "Weekly National Rates and Rate Caps - Weekly Update",
https://www.fdic.gov/regulations/resources/rates/

4.1 Bail out and Bail in Cost

Brown (2019) says, "Now, however, the average savings account pays only 0.10% annually -that's one-tenth of 1%- and many of the country's biggest banks pay less than that. If you were to put $5,000 in a regular Bank of America savings account (paying 0.01%) today, in a year you would have collected only 50 cents in interest. That's true for most of us, but banks themselves are earning 2.4% on their deposits at the Federal Reserve. These deposits, called 'excess reserves', include the reserves the banks got from our deposits, and on which they are paying almost nothing; and unlike with our deposits, there is no $250,000 cap on the sums banks can stash at the Fed amassing interest. A whopping $1.5 trillion in reserves are now [2019] sitting in Fed reserve accounts. [$3.218 trillion with May 2020, $2.877 trillion in October 2020, $3.154 trillion in February 2021, $3.346 trillion in March 2021, and $3.848 trillion in June 2021]. The Fed rebates its profits to the government after deducting its costs, and interest paid to banks is one of those costs. That means we, the taxpayers, are paying (bail out) $36 billion annually to private banks for the privilege of parking their excess reserves at one of the most secure banks in the world—parking them, rather than lending them out."[89] (*Sic*).

This policy tools (ample reserves and IOR) are, if not anything else, unethical monetary policies going against small savers (investors) and poor taxpayers. Political leaders have no power to regulate the "independent" private central banks, but they can do something for these dishonest ("corrupted") and uncontrolled commercial banks. Central banks' policies are ineffective for the economy, non-preventable for a new financial crisis, and anti-social for the people. Especially, now, with the suspicious coronavirus; the necessary public policy is a combination of monetary and fair fiscal stimulus policy that the government provided.[90] The latest monetary policies benefit only large banks,[91] and generate an enormous social cost, as follows:

With December 2018, we had:

    i.   The total reserves were:

R_R = \$192.209 billion + R_E = \$1,567.691 billion = R_T = \$1,759.9 billion.

The $i_{IOR} = i_{RF} + 0.20\% = 2.37\% + 0.20\% = 2.57\%$. Actually, it was 2.40%.

Thus, Fed was paying total interest on these reserves:

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[89] See, Ellen Brown, "Why Is the Fed Paying So Much Interest to Banks?", https://www.truthdig.com/articles/why-is-the-fed-paying-so-much-interest-to-banks/. See also, "2.4%, Why Is the Fed Paying So Much Higher Interest Rate to Banks?", https://www.econmatters.com/2019/04/24-why-is-fed-paying-so-much-higher.html

[90] See, "Fiscal Stimulus Needed to Fight Recessions", https://www.cbpp.org/research/economy/fiscal-stimulus-needed-to-fight-recessions . But not to make the national debt unsustainable, with some exaggerated and without moderation wastes .

[91] «... Θά καταργήσωμεν ἐπίσης ὅλα τά χρηματιστήρια... Θ' ἀντικαταστήσωμεν τά χρηματιστήρια διά μεγάλων εἰδικῶν πιστωτικῶν ἱδρυμάτων ὧν ὁ προορισμός θά εἶναι νά καθορίζωσι τήν τιμήν τῶν βιομηχανικῶν ἀξιῶν συμφώνως πρός τάς βλέψεις τῆς [παγκοσμίου] κυβερνήσεως.» [Πρωτόκολλον ΚΑ´ (Π.Σ.Σ.)].

(I_R) = \$1,759.9 billion x 2.40% = **\$42.238** billion per annum. This is a *bail out cost* that taxpayers are paying.[92]

ii. Total deposits $(D_T) = $ \$12,408.49 billion.[93]

Deposit rate: $i_D = 0.05\%$

Banks were paying an insignificant total interest on deposits (I_D) = \$12,408.49 billion x 0.05% = **\$6.204** billion per annum.

iii. The official inflation rate was (π) = 2.44%; then,

$r_D = i_D - \pi = 0.05\%$ - 2.44% = -2.39%

Thus, depositors were paying to their banks (*bail in*):

\$12,408.49 x (-2.39%) = **\$296.563** billion.

The SGS consumer inflation (1980-based)[94] was π = 10%.

The true *bail in* was: \$12,408.49 x (-9.95%) = **\$1,234.645** billion p.a.

iv. Banks could offer loans:

$R_E + D_T$ = \$1,567.691 billion + \$12,408.49 billion = \$13,976.181 billion.

Banks' interest rate was from 3% (mortgage rate) to 39.99% (credit cards with bad credit scores).[95] The average i_{CC} = 19%.[96] Then, the average

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[92] Federal Reserve Unfunded interest since 1913 is \$10.772 trillion and now it is \$527.214 billion. See, https://usdebtclock.org/ . See also, David Walker, "It is time to revise the Federal Reserve's mission", July 16, 2021. https://thehill.com/opinion/finance/563377-it-is-time-to-revise-the-federal-reserves-mission

[93] See, https://fred.stlouisfed.org/series/DPSACBW027SBOG

[94] See, http://www.shadowstats.com/alternate_data/inflation-charts

[95] See, https://www.economicshelp.org/blog/6775/debt/total-us-debt-public-private/ See also, https://usdebtclock.org/

[96]See, https://wallethub.com/answers/cc/highest-credit-card-interest-rate-2140660307/.

This unreasonable, unethical, outrageous, and usurious interest rate is charged for the poor people by the unregulated and corrupted banks, as it is mentioned below. Is this a social policy or a deception? The following statement is from one of my graduate students' answer for the question: Is the Risk Premium on our credit cards justifiable? "This is my ethical perspective on Risk Premium on credit cards. While pursuing my undergraduate degree, I worked for one of the most corrupt credit card companies. It is a sub-prime credit card company that preyed on vulnerable people with bad or no credit. The card would be sent out to consumers with \$198 in processing fees with a \$250 credit line. People did not read the small printed brochures and people would just activate these cards. People would use these credit cards and not realize that they only had \$52 to spend. At that point the card would be maxed out and the company began charging over limit fees of \$30 and an interest rate of 29.99%. Soon this was followed by \$35 late fees. I do not believe that a high Risk Premium is morally justifiable. I was the representative on the other end of the phone who listened to story after story. For example, an elderly person who purchased a prescription because he/she needed it; a young mother who put gas in her car; a disabled person who did not understand how the credit card worked. These were vulnerable people who were taken advantage of by a greedy, avaricious company. This credit card company did more than mitigate their risks. The company preyed on poor, uneducated people. As a side note, the owner of this company last year received an award for philanthropist of the year. This puts a real spin on what Americans views as value. This is an ethical/moral perspective on the horrors of unchecked free market capitalism." [K. L. (FIN 508) Summer 2013]. Note: In the U.S., the risk premium can reach the level of: RP = 40% (a regressive tax on the poor). In EU, there is a cap on credit cards risk premium of: RP = 15%.

loan rate was: $\bar{i}_L = (3\% + 19\%) : 2 = 11\%$. Banks were having an interest revenue (R_I) of \$13,976.181 billion x 11% = **\$1,537.380** billion p.a.[97]

The conclusion, here, is obvious, the central bank is working for the banks and satisfies only their objectives, which are profitability and liquidity. This monetary policy is against the poor depositors (bail in cost = \$1.235 trillion p.a. or the "official" bail in cost = \$296.563 billion) and against the poor taxpayers (bail out cost = \$42.238 billion p.a.); a pure anti-social policy and at the same time it had created enormous bubbles in the stock market (a hidden new global crisis, which found an excuse to burst, the Wuhan coronavirus).[98] With this unethical monetary policy, the deposit and saving rate was falling (Figure 4) and the personal consumption expenditures were increasing (Figure 5). Thus, the household debt is going up.[99]

With February 2020, we had:

i. The total reserves were: \$1,726.9 billion.
   The $i_{IOR} = i_{RF} + 0.20\% = 1.52\% + 0.20\% = 1.72\%$. But, it was 1.60%.
   Thus, the Fed was paying total interest on these reserves
   (I_R) = \$1,726.9 billion x 1.60% = **\$27.630** billion per annum. This was the *bail out cost* that taxpayers were paying.

ii. Total deposits (D_T) = \$13,341.785 billion.
    $i_D = 0.05\%$
    Banks were paying an insignificant total interest on deposits
    (I_D) = \$13,341.785 billion x 0.05% = **\$6.671** billion per annum.

iii. The official inflation rate was (π) = 0.30%; then,
     $r_D = i_D - \pi = 0.05\%$ - 0.30% = -0.25%.
     Thus, depositors were paying to their banks
     (*bail in*): \$13,341.785 x (-0.25%) = **\$33.354** billion per annum.
     The SGS consumer inflation (1980-based)[100] was $\pi = 7\%$.
     The true *bail in* was: \$13,341.785 x (-6.95%) = **\$927.254** billion p.a.

iv. Banks could offer loans:
    $R_E + D_T$ = \$1,726.9 billion + \$13,341.785 billion = \$15,068.685 billion.

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[97] See, Kallianiotis (2020a).
[98] The DJIA reached 29,551.42 (2/12/2020) and with coronavirus negative effects on health and economy, it fell to 18,591.93 (3/23/2020), it lost 10,959.49 points (-37.09%). I had read somewhere a few years ago that: "we (the economic elites) will abolish the stock exchanges and we will create large financial institutions…" (Sic).
[99] The total personal debt (2/27/2021) was \$21.137 trillion x 11% = \$2.325 trillion annual interest on personal debt. See, https://usdebtclock.org/ . Actually, the average person is paying taxes (plus the unethical property taxes), interest, and insurance premium; the rest of his income is consumed. For this reason his saving is negative (dissaving, borrowing).
[100] See, *SGS*. http://www.shadowstats.com/alternate_data/inflation-charts

Banks' interest rate was from 2.49% (mortgage rate) to 35.99% (credit cards with bad credit scores).[101] The average $i_{CC} = 19.24\%$.[102] Then, the average loan rate was: $\bar{i}_L = (2.49\% + 19.24\%): 2 = 10.865\%$.

Banks were having an interest revenue

(R_I) of $15,068.685 billion x 10.865% = **$1,637.213** billion p.a.

Thus, the lack of ethics in monetary policy was continued and taxpayers and depositors were ripped off endlessly. The higher the i_{IOR} and the higher the inflation π, the higher will be the bail out and the bail in cost.

With December 2020, we had:

i.   The total reserves were: $R_T = 3,135$ billion.

The $i_{IOR} = i_{RF} + 0.20\% = 0.09\% + 0.20\% = 0.29\%$. But, it was $i_{IOR} = 0.10\%$.

Thus, Fed was paying total interest on these reserves

(I_R) = $3,135 billion x 0.10% = **$3.135** billion per annum. This is a *bail out cost* that taxpayers are paying.

ii. Total deposits (D_T) = $16,084.745 billion.[103]

$i_D = 0.05\%$

Banks were paying an insignificant total interest on deposits

(I_D) = $16,084.745 billion x 0.05% = **$8.042** billion per annum.

iii. The official inflation rate was

(π) = 1.4%; then, $r_D = i_D - \pi = 0.05\% - 1.4\% = -1.35\%$

Thus, depositors were paying to their banks (*bail in*):

$16,084.745 x (-1.35%) = **$217.144** billion.

The SGS consumer inflation (1980-based)[104] was π = 9%.

The true *bail in* was: $16,084.745 x (-8.95%) = **$1,439.585** billion p.a.

iv. Banks could offer loans:

$R_E + D_T$ = $3,135 billion + $16,084.745 billion = $19,219.745 billion.

Banks' interest rate was from 2.49% (mortgage rate) to 35.99% (credit cards with bad credit scores). The average $i_{CC} = 19.24\%$. Then, the average loan rate was: $\bar{i}_L = (2.49\% + 19.24\%): 2 = 10.865\%$.

Banks were having an interest revenue

(R_I) of $19,219.745 billion x 10.865% = **$2,088.225** billion p.a.

[101]   See, https://www.economicshelp.org/blog/6775/debt/total-us-debt-public-private/ See also, https://usdebtclock.org/

[102]   See, https://wallethub.com/answers/cc/highest-credit-card-interest-rate-2140660307/

[103]   See, *Economagic.com*

[104]   See, http://www.shadowstats.com/alternate_data/inflation-charts

With July 2021, we have:

i.   The total reserves were: R_T =3,848.1 billion.

   The $i_{IOR} = i_{RF} + 0.20\% = 0.05\% + 0.20\% = 0.25\%$. But, it was $i_{IOR} = 0.15\%$.
   Thus, Fed is paying total interest on these reserves (I_R) = \$3,848.1 billion
   x 0.15% = **\$5.772** billion per annum. This is a *bail out cost* that taxpayers
   are paying.

ii. Total deposits (D_T) = \$17,278.4535 billion.[105]

   $i_D = 0.05\%$

   Banks were paying an insignificant total interest on deposits
   (I_D) = \$17,278.4535 billion x 0.05% = **\$8.639** billion per annum.

iii. The official inflation rate is
   (π) = 5.4%; then, $r_D = i_D - \pi = 0.05\%$ -5.4% = -5.35%

   Thus, depositors were paying to their banks (*bail in*):
   \$17,278.4535 x (-5.35%) = **\$924.397** billion.
   The SGS consumer inflation (1980-based)[106] was π = 13%.
   The true *bail in* was: \$17,278.4535 x (-12.95%) = **\$2,237.560** billion p.a.

iv. Banks could offer loans:
   $R_E + D_T$ = \$3,848.1 billion + \$17,278.4535 billion = \$21,126.553 billion.

   Banks' interest rate was from 2.428% (mortgage rate) to 35.99% (credit
   cards with bad credit scores). The average $i_{CC} = 19.24\%$. Then, the average
   loan rate was: $\bar{i}_L = (2.428\% + 19.24\%): 2 = 10.834\%$.

   Banks were having an interest revenue (R_I) of \$21,126.553 billion x
   10.834% = **\$2,288.851** billion p.a.

The Fed's current balance sheet is so huge (it was \$4,175.850 billion with January
15, 2020; with June 10, 2020, it had reached \$7,168.936 billion, with December 2,
2020, it was \$7,222.414 billion, with February 10, 2021, it is \$7,442.225 billion,
with March 22, 2021, it was \$7,719.622 billion and now, July 19, 2021, it was
\$8,240.530 billion)[107] that with the new announced policy rate decrease again
(March 15, 2020), it could possibly generate surprising results and higher market
risk. Some improvement to the bail out cost (taxpayers), due to low interest rate on
reserves might exist, but deterioration to the bail in cost (depositors) from the high
inflation has been attained. The level of banks' capital is another factor that must be
considered by the regulators (central bank, FDIC, comptroller of the currency, etc.).
A low capital level is increasing the risk of the banks and consequently, the cost of
financial crises (by bailing them out in case of a financial crisis); so the banks'
capital affects the real economy. Risk-averse consumers prefer higher capital levels

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[105] See, Deposits, All Commercial Banks. https://fred.stlouisfed.org/series/DPSACBW027SBOG
[106] See, http://www.shadowstats.com/alternate_data/inflation-charts
[107] See, https://www.federalreserve.gov/monetarypolicy/bst_recenttrends.htm and
https://fred.stlouisfed.org/series/WALCL

because it increases the financial stability in the economy and the world. The tax-payers cannot bailout the corrupted and deregulated financial institutions in case of a new bank crisis, as it happened in 2008 because it is completely unfair and unethical.[108] Firestone, Lorenc, and Ranish (2019), by evaluating the economic costs and benefits of bank capital in the U.S., found that the optimal capital ratio is from just over 13% to 26%.[109] The current average capital ratio is 12.5% for the U.S. banks, which is relatively low.

Proudly with uninhibited arrogance and very often, lately, in the U.S. and in Europe, the central bankers remind to politicians (pseudo-leaders) and to the public that they are independent (From whom? From the citizens? From the country's social objectives? Who has given to them this right?). (*Sic*). But, their objective must be the social wellbeing of the citizens.

The former heads of the Federal Reserve made their case, on August 5, 2019, for the central bank to remain independent and free from short-term political pressures;[110] an implicit rebuttal to President Trump's repeated criticism of this private institution, the Fed. [111] All four former still-living Fed chairs -Paul Volcker,[112] Alan Greenspan, Ben Bernanke and Janet Yellen[113]- consigned an op-ed[114] underlining their belief that the central bank and its leader should be allowed

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[108] The total lost household wealth at that time was between $19.2 and $22 trillion. See, https://www.pbs.org/wgbh/frontline/article/how-much-did-the-financial-crisis-cost/ and https://www.huffpost.com/entry/financial-crisis-cost-gao_n_2687553 . See also, "I helped bail out the banks, Congress needs to oversee the stimulus now", https://thehill.com/blogs/congress-blog/politics/496307-i-helped-bail-out-the-banks-congress-needs-to-oversee-the . In addition, See, Kallianiotis (2021a and b).

[109] See, Firestone, Lorenc, and Ranish (2019). See also, Farla-e-Castro (2019). Further, "What's a Countercyclical Capital Buffer?", https://fredblog.stlouisfed.org/2019/09/whats-a-countercyclical-capital-buffer/

[110] But, President Woodrow Wilson had said that the U.S. lost control of its financial system by allowing its Central Bank to be independent of the government (private): "I am a most unhappy man. I have unwittingly ruined my country. A great industrial nation is controlled by its system of credit. Our system of credit is concentrated. The growth of the nation, therefore, and all our activities are in the hands of a few men. We have come to be one of the worst ruled, one of the most completely controlled and dominated Governments in the civilized world -- no longer a Government by free opinion, no longer a Government by conviction and the vote of the majority, but a Government by the opinion and duress of a small group of dominant men." [Woodrow Wilson President of the United States (1913-1921)]. What can we say 105 years later, where individual liberties and freedom have been lost? With the 2020 election irregularities, President Trump said: "We are like third world country; this election was a fraud." (*Fox News*, 11/26/2020). The current political, social, and economic situation has killed Americans' hope for ever.

[111] If at that time, President Woodrow Wilson had said these words for the Fed; then, we can imagine what he would have said if he was the President, today, facing this many-sided war from the liberals, globalists, the media, "experts", and foreign nations.

[112] Paul Volcker passed away on December 8, 2019. https://www.sgtreport.com/2019/12/former-fed-chairman-paul-volcker-passes-away-at-92/

[113] Joe Biden appointed Janet Yellen as Treasury Secretary. (*ABC News*, 11/23/2020).

[114] See, "America Needs an Independent Fed", The economy functions best when the central bank is free of short-term political pressures, *The Wall Street Journal*, https://www.wsj.com/articles/america-needs-an-independent-fed-11565045308?mod=article_inline

to serve without political pressures or "the threat of removal or demotion... for political reasons". "It is critical to preserve the Federal Reserve's ability to make decisions based on the best interests of the nation, not the interests of a small group of politicians," the former central bankers wrote.[115] (*Sic*).

This rhetoric is good, but unbelievable and unreasonable because what we see so far, it is that Fed's policies are made only for the speculative financial market, its participants, and for the uncontrolled financial institutions. Their effects on the real economy are insignificant and many times ineffective by creating bubbles and accomplishing the next recession. If the central bank's decisions were based on the best interest of the nation, it would have a policy to prevent financial crises and recessions and not to try to cure them, after their creation.[116] Federal Reserve Chairman Jerome Powell gave his most forceful warning yet (on August 23, 2019) about the risks to the U.S. economy from escalating trade tensions and the limits to the central bank's ability to cushion any fallout. (*Sic*). The trade deficit has to become zero ($TA \cong 0$)[117] that is one of Fed's objectives, so the country can become self-sufficient and not dependent on foreign production, which is very risky, as we saw with the medical supplies and the medicine during the coronavirus pandemic, which are coming from China. China is in control of our economy and it tries to control our politics, too, and it is successful with the current administration. China is also moving forward for global economic and military domination.

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[115] See, "Former Fed Leaders Plea for Central Bank's Political Independence". https://www.wsj.com/articles/former-fed-leaders-plea-for-central-banks-political-independence-11565051192 . Unfortunately, "Our money is not our money. We rent it. We have rented it since 1781 when the Bank of North America gained control of the money supply in the closing days of the Revolutionary War. We need to own our money as citizens responsible for both the government and the economy of the United States." See, Bob Blain, *The Root of United States Public and Private Debt*, 2017. Also, "Permit me to issue and control the money supply of a nation and I care not who makes its laws." (Mayer Amschel Rothschild, 1744-1812). Further, "The privilege of creating and issuing money is not only the supreme prerogative of Government, but it is the Government's greatest creative opportunity." (Abraham Lincoln, 1862). In addition, "Until the control of the issue of currency and credit is restored to government and recognized as its most conspicuous and sacred responsibility, all talks of the sovereignty of Parliament and of democracy is idle and futile." (William Lyon Mackenzie King, Canadian Prime Minister, 1874-1950). Furthermore, the issuance of Executive Order 11110 (June 4, 1963) was an effort by Kennedy to transfer power from the Federal Reserve to the United States Department of the Treasury by replacing Federal Reserve Notes with silver certificates. These are some small indications of what is going on in our world, which are all contributions to social cost and suppression of human liberties and rights by the global authoritarianism (τούς προδρόμους τοῦ ἀντιχρίστου).

[116] See, Kallianiotis (2020c).

[117] The U.S. trade deficit was $678.7 billion in 2020; with China the trade deficit is $310.8 billion. See, Kimberly Amadeo, "What Is the Current U.S. Trade Deficit?", https://www.thebalance.com/u-s-trade-deficit-causes-effects-trade-partners-3306276

Powell signaled that the central bank would follow its rate cut of July 31 2019.[118] On January 29, 2020, the FOMC decided to keep the federal funds at the same level; but the coronavirus pandemic forced the Fed to reduce the target rate back to zero[119] (March 16, 2020).
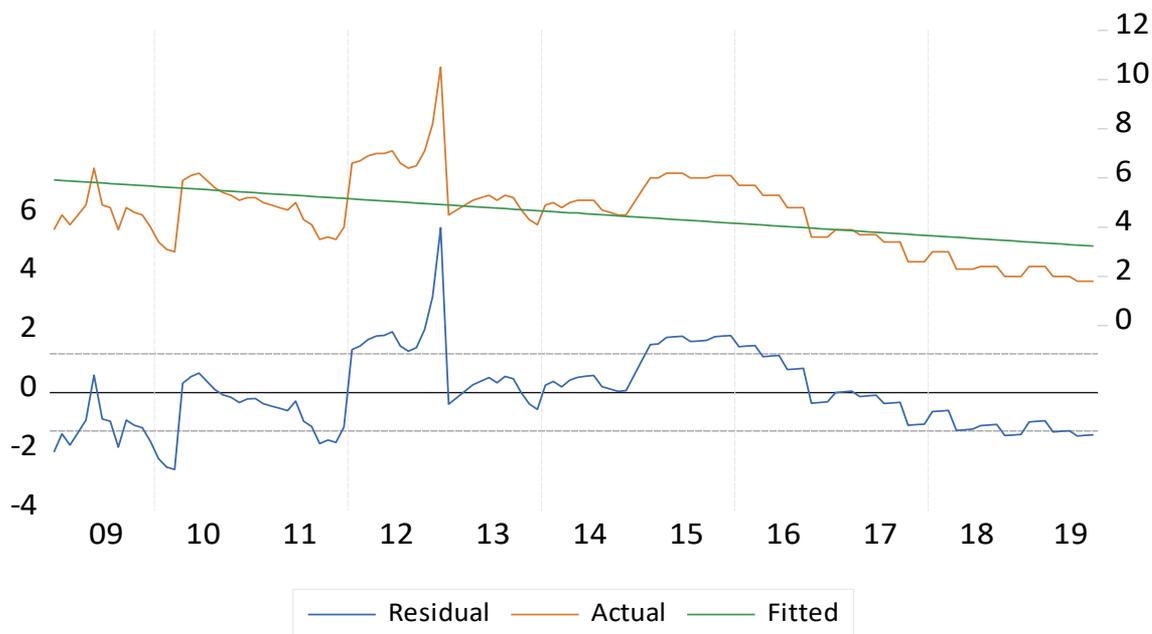

Figure 4. U.S. Personal Saving Rate

Note: The Regression of the time trend of personal saving rate is:

$$USPSR = 8.423^{***} - 0.021^{***} t$$

$$\qquad (0.574) \qquad (0.003)$$

$$R^2 = 0.267, \quad SER = 1.306, \quad F = 46.674, \quad D-W = 0.340, \quad N = 130$$

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[118] See, "Fed Cuts Rates by a Quarter Point in Precautionary Move", Central bankers say move protects against risks posed by muted inflation, global growth concerns. https://www.wsj.com/articles/fed-cuts-rates-by-a-quarter-point-ends-portfolio-runoff-11564596200?mod=article_inline&mod=article_inline&mod=article_inline. See also, https://www.wsj.com/articles/powell-says-fed-prepared-to-provide-stimulus-if-a-slowdown-hits-u-s-economy-11566568965 . Fed Chairman Jerome Powell 's press conference on September 18, 2019 carried a subtle message for President Trump: If you are worried about an economic slowdown, find a way to cool down the trade war. See, "Analysis: Powell's Subtle Messaging to Trump on Trade Fight". The globalist Fed chairman mentioned trade 20 times at his news conference on Wednesday (9/18/2019). https://www.wsj.com/articles/analysis-powells-subtle-messaging-to-trump-on-trade-fight-11568971800 . On January 15, 2020, the U.S. and China signed a Trade Agreement. See, *The Wall Street Journal*, January 16, 2020, pp. A1, A7, B1, and B12.

[119] Thus, from $\bar{i}_{FF} = 1.50\% - 1.75\%$ back to $\bar{i}_{FF} = 0.00\% - 0.25\%$. See, https://www.federalreserve.gov/newsevents/pressreleases/monetary20200129a1.htm

4.2   Monetary Policy Rules and their Benefits

> «Ἔλπισον ἐπί Κύριον καί ποίει χρηστότητα
> καί κατασκήνου τήν γῆν,
> καί ποιμανθήσῃ ἐπί τῷ πλούτῳ αὐτῆς.»
>
> Ψαλμός 36, 3

We can use different monetary policy rules (interest rate reaction functions) to test the efficiency and effectiveness of the target interest rate ($\bar{i}_{FF}$) and of course, to see if the level of the federal funds rate is optimal. The objective of the Fed is stabilization of output (maximum employment) and prices (inflation target, $\pi_t = 2\%$), hoping to stimulate consumption and investment.

Central bank's behavior (reaction to inflation and output-employment) can be presented with an interest rate reaction function, eq. (3), as follows:
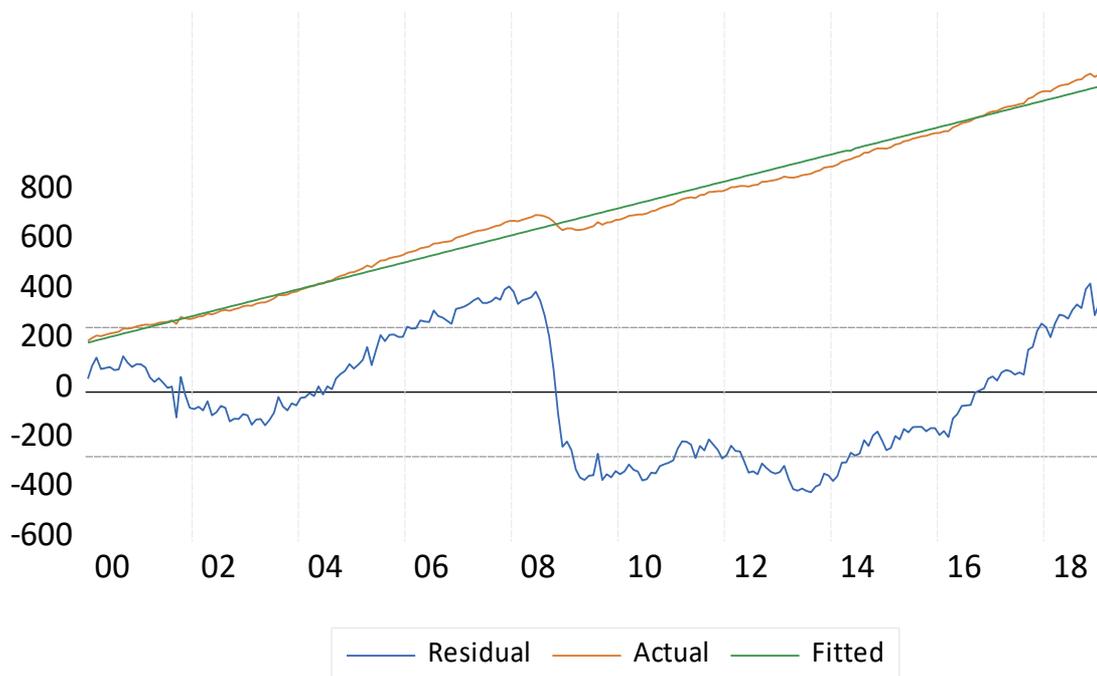

Figure 5: U.S. Personal Consumption Expenditure and its L-T Trend

Note: The Regression for the personal consumption time trend is:

$$USPCE = 6{,}091.631^{***} + 32.282^{***}\, t$$

$$\qquad\qquad (36.314) \qquad (0.244)$$

$$R^2 = 0.987, \quad SER = 260.049, \quad F = 17{,}529.91, \quad D-W = 0.023, \quad N = 239$$

$$\bar{i}_{FF_t} = \rho \bar{i}_{FF_{t-1}} + (1-\rho)(\pi_t + r_t^*) + \alpha_\pi (\pi_t - \pi_t^*) - \alpha_u (u_t - u_t^N) \qquad (3)$$

where, $\bar{i}_{FF_t}$ = the target federal funds rate, π_t = the rate of inflation as measured by the GDP deflator, π_t^* = the desired rate of inflation,[120] r_t^* = the assumed equilibrium real interest rate, u_t = the unemployment rate, u_t^N = the natural level of unemployment, and ρ = the weight put on the past federal funds rate setting.

We can run a regression of eq. (3), which is presented in eq. (4). The target interest rate will follow the changes in inflation and unemployment based on the coefficients estimated in eq. (4). This interest rate measured by the interest rate reaction function must be the target federal funds rate:

$$\bar{i}_{FF_t} = \alpha_0 + \alpha_1 \bar{i}_{FF_{t-1}} + \alpha_2 \pi_t + \alpha_3 u_t^{GAP} + \alpha_4 u_{t-1}^{GAP} + \varepsilon_t \qquad (4)$$

where, $u_t^{GAP} = u_t - u_t^N$.

Using monthly data for the U.S. economy (1954:08-2021:01), we have:

$$\bar{i}_t = 0.072^* + 0.984^{***} \bar{i}_{t-1} + 0.015^{***} \pi_t - 0.147^{***} u_t^{GAP} + 0.121^{***} u_{t-1}^{GAP}$$
$$\quad (0.034) \quad (0.006) \qquad (0.005) \qquad (0.041) \qquad (0.041)$$

$$R^2 = 0.982, \quad SER = 0.487, \quad F = 10,743.25, \quad D-W = 1.306, \quad N = 798$$

The size of the partial adjustment, coefficient α_1, which is 0.984^{***} provides direct evidence that the observed degree of persistence in federal funds rates is greater than the one that can be attributed to systematic policy responses to persistent inflation and unemployment (output) fluctuations. The coefficients of regression show that the federal funds rate must respond significantly to an increase in inflation ($\alpha_2 = 0.015^{***}$), but less aggressively to induce an increase in real rates and a tightening monetary policy. The federal funds rate must respond sufficiently aggressively to an increase in unemployment ($\alpha_3 = -0.147^{***}$) to induce a reduction in interest rate and an effective easing monetary policy.

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[120] 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). Here, we forecast the inflation, as follows:

$$\pi_t^e = \pi_t^* = 3.476^{***} + 1.289^{***} \pi_{t-1} - 0.301^{***} \pi_{t-2} - 0.908^{***} \varepsilon_{t-1}$$
$$\qquad (0.836) \quad (0.034) \qquad (0.031) \qquad (0.022)$$

$$R^2 = 0.348, SER = 3.364, F = 113.360, D-W = 2.001, N = 854, RMSE = 3.355977$$

From 2008:12 to 2015:11 (period of zero federal funds rate), we had,

$$\bar{i}_t = 0.036^{***} + 0.573^{***} \bar{i}_{t-1} + 0.001\pi_t + 0.015u_t^{GAP} - 0.011u_{t-1}^{GAP}$$
$$(0.009) \quad (0.065) \qquad (0.001) \quad (0.015) \qquad (0.015)$$

$$R^2 = 0.622, \quad SER = 0.025, \quad F = 32,512, \quad D-W = 1.079, \quad N = 84$$

From 2015:12 up to 2020:02 (new regime: $0.25\% \leq i_{FF} \leq 2.50\%$),[121] the results are,

$$\bar{i}_t = 0.055 + 0.984^{***} \bar{i}_{t-1} - 0.004\pi_t + 0.110u_t^{GAP} - 0.084u_{t-1}^{GAP}$$
$$(0.076)(0.046) \qquad (0.006) \quad (0.116) \qquad (0.117)$$

$$R^2 = 0.985, \quad SER = 0.095, \quad F = 742.510, \quad D-W = 1.208, \quad N = 51$$

During the latest two monetary policy regimes from 2008 to 2020, the coefficients of regressions are insignificant, showing that the federal funds rate does not respond significantly to an increase in inflation to induce an increase in real rates and a tightening monetary policy. Also, the federal funds rate does not respond sufficiently aggressively to an increase in unemployment to induce a reduction in interest rate and an effective easing monetary policy. Thus, these monetary policies the last twelve (12) years have nothing to do with the real sector (Main Street) of the economy and its objectives (inflation, growth, and unemployment). The only effects were on interest rate (negative real returns) and on financial markets (a new enormous bubble).[122] And a third worse effect, the bail in of the banks (depositors are paying interest on their deposits to the banks for "safe keeping their deposits") and the bail out of the banks (taxpayers are paying the interest on reserves of the banks). (Sic). Thus, there is an ethical issue,[123] here, and the social benefits are very limited or imaginary for this monetary policy.

Further, the Taylor rule is a specific case of eq. (3); it puts $\rho = 0$ and we get by substituting, from the original equation, the logarithm of GDP with the unemployment rate, the following equation:

$$\bar{i}_{FF_t} = \pi_t + r_t^* + \alpha_\pi(\pi_t - \pi_t^*) - \alpha_u(u_t - u_t^N) \tag{5}$$

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[121] Since March 17, 2020, the federal funds rate went back to: $0.00\% \leq i_{FF} \leq 0.25\%$.

[122] See, Kallianiotis and Petsas (2020, Table 1).

[123] These monetary policies are unfair, wrong, anti-social, and against the poor citizens of the country. And after all of these deceptions, from the global financial crisis, came the Chinese plague, the coronavirus. The deduction from all these crises is very simple; we need a strong fiscal and trade policy that have to be in favor of the poor people, a "pro-American" public policy and an effective monetary one.

Taylor (1993) proposed an $\alpha_\pi = 0.5$ and $\alpha_u = -0.5$.[124]   The rule "recommends" a high interest rate (a "tight" monetary policy) when inflation is above its target, in order to reduce inflationary pressure, as we have now, and a low interest rate ("easy" monetary policy) when the unemployment rate is above its natural level to stimulate production, output, and employment.[125]

Then, by using the Bullard rule,[126] we have:

$$\bar{i}_{FF_t} = \rho\, i_{FF_{t-1}} + (1-\rho)[r_t^* + \pi^* + \phi_\pi(\pi_t - 2\%) + \phi_q(u_t - 4\%)] \tag{6}$$

In addition, financial market plays a major role in market oriented economies and its optimal growth has a positive effect on investors' and consumers' confidence. The opposite happens, if growth is artificially enormous (abnormal bubbles). Kallianiotis (2019c) rule is an expansion of eq. (5) by using an extra term, the growth of the financial market (g_{DJIA_t}), as follows,

$$\bar{i}_{FF_t} = \pi_t + r_t^* + \alpha_\pi(\pi_t - \pi_t^*) - \alpha_u(u_t - u_t^N) + \alpha_{DJIA}(g_{DJIA_t} - g_{DJIA_t}^*) \tag{7}$$

where, g_{DJIA_t} = the actual growth of the DJIA index, $g_{DJIA_t}^*$ = the optimal (the bubble prevention) growth of the DJIA
($g_{DJIA_t}^* \leq 7\% \cong i_{10YTB} + 5\%$ *or HRP* $\cong 8.7\%$),[127] and $\alpha_\pi = 0.25$,
$\alpha_u = -0.50$,[128] $\alpha_{DJIA} = 0.25$
The results, from: (1) Taylor's rule [eq. (5)], (2) Bullard's rule [eq. (6)], and (3) Kallianiotis' rule [eq. (7)], are as follows.[129]

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[124] There is a Phillips curve in our economy. See, Kallianiotis (2021a).

[125] If the economy has a high inflation and it is in a recession (with high unemployment), we must have a target interest rate: $\bar{i}_{FF} = 5.4\% + 1\% + 0.5(5.4\% - 2\%) - 0.5(5.9\% - 4\%) = 7.15\%$. This should have been the federal funds rate in June 2021, but it was between 0.00% and 0.25%, which was very low; and it was ineffective, it did not improve growth and did not reduce inflation and unemployment.

[126] See, St. Louis Fed President, James Bullard (2018a and b) rule.

[127] For the Historic Risk Premium (HRP), see, Ross, Westerfield, Jaffe, and Jordan (2016).

[128] The coefficient of unemployment is higher because full employment is the most important objective of every policy. Citizens of a country need work (employment), certainty (zero risk), confidence for the financial market (no bubbles and enormous declines), and low inflation (the true cost of production of a good). And above all, they need a democratic system and not something like the current indescribable one.

[129] For more details, see, Kallianiotis and Petsas (2020).

(1) Taylor's Rule:

The target federal funds rate was between (0.00%-0.25%) for the period 2008:12 to 2015:11 (Zero Interest Rate Regime).[130] Thus, i_{FF} must have been:

$i_{FF} = 1.586\% + 1\% + 0.5(1.586\% - 2\%) - 0.5(7.838\% - 4\%) = 0.46\%$; but, it was between 0% and 0.25% (average $\bar{i}_{FF}^{eff} = 0.129\%$), which was low.

From 2015:12 to 2018:12 (New Regime) the i_{FF} must have been:

$i_{FF} = 1.906\% + 1\% + 0.5(1.906\% - 2\%) - 0.5(4.389\% - 4\%) = 2.6645\%$; but, it was between 0.25% and 2.50% (average $\bar{i}_{FF}^{eff} = 1.054\%$), which was too low.

Thus, Taylor's rule recommends higher federal funds rate.

(2) The Bullard rule, now, gives:

For the ZIRR (2008:12-2015:11) the i_{FF} must have been:

$i_{FF} = 0.85(0.25\%) + 0.15[1\% + 2\% + 1.5(1.586\% - 2\%) + 1(7.838\% - 4\%) = 1.14505\%$; but it was 0.129%, very low.

For the NR (2015:12-2018:12) the i_{FF} must have been:

(i) When $\bar{i}_{FF} = 0.50\%$:

$i_{FF} = 0.85(0.25\%) + 0.15[1\% + 2\% + 1.5(1.906\%) + 1(4.389\% - 4\%) = 0.6997\%$ which was low.

(ii) When $\bar{i}_{FF} = 0.75\%$:

$i_{FF} = 0.85(0.50\%) + 0.15[1\% + 2\% + 1.5(1.906\% - 2\%) + 1(4.389\% - 4\%) = 0.9122\%$ which was low.

(iii) When $\bar{i}_{FF} = 2.50\%$:

$i_{FF} = 0.85(2.25\%) + 0.15[1\% + 2\% + 1.5(1.906\% - 2\%) + 1(4.389\% - 4\%) = 2.3997\%$ which was relatively good.

(iv) When $\bar{i}_{FF} = 1.75\%$:

$i_{FF} = 0.85(2.00\%) + 0.15[1\% + 2\% + 1.5(1.906\% - 2\%) + 1(4.389\% - 4\%)] = 2.4122\%$ which was very low (1.75%).

Thus, even Bullard's rule shows that the target federal funds rate is relatively low.

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[130] For federal funds target rate, see,
http://www.fedprimerate.com/fedfundsrate/federal_funds_rate_history.htm

(3) Lastly, the Kallianiotis rule,[131] which gives the following results:
    For the ZIRR (2008:12-2015:11) the i_{FF} must have been:

$$i_{FF} = 1.586\% + 1\% + 0.25(1.586\% - 2\%) - 0.50(7.838\% - 4\%) + 0.25(9.952\% - 7\%) = 1.5095\%$$

which was very low (0.00%-0.25%).

For the NR (2015:12-2018:12) the i_{FF} must have been:

$$i_{FF} = 1.906\% + 1\% + 0.25(1.906\% - 2\%) - 0.50(4.389\% - 4\%) + 0.25(10.78\% - 7\%) = 3.633\%$$

which was very low (1.75%).

The results show that the target rates of our central bank (Fed) are very low. The empirical results and all the tests and rules reveal that these monetary policies do not promote social welfare, because its social benefits are less than its social cost. Measuring the correlation (ρ) and testing the causality ($\Rightarrow$) between the instruments (i_{FF_t}, MB, and M^s) and the objective variables ($DJIA$, GDP, i_{10YTB}, P, and u), the results are given in Table A1. From 2008:12-2015:11, a reduction in i_{FF_t} reduces i_{10YTB} and reduces unemployment (u). Also, an increase in MB increases $DJIA$ and GDP, reduces i_{10YTB}, increases prices and reduces unemployment. Further, an increase in M^s increases $DJIA$ and GDP, reduces i_{10YTB}, increases prices and reduces unemployment. From 2015:12-2020:12, the i_{FF} causes GDP, prices (P), and unemployment (u). The increase in MB increases GDP, reduces i_{10YTB} and increases unemployment. The increase in M^s increases GDP and increases unemployment.

Now, testing the effects of the instruments on the objective variables (C, I, TA, e, and GDP), we have the results that are showing in Table A2. The results show from 2008:12 to 2015:11 that the reduction in i_{FF_t} had increased consumption (C). The increase of MB has improved C, I, TA, GDP, and the dollar was appreciating. The increase of M^s has increased I, TA, production and the value of the dollar. From 2015:12 to 2020:12, the increase of i_{FF_t} has improved investment and growth of GDP. The increase of MB has negative effects on C, I, TA, GDP, and on the dollar value. The increase of M^s increases C, I, and GDP, but no other effects.

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[131] Kallianiotis rue with June 2021 gives: (1) With official data, the target federal funds rate ($\bar{i}_{FF}$) must have been:
$$i_{FF} = 5.4\% + 1\% + 0.25(5.4\% - 2\%) - 0.50(5.9\% - 4\%) + 0.25(18.22\% - 8.7\%) = 8.68\%$$

(2) With SGS data, the $\bar{i}_{FF}$ should have been:
$$i_{FF} = 13\% + 1\% + 0.25(13\% - 2\%) - 0.50(25.8\% - 4\%) + 0.25(18.22\% - 8.7\%) = 8.23\%$$

5. Policy Implications of the New Instruments

«Οὗτοι ἐν ἅρμασι καί οὗτοι ἐν ἵπποις,
ἡμεῖς δέ ἐν ὀνόματι Κυρίου Θεοῦ ἡμῶν
μεγαλυνθησόμεθα.»
Ψαλμός 19, 8

We can use the Equation of Exchange, eq. (8), to measure the velocity of money (V) and the effect of money supply (M) on the price level (P) and on the nominal output ($Y = QP$).

$$MV = QP \qquad (8)$$

where, M = money in circulation, V = the velocity of circulation (the number of times a dollar changes hands annually), Q = the real GDP, P = the price level, Y = the nominal GDP.
From eq. (8), we receive the velocity,

$$V = \frac{QP}{M} \qquad (9)$$

Then, the velocity is variable over time because Q, P, and M are changeable by monetary policy, Graph 4.[132]

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[132] The Velocity of M2 is even lower. In 2021:Q1 it was 1.122 and in 2021:Q2 became 1.120 (July 29, 2021). See, https://fred.stlouisfed.org/series/M2V
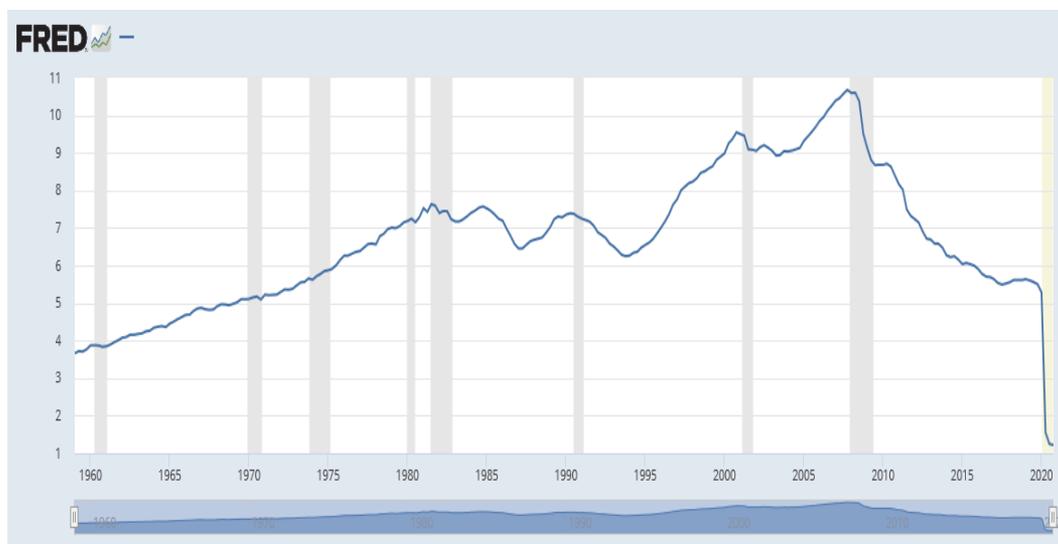
Graph 4: Velocity of Money Stock (M1)

Note: In 2007:Q4, the velocity was 10.678, in 2019:Q4 had fallen to 5.5, and in 2020:Q2 became 3.872, which means that the income was increasing more than 10 x, after 2019 fell to 5 x, and after 2020 fell below 4 x , which reduces the income. In 2020:Q1 was 5.285, 2020:Q2 = 1.555, 2020:Q3 = 1.247, in 2020:Q4 fell to 1.221, in 2021:Q1 was 1.198, and in 2021:Q2 became 1.187. (Updated: July 29, 2021).
Source: https://fred.stlouisfed.org/series/M1V

The largest the velocity, the faster the money circulates and more income is generated because every time the money changes hands, it becomes income for another person. Thus, the easy money policy ($0.00\% < i_{FF} < 0.50\%$) from 2008 to 2017[133] and the new monetary policy instruments (IOR , QE , $R_R = 0$, i_{ONRRP} , and ample reserves) did not affect the real economy; it just lowered the velocity of money,[134] increased the market risk (bubbles), augmented the expectations for a creeping double digit inflation, and generated enormous negative real returns. People did not spend their money, but the Fed was subsidizing the financial sector by creating a new bubble, which was burst with the "innovative" Chinese coronavirus (its biological WWIII), which was exploited to the extreme by the Illuminati. The federal funds went back to zero (March 15, 2020),[135] and the same cycle will be repeated. This *liquidity trap* (zero interest rate), Graph 3, does not allow the Fed to influence monetary policy, because it cannot lower the interest rate further to stimulate the economy.

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[133] "Federal Funds Target Range (FFR)", See,   https://fred.stlouisfed.org/series/DFEDTARU
For the "Effective Federal Funds Rate (EFFR)", see, https://fred.stlouisfed.org/series/EFFR
[134] See, Kallianiotis (2021a).
[135] See, https://apps.newyorkfed.org/markets/autorates/fed%20funds . Also, see,
https://fred.stlouisfed.org/series/DFEDTARU

Also, it has become a real trap for the risk-averse depositors that have a closed to zero deposit rate since 2008.[136] Monetary policy has become ineffective.[137] Interest rate must be consistently above zero in our non-ideal (imperfect) world (because, $\pi^e > 0 \quad and \quad Risk > 0$).[138] Fiscal policy can be mostly effective, if the government is a democratic, impartial, and not a very corrupted one, because it is independent from interest rate. But, today, these types of governments do not exist. Also, trade policy (exchange rate, tariffs, import taxes, quotas, etc.) is inevitably necessary because is making the domestic economy self-sufficient and independent from the foreign economies.[139]

$$ P = \frac{MV}{Q} \tag{10} $$

The enormous money supply ($M2$)[140] increases the prices (P), eqs. (8) and (10), and real wages (w/P) are falling, but the workers have no choice and continue to work and they are happy that they are employed or they receive the generous unemployment compensation from the government.[141] The debt is going up and people prefer to stay home, instead of going to work. The money supply ($M2$) increases nominal income (Y), eq. (11), which is actually an increase in prices and

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[136] With an inflation for February 2020, π = 2.3%, the depositor, instead of receiving interest, he was paying to his bank ($r_D = i_D - \pi = 0.05\% - 2.3\% = -2.25\%$ p.a. to keep his deposits.

https://tradingeconomics.com/united-states/inflation-cpi. Now, $r_D = 0.05\% - 13\% = -12.95\%$ (SGS inflation).

[137] See, Kallianiotis (2019a, b, c, 2020a, b, c, and d, and 2021a).

[138] Because, $i = r^* + \pi^e + RP$; where, i = nominal rate of interest, r* = real risk-free rate of interest, πe = expected inflation, and RP = risk premium.

[139] "The economics profession [with their artificial theories, heroic assumptions, and wrong philosophies (believes, ἡ πλάνη τῶν ψευδο-ἐπιστημόνων)] bears the responsibility that the public, the media, and politicians are ill informed about real world economics." See, Komlos (2019b, p. 14).

[140] Money supply ($M2$) from $7,459.6 billion (1/14/2008) became $17,234.8 billion (4/30/2020), a growth of 131.042% (10.697% p.a.), and reached $18,318.2 billion (7/20/2020). See, https://fred.stlouisfed.org/series/M2 , on (3/25/2021), it was $19,669.8 billion, and now, (7/27/2021), it is $20,541.2. Thus, πe =10%.

[141] A $1.2 trillion "infrastructure" (redistribution) bill was approved by the senate. Nineteen Republicans joined Democrats in voting for the bipartisan infrastructure deal on Tuesday (8/10/2021). See, https://www.cnn.com/2021/08/10/politics/republican-senators-voted-infrastructure-bill/index.html. Also,"Senate Democrats unveiled new details about the $3.5 trillion climate and anti-poverty package they hope to pass this fal"l. Here's what to know about the sweeping plan. See, https://www.wsj.com/articles/senate-democrats-release-outline-of-3-5-trillion-antipoverty-climate-plan-11628513109 . Further, "Democrats reach deal on $3.5T price tag for infrastructure (reconciliation) bill". https://thehill.com/policy/transportation/562889-democrats-reach-deal-on-35-trillion-price-tag-for-infrastructure-bill Also, the IRS sent out the first child-tax-credit payments. "The Expanded Child Tax Credit Is Here. Here's What You Need To Know", See, https://www.npr.org/2021/07/15/1016122095/the-expanded-child-tax-credit-is-here-heres-what-you-need-to-know

not on real output. This is the "money illusion". Firms sell their products to higher prices and make more profits, so they expand production and hire more workers at the same nominal wage (w), but during this period, the U.S. workers prefer to stay home and get the welfare benefits from the socialist government. (*Sic*) A Phillips curve[142] exists in the short run. Workers cannot ask for higher nominal wages in our globalized and open borders world because firms start hiring illegal immigrants at very low wages or they do outsourcing.[143]

$$Y = Q\,P = M\,V \qquad\qquad\qquad (11)$$

Economists have different philosophical views about the policy used to stimulate the economy.[144] Thus, politicians choose as advisors the economists, who suit their ideology. Everything is subjective. Markets, businesses, and institutions exist and governments are elected to serve the people and to contribute to social welfare and not to care only for their interest, otherwise we do not need them. We need an ideal and humane economic system with zero unemployment, zero inflation, zero trade deficits, zero government deficit, zero households deficit; public policies that make no even a single individual worse off of what he was before and a maximization of social welfare for every citizen, based on person's merits and abilities. But if these conditions do not exist; the markets, the institutions, and the policy makers are not efficient and need to be regulated. But, who is going to regulate regulators?
Fed reduced the federal funds rate (on December 16, 2008) to 0.25% (quantitative easing)[145] to affect positively (increase) the money supply. Really, the money supply has increased drastically (*MB* from \$850.8 billion in September 2007 became \$4,149.505 billion in September 2014; in January 2021, it reached \$5,247.900 billion, at the end of March 2021, it was \$5,446.900 billion, and on June 22, 2021, it was \$6,041.900) and continues to be magnified.[146] At a given price level, it was expected the aggregate demand (*AD*) to rise. More money in the

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[142] See, Kallianiotis (2021c) for the Phillips curve and its estimation. See also, Ihrig, Peneva, and Wolla (2021),

[143] "AT&T CEO Randall Stephenson promised to create "7,000 good jobs for the middle class" after Trump's tax cut was passed, yet the company has been laying off thousands of workers and shipping those jobs overseas to India, China and other countries where workers can be paid less than \$2 [\$0.50 in China and \$0.10 in India] an hour. This is what a rigged economy is all about." See, https://www.techdirt.com/articles/20191211/10503943556/att-said-trump-tax-cuts-would-create-thousands-jobs-instead-atts-laying-off-thousands.shtml

[144] A Nobel laureate was giving a speech in our University and he said: "I teach free trade to my students, but I am against free trade, I prefer trade control (tariffs) for the benefits of our country".

[145] Fed Funds Rate History with Its Highs, Lows, and Charts: How the Benchmark Has Changed Through History, https://www.thebalance.com/fed-funds-rate-history-highs-lows-3306135 . See, also, https://www.federalreserve.gov/monetarypolicy/openmarket.htm

[146] A growth of the MB by \$3,298.705 billion or 387.718% (55.39% per annum). Then, if inflation is a monetary phenomenon (according to Monetarist School), we must have a double digits inflation, as actually it is, now.
https://fred.stlouisfed.org/series/BOGMBASE/

economy and closed to zero interest rate was expected to equate money supply with money demand. This lower interest rate (cost of capital) and the ample reserves could stimulate more investment and consumption. More investment and consumption require a higher level of GDP for spending balance. All these should shift aggregate demand to the right and the economy will improve. But, the aggregate demand did not rise because people are unemployed and their debts are enormous. The cost of capital (loans' rate) went down and the banks had all this liquidity generated by the Fed, but businesses and people did not borrow; there was no demand for their products (lockdowns) [147] and people did not have the confidence and the required qualifications to borrow and they did not want more debt in the middle of the biggest constructed crisis in human history. Then, individuals' demand fell and firms' investment declined, too, [148] because in an economy demand creates supply ($AD \Rightarrow AS$) and not the opposite. Actually, consumption (Figure 5) and investment fell and aggregate demand decreased drastically, which affected negatively production, output, and employment.[149] But, banks are receiving interest (IOR)[150] from the Fed (paid by taxpayers) on their excess reserves (non-disposable funds) and on the required reserves (before their abolition). [151] These expansions benefit only the high income people through financial markets (Figure 6).

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[147] "32 Bankruptcy Filings Chalked Up to COVID-19". See, https://www.kiplinger.com/investing/603194/bankruptcy-filings-chalked-up-to-covid-19-2021 Also, "55% of businesses closed on Yelp have shut down for good during the coronavirus pandemic". See, https://www.marketwatch.com/story/41-of-businesses-listed-on-yelp-have-closed-for-good-during-the-pandemic-2020-06-25 . Further, "Corporate bankruptcies slow for now, could pick up later in 2021, experts say", see, https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/corporate-bankruptcies-slow-for-now-could-pick-up-later-in-2021-experts-say-64100726

[148] See, Gross Private Domestic Investment (GPDI), FRED, https://fred.stlouisfed.org/series/GPDI

[149] See, Real Gross Domestic Product (RGDP), FRED, https://fred.stlouisfed.org/graph/?g=f1cZ

[150] See, Kallianiotis (2019a, b, c and 2020b and c).

[151] Required reserves were abolished on March 26, 2020. See, Kallianiotis (2020c). See, also, https://www.federalreserve.gov/monetarypolicy/reservereq.htm

Figure 6: The DJIA Index

Note: Dow Jones - DJIA - 100 Year Historical Chart
Source: Macrotrends https://www.macrotrends.net/1319/dow-jones-100-year-historical-chart

The Great Recession (2008)[152] vs the Great Destruction (2020)[153] followed the subprime mortgage bubble and the stock market bubble with a substantial decline in income, increases in unemployment, a rise in foreclosures, and maximized the suffering of the U.S. people. The investment was cut and the aggregate demand declined. This was a deep recession. In September 2008, the big in size and risk investment banks disappeared and the poor taxpayers bailed out the Wall Street, but there were again neglected the true structural problems of the U.S. economy. The

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[152] The causes of the latest global financial crisis (2008) are: (1) Greenspan's Ideology, (2) The Financial Innovations, (3) The Rise of the Shadow Banking System, (4) The Neglect of Systemic Risk, (5) Groupthink rendered Greenspan's view politically correct, (6) The Dot-Com Bubble, (7) The lowering of Interest Rates, (8) Credit Rating Agencies, (9) Excessive Faith in Quantitative Finance, (10) Endemic Trade Deficits, (11) Easy Credit, (12) Banks Lowered Underwriting Standards, (13) Expansion of Subprime Lending, (14) Predatory Lending, (15) Bubble in House Prices, (16) The Illusion of Tranquility was Deceptive, (17) Deregulation, (18) High Debt Burden, (19) Financialization, (20) Herd Mentality, (21) Mispricing of Risk, (22) Out of control Leverage, (23) Globalization, (24) Moral Hazard, (25) Lack of Historical Perspective, (26) Hubris was ubiquitous, (27) Culture, (28) Inequality of Income, (29) Corporate Governance, (30) Revolving Door (executive in finance were appointed to government position), and (31) Media (fake news). See, John Komlos, *Foundations of Real-World Economics*, Second Edition, Routledge, 2019, pp. 243-252.
[153] See, Kallianiotis (2020d).

Fed and the Treasury tried to help the economy, but the country continued to have the same structural problems, the immense trade deficit, the foreign dependence, the national debt and private debts, the deteriorating infrastructure, part time and half time work, students debt, the cost of illegal immigrants, the green revolution, and a government that could not overcome the lobbies, but it introduced a new doctrine to control the free speech, the elusive "politically correct", and to finance and maintain so many unnecessary conflicts and wars around the world. The Obama administration did not make any structural changes, except of deepening the division among people and institutionalizing liberalism; the Trump administration tried for four years to revise and restructure this economic setback and affliction, but he was confronted with all the implausible means that the establishment can invent, from impeachments to the Chinese coronavirus; with the current administration, all signs for improvement are so far negative.

This recent crisis of 2020, with the suspicious coronavirus, the health problems, the hundred thousands of deaths, the extended lockdown of businesses, the shutdown of the economy, the stay-at-home orders, it destroyed the small businesses and will help only the monopolists; it affected negatively Universities and education in general. It led the civil liberties at risk and had unexpected consequences of this ongoing isolation (drugs, alcohol, psychological problems, violence, divorces, and crimes). Then, it "came" (they allowed) the civil unrest, the manipulation of the public opinion by the liberal media, the riots, violent, lootings, chaos, lawlessness, destruction, division, and the election irregularities. Further, some experimental vaccines appeared in a few months, which have increased the uncertainty and deaths by generating new variants, and have raised many ethical questions among people.[154] Unfortunately, this new crisis it seems as the worst in human history,[155] a global Great Destruction[156] and it is impossible the current monetary policy to generate soon any recovery.

Furthermore, another proof, showing the control (by the "economic elites") of the private central banks, is coming from U.K. The globalists of the Bank of England were against the Brexit; which means they were against the referendum of the people (they act anti-democratically) and tried to terrorize the British citizens and

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[154] These vaccines were supposed to help us get back to normal, but they do not do anything. Dr. Fauci said, "you must wear a mask even if you are vaccinated". Ἀπάτη!... (*ABC News*, March 19, 2021).

[155] And in the U.S. this crisis has political ramifications; it is manipulated and utilized by the liberals to go against the conservatives. Now, it comes to my mind what one of my professors in Microeconomics was telling us (his students) 42 years ago: "A politician has only one interest, to be reelected, nothing else; he does not care for you, for the economy, for the country or anything else." At that time, I did not believed him because I was very young. Today, I see that he was absolutely right. See, Kallianiotis (2019b and c, 2020a and c, and 2021).

[156] European banks are using the pandemic to make changes investors have wanted for years: slash jobs, shut branches and force customers online. See, Patricia Kowsmann and Margot Patrick, "European Banks Use Pandemic to Clean House", February 14, 2021. https://www.wsj.com/articles/european-banks-use-pandemic-to-clean-house-11613298601?mod=md_usstk_news

to keep them inside the EU by saying: "if they will leave the EU, there will be a global disaster".[157] How can we trust the controlled central bankers, who do not believe in democracy and do not respect the will of the citizens? U.K. had a referendum and they voted in favor of leaving the oppressive EU.[158] The best solution for the society will be to make all these central banks public institutions; so they will work only for the people, for their nations, and for their wellbeing and not terrorizing them and control (influence) their investment and economic decisions, their destiny, and their economic welfare.[159]

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[157] TV News *ANTENNA*, 8/1/2019. See also, "Brexit: Day arrives for the UK to finally leave the EU after 47 years", https://www.9news.com.au/world/brexit-news-day-finally-arrives-uk-leaves-eu-live-updates-blog/57b16099-f01b-4b61-b6e7-fdb076d07671 . This is actually a success (a win) of democracy!.. See,
https://www.bing.com/search?q=wsj+brexit+arrives%2c+a+watershed+moment+for+britain+and+the+eu&FORM=AWRE . See also, the controlled media with their misinformation and lies, "Support for Brexit is collapsing as poll finds big majority of British people want to be in the EU", https://www.businessinsider.com/brexit-poll-most-british-people-want-to-rejoin-eu-2020-6

[158] This was the *United Kingdom European Union membership referendum*; also known as the *EU referendum*, the *European referendum* and the *Brexit referendum*, which took place on June 23, 2016 in the UK and Gibraltar to ask the electorate if the country should remain a member of, or leave the EU, under the provisions of the European Union Referendum Act 2015 and also the Political Parties, Elections and Referendums Act 2000. The referendum resulted in 51.9% of votes being in favor of leaving the EU (17,410,742 votes). The government of that time had promised to implement the result, but the country was still in the union for over 4 more years, until December 31, 2020. Greece had also a referendum on July 5, 2015 and 61.31% vote NO to EU memoranda, but EU made it YES. Greece has to leave the Euro-zone and become independent from its controlled "protectors", otherwise the country has no future.
https://en.wikipedia.org/wiki/2015_Greek_bailout_referendum . This liberal EU is actually a controlled trap and not a union. See, Kallianiotis (2018).

[159] Unfortunately, lately, globalists' and ecumenists' "religion" is Mother Earth, the Ecology (global warming); but last and current year's winter disappointed them with temperatures -50% F and heavy snow storms all over the north hemisphere. The rest of our "objectives" are all under their control even before the French Revolution (1789). See, Kallianiotis (2017b). Also see,
https://www.jacobinmag.com/2015/07/french-revolution-bastille-day-guide-jacobins-terror-bonaparte/.

6. Conclusions

«Κύριος διασκεδάζει βουλάς ἐθνῶν,
ἀθετεῖ δέ λογισμούς λαῶν
καί ἀθετεῖ βουλάς ἀρχόντων.»
Ψαλμός 32, 10

After 2008, the Fed has changed the way it implements monetary policy. It has, now, two overnight interest rates: (1) Interest rate paid on banks' reserves (i_{IOR}) and (2) Interest rate on the overnight reverse repurchase agreements ($i_{ON\,RRP}$). In December 2008, the target rate range between 0.00% and 0.25%.[160] Between 2008 and 2014, the Fed purchased a sizable amount of long-term securities (government securities and mortgage-backed securities). The reserves in the banking system went from \$44.9 billion (August 2007) to \$2.842 trillion (August 2014).[161] Then, the reserves from limited became "ample" (plentiful, ὑπερμεγέθη, ὑπέρμετρα) and now (July 27, 2021), they are \$3.848 trillion. Also, the Fed implemented new monetary policy tools. The most significant was interest on reserves (IOR). Congress gave to Fed the authority to pay IOR in 2006,[162] with starting date in 2011, but it started earlier in October 2008. Interest on reserves applies to both required ($IORR$) and excess reserves ($IOER$). This IOR is a bail out cost paying by taxpayers (consequently, an unfair and unethical "innovation"), which cost billion of dollar per annum.

Lastly, the Fed has changed the way it implements monetary policy since 2008. The $FOMC$ sets a particular federal funds target range (i.e., $\bar{i}_{FF} = 0.00\% - 0.25\%$) that is reflected in current and expected short-term interest rates. As it was mentioned above, this change in tools reflects a change in what the Fed calls its "implementation regime." This is a change in the Fed's policy implementation framework, which it is a policy with ample reserves. The Fed uses, now, its administered rates, which are the interest on reserve, IOR rate (i_{IOR}) and the overnight reverse repurchase agreement, $ON\,RRP$ rate ($i_{ON\,RRP}$) to influence the federal funds rate (i_{FF}).

This Fed's "innovation" (the ample reserves) has kept the deposit rate closed to zero ($i_D = 0.05\%$) because banks' supply of deposits has been reduced (shifts to the left)

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[160] The Fed also implemented a number of credit and liquidity programs, which are mentioned in Kallianiotis (2021c, section 2.2), early on in the Financial Crisis to support financial institutions and foster improved conditions in financial markets. These special programs expired or were closed to expire after some time.

[161] See, https://fred.stlouisfed.org/series/TOTRESNS

[162] This "innovation" took place under President George W. Bush and Ben S. Bernanke, who was sworn in on February 1, 2006, as chairman and a member of the Board of Governors of the Federal Reserve System. He also chaired the Federal Open Market Committee, the System's principal monetary policymaking body.

and the real deposit rate negative for twelve years[163] and has discouraged saving and intermediation by risk-averse middle-income people. This is an unethical bail in cost for the depositors, which is in trillion of dollars per annum.

The objective of monetary policy is to smooth the large fluctuations of the business cycle. There are debates rages on whether monetary policy can smooth business cycles[164] or not. A central conjecture of Keynesian Economics[165] is that the central bank can stimulate aggregate demand (AD) in the short run, because a significant number of prices in the economy are fixed in the short run (real money is increasing) and firms will produce as many goods and services as are demanded. In the long run, however, money is neutral (real money stays the same because prices are going up), as in the neoclassical model.[166] There is also the Austrian School of Economics, which includes different arguments, but most economists fall into either the *Keynesian* or *neoclassical* school of thoughts on this issue. The central bank can use policy rules to make federal funds rate optimal, which will satisfy the monetary policy's objectives (price stability, maximum employment, and stability of the financial markets). These can be attained with a mixed policy (monetary and fiscal). Further, many economists unconditionally support free trade, deregulation, globalization, liberalism, radicalism, enormous debts, deficits, and trade account deficits, zero interest rate, low business taxes, unfair competition, anti-nationalism, open borders, market efficiency, government control, no consumer protection, etc. without any regard to those who are devastated by the foreign competition and the domestic anti-social policies and the worst, no concern for the future generations. Economists, as social scientists, must be humanists with very high social values and deep true faith and to be very sensitive to social needs and problems, otherwise they cannot exercise and pursue successfully their science, which is a humanistic discipline; the queen of social sciences. Today, even scientists have lost the respect from the people.

The conclusion is that crises must be prevented,[167] if it is possible, and not to be corrected and be reduced or to be diminished because their social cost, sometimes, is infinite, and definitely, the responsible creators must be punished. But, in a market oriented economy, which depends on imports (lack of self-sufficiency) this is impossible because the greedy agents try to satisfy their self-interest and not the social one. This self-interest creates different episodes, disturbances, disequilibria, uncertainties, exaggerations, arrogances, greed, fear, unethical business practices,

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[163] This Fed's anti-social "innovation" (ample reserves and paying interest of reserves) has kept the deposit rate closed to zero ($i_D = 0.05\%$) for more than twelve years and because we are living in a free market economic system, banks charge an unethical (usurious) interest rate on credit cards of 39.99% and are paying another unethical rate of 0.05% on deposits (a spread of 39.94%). Kallianiotis (2017a) suggests different optimal interest rates for our economy. See,
  https://www.valuepenguin.com/banking/average-bank-interest-rates

[164] See, Business Cycles. https://en.wikipedia.org/wiki/Business_cycle

[165] See, Keynesian Economics, https://en.wikipedia.org/wiki/Keynesian_economics

[166] See, Neoclassical Economics, https://en.wikipedia.org/wiki/Neoclassical_economics

[167] See, Kallianiotis (2020c).

redistributions, inefficiencies, losses of wealth and income, unemployment and lately, fear (intimidation) and control, political crises and absurd wars (i.e., Afghanistan, etc.). Public policies (fiscal, trade, and the policy in question here, the monetary) are needed to reduce these problems, to smooth the business cycles and improve the social welfare of the citizens. This latest economic crisis was unique in our economic history, but it is the first of many others that we will see in the near future, like the suspicious current coronavirus (Chinese virus or Wuhan virus or COVID-19)[168] one with its destructive health and economic effects.[169] This is another "benefit" of the inhumane globalization.[170] The central bank's policies must be more social than market oriented as they are now. This "independence" of the central banks around the world has caused serious problems to the nations' welfare. The world's problem, today, is that all these institutions and international organization are completely controlled. Then, nothing majestic or inspired is expected from these institutions or by the impotent U.N. What a pity and delusion for the world that had put its hope on them after WWII!

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[168] It started as a healthcare crisis => financial crisis => economic crisis => election irregularities => "domestic terrorism" => human control => depression => an anti-Trump tool => a questionable vaccine => a very suspicious crisis => unorthodox liberalism => climate issues => cancel culture => open borders => censorship by the big tech => critical race theory => students indoctrination => group thinking => loss of rights and liberty => China's aggressiveness => invasion of privacy => control over information => medical misinformation => vaccination mandate => vaccine passport => "human engineering" =>Divine Justice => σφράγισμα. The advanced nations must find out who has created this crisis and punish them. Governments cannot continue to cave in with the plans of the "economic elites" (dark powers). A group of senior lawmakers from eight democracies including the U.S. have launched a new cross-parliamentary alliance to help counter what they say is the threat China's growing influence poses to global trade, security and human rights.
https://www.bloomberg.com/news/articles/2020-06-05/lawmakers-in-eight-countries-form-new-alliance-to-counter-china

[169] The current coronavirus crisis is a pandemic worse than war. The country is scrambling for necessities because everything is coming from China. Health workers were facing shortages of vital equipment and drugs. This economic crisis will be unmeasurable; the growth of the GDP will be very low. (*ABC News*, March 18, 2020). The current crisis is actually a new U.S.-China cold war. This combined crisis (healthcare and economic) by the global elites will lead the world to a global depression and will terrorize all people, which is the only way for a global control through fear. See also, **"**COVID-19 Research Resources", Federal Reserve Bank of St. Luis,
https://research.stlouisfed.org/resources/covid-19/?utm_medium=email&utm_campaign=202003C%20Research%20Newsletter&utm_content=202003C%20Research%20Newsletter+CID_807cd9d2ccb00431c4d1f718c446fec6&utm_source=Research%20newsletter&utm_term=COVID-19%20resources

[170] Globalization has caused serious problems to developed countries: (1) Destruction of domestic jobs (increase in unemployment), (2) National security problems, (3) The infant industry protection, (4) The unfair competition from low cost of production countries, (5) Illegal migration, (6) Dilution of indigenous cultures and values, (7) The destruction of the sovereign nation, (8) Contagion from virus coming from under-developing countries, (9) Increase of systemic risk, (10) A war against Christianity and Christians, (11) Re-writing history, (12) Ecumenism (common faith), (13) Global deception, (14) Global control, (15) Global submission of people, (16) Global preparation for the acceptance of the deceiver, (17) Censorship, (18) Reinstatement of the Malthusian Theory on population (reduction of population) and many other suspicious anti-humane means and practices.

Finally, in the U.S. there was a big conflict and opposition from the Democratic Party against the Republican administration, which became worse during the latest Afghanistan crisis. [171] This cultivated division by the "progressive" (liberal globalists) could cause serious problems in the country as it happened in the past in Europe. Then, our political crisis exceeds the health and economic crises. The fiscal stimulus[172] benefited very little the economy to start a small recovery after the partial opening of businesses, but the national debt is becoming unbearable. Fed's chairman, Jerome Powell, was also in favor of a strong economic stimulus and he mentioned at the FOMC meeting on April 29, 2020 that the Fed will continue with a zero interest rate to support the economy.[173] But, a zero target rate by the Fed and its new monetary policy cannot benefit the economy (its growth and employment); it creates new bubbles and inflation and discourages savings with the zero deposit rates. We hope, all these past mistakes to teach us one important lesson that "moderation in everything" and individuals and societies (nations) need an optimal tax, financial markets and institutions need regulations, politicians have to stop the division and the cancel culture of the country, and a value oriented system of self-sufficiency is important, which will maximize social welfare, confidence, freedoms, liberty, and will make our politico-economic system better. You cannot undermine the foundations of a nation and try to base it on lies and wrong philosophies. Then, the solution is "moderation, efficiency, tradition, pro-American policies, correct education, and perfection".

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[171] See, "Afghanistan-Taliban Crisis LIVE Updates: Future of Kabul airport subject of intense negotiations", https://www.moneycontrol.com/news/world/afghanistan-taliban-crisis-live-news-updates-kabul-airport-attack-evacuation-panjshir-mullah-baradar-us-joe-biden-7399511.html

[172] More than one million dead Americans were sent stimulus checks (and they voted for the November 3, 2020 elections), costing the federal government near $1.4 billion in April 2020, a government watchdog reported on June 24, 2020. See, https://dailycaller.com/2020/06/25/one-million-dead-americans-stimulus-checks-report-coronavirus/ . From the 2nd stimulus package only 9% went for the relief from the COVID pandemic. (*Fox News*, 3/10/2021). See also, https://www.politifact.com/factchecks/2021/mar/01/scott-fitzgerald/fitzgerald-overstates-claim-pork-covid-19-relief-b/

[173] See, " Fed's Powell Says US Economy Will Need More Stimulus", https://news.yahoo.com/fed-powell-says-us-economy-223222543.html

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«Μακάριοι οἱ φυλάσσοντες κρίσιν
καί ποιοῦντες δικαιοσύνην ἐν παντί καιρῷ.»
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APPENDIX

Table A1: Correlation and Causality Tests between the monetary policy tools
($i_{FF_t}^{eff}$, mb_t, and m_t) **and the objective variables** ($djia_t$, $rgdp_t$, i_{10YTB_t}, p_t, and u_t).

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(1) Zero Interest Rate Regime (2008:12-2015:11):

$$\rho_{i_{FF},djia} = -0.592 \qquad i_{FF} \Rightarrow \neq djia \quad \text{and} \quad djia \Rightarrow i_{FF} (F = 4.678^{**})$$

$$\rho_{i_{FF},rgdp} = -0.489 \qquad i_{FF} \Rightarrow \neq rgdp \quad \text{and} \quad rgdp \Rightarrow \neq i_{FF}$$

$$\rho_{i_{FF},i_{10YTB}} = +0.224 \qquad i_{FF} \Rightarrow i_{10YTB} (F = 5.055^{***} \quad \text{and} \quad i_{10YTB} \Rightarrow \neq i_{FF}$$

$$\rho_{i_{FF},p} = -0.614 \quad i_{FF} \Rightarrow \neq p \quad \text{and} \quad p \Rightarrow i_{FF} (F = 4.743^{**})$$

$$\rho_{i_{FF},u} = +0.425 \quad i_{FF} \Rightarrow u (F = 4.468^{***}) \quad \text{and} \quad u \Rightarrow i_{FF} (F = 2.522^{*})$$

$$\rho_{mb,djia} = +0.963 \qquad mb \Rightarrow djia(F = 2.936^{*}) \quad \text{and} \quad djia \Rightarrow mb(F = 3.148^{**})$$

$$\rho_{mb,rgdp} = +0.960 \qquad mb \Rightarrow rgdp(F = 4.259^{**}) \quad \text{and} \quad rgdp \Rightarrow \neq mb$$

$$\rho_{mb,i_{10YTB}} = -0.507 \qquad mb \Rightarrow \neq i_{10YTB} \quad \text{and} \quad i_{10YTB} \Rightarrow \neq mb$$

$$\rho_{mb,p} = +0.973 \quad mb \Rightarrow \neq p \quad \text{and} \quad p \Rightarrow mb(F = 4.617^{**})$$

$$\rho_{mb,u} = -0.874 \quad mb \Rightarrow u (F = 21.586^{***} \quad \text{and} \quad u \Rightarrow \neq mb$$

$$\rho_{m,djia} = +0.943 \qquad m \Rightarrow djia(F = 4.033^{**}) \quad \text{and} \quad djia \Rightarrow m(F = 4.618^{**})$$

$$\rho_{m,rgdp} = +0.984 \qquad m \Rightarrow rgdp(F = 5.034^{***}) \quad \text{and} \quad rgdp \Rightarrow \neq m$$

$$\rho_{m,i_{10YTB}} = -0.613 \qquad m \Rightarrow \neq i_{10YTB} \quad \text{and} \quad i_{10YTB} \Rightarrow \neq m$$

$$\rho_{m,p} = +0.971 \quad m \Rightarrow \neq p \quad \text{and} \quad p \Rightarrow m(F = 8.994^{***})$$

$$\rho_{m,u} = -0.926 \quad m \Rightarrow u (F = 24.116^{***} \quad \text{and} \quad u \Rightarrow \neq m$$

(2) New Regime (2015:12-2020:12):

$$\rho_{i_{FF},djia} = +0.409 \qquad i_{FF} \Rightarrow \neq djia \quad \text{and} \quad djia \Rightarrow i_{FF} (F = 2.930^{*})$$

$$\rho_{i_{FF},rgdp} = +0.731 \qquad i_{FF} \Rightarrow rgdp(F = 18.122^{***}) \quad \text{and} \quad rgdp \Rightarrow i_{FF} (F = 2.738^{*})$$

$$\rho_{i_{FF},i_{10YTB}} = +0.661 \qquad i_{FF} \Rightarrow \neq i_{10YTB} \quad \text{and} \quad i_{10YTB} \Rightarrow i_{FF} (F = 9.699^{***})$$

$$\rho_{i_{FF},p} = +0.320 \quad i_{FF} \Rightarrow p (F = 2.929^{*}) \quad \text{and} \quad p \Rightarrow \neq i_{FF}$$

$$\rho_{i_{FF},u} = -0.623 \quad i_{FF} \Rightarrow u \, (F = 48.585^{***} \quad \text{and} \quad u \Rightarrow \neq i_{FF}$$

$$\rho_{mb,djia} = +0.129 \qquad mb \Rightarrow \neq djia \qquad \text{and} \quad djia \Rightarrow \neq mb$$

$$\rho_{mb,rgdp} = -0.439 \qquad mb \Rightarrow rgdp(F = 24.772^{***}) \quad \text{and} \quad rgdp \Rightarrow mb(F = 8.321^{***})$$

$$\rho_{mb,i_{10YTB}} = -0.649 \qquad mb \Rightarrow \neq i_{10YTB} \quad \text{and} \quad i_{10YTB} \Rightarrow mb(F = 6.059^{***})$$

$$\rho_{mb,p} = +0.146 \quad mb \Rightarrow \neq p \quad \text{and} \quad p \Rightarrow \neq mb$$

$$\rho_{mb,u} = +0.804 \quad mb \Rightarrow u \, (F = 11.177^{***} \quad \text{and} \quad u \Rightarrow \neq mb$$

$$\rho_{m,djia} = +0.777 \qquad m \Rightarrow \neq djia \qquad \text{and} \quad djia \Rightarrow \neq m$$

$$\rho_{m,rgdp} = +0.357 \qquad m \Rightarrow rgdp(F = 5.034^{***}) \quad \text{and} \quad rgdp \Rightarrow \neq m$$

$$\rho_{m,i_{10YTB}} = -0.640 \qquad m \Rightarrow \neq i_{10YTB} \quad \text{and} \quad i_{10YTB} \Rightarrow m(F = 4.495^{**})$$

$$\rho_{m,p} = +0.871 \quad m \Rightarrow \neq p \quad \text{and} \quad p \Rightarrow m(F = 5.208^{***})$$

$$\rho_{m,u} = +0.583 \quad m \Rightarrow u \, (F = 14.945^{***} \quad \text{and} \quad u \Rightarrow m(F = 4.330^{**})$$

Note: $\rho_{i_{FF},djia}$ = correlation coefficients between i_{FF} and $djia$, $mb \Rightarrow u \,(F) =$ causality test between mb and u (mb causes u and F-statistic in parenthesis), $u \Rightarrow \neq mb$ = no causality between u and mb.

$djia_t$ = ln of U.S. Dow Jones Industrial Average Index, $rgdp_t$ = ln of U.S. real GDP, i_{10YTB_t} = U.S 10-Year Treasury Bonds Rate, p_t = ln of U.S. CPI, u_t = U.S. unemployment rate, c_0 = constant term, $i_{FF_t}^{eff}$ = U.S. effective federal funds rate, mb_t = ln of U.S. monetary base, m_t = ln of U.S. money supply (M2), *** = significant at the 1% level, ** = significant at the 5% level, * = significant at the 10% level, Source: *Economagic.com* and *Yahoo/Finance.* .

Table A2: Measuring the correlation (ρ) and testing the causality
($\Rightarrow$) between the   instruments (i_{FF_t}, MB, and M^s) and the objective
variables (C, I, TA, e, and $rgdp_t$)

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(1) ZIRR (2008:12-2015:11):

$$\rho_{i_{FF},c} = -0.535 \quad i_{FF} \Rightarrow c(F = 7.656^{***}) \quad \text{and} \quad c \Rightarrow i_{FF}(F = 3.724^{**})$$

$$\rho_{i_{FF},i} = -0.471 \quad i_{FF} \Rightarrow \neq i \quad \text{and} \quad i \Rightarrow \neq i_{FF}$$

$$\rho_{i_{FF},ta} = -0.358 \quad i_{FF} \Rightarrow \neq ta \quad \text{and} \quad ta \Rightarrow i_{FF}(F = 6.068^{***})$$

$$\rho_{i_{FF},e} = -0.073 \quad i_{FF} \Rightarrow e(F = 2.877^{*}) \quad \text{and} \quad e \Rightarrow \neq i_{FF}$$

$$\rho_{i_{FF},rgdp} = -0.489 \qquad i_{FF} \Rightarrow \neq rgdp \quad \text{and} \quad rgdp \Rightarrow \neq i_{FF}$$

$$\rho_{mb,c} = +0.974 \quad mb \Rightarrow c(F = 5.126^{***}) \quad \text{and} \quad c \Rightarrow mb(F = 2.981^{*})$$

$$\rho_{mb,i} = +0.919 \quad mb \Rightarrow i(F = 4.962^{***}) \quad \text{and} \quad i \Rightarrow mb(F = 2.445^{*})$$

$$\rho_{mb,ta} = +0.663 \quad mb \Rightarrow ta(F = 2.726^{*}) \quad \text{and} \quad ta \Rightarrow mb(F = 3.747^{**})$$

$$\rho_{mb,e} = -0.501 \quad mb \Rightarrow e(F = 4.433^{**}) \quad \text{and} \quad e \Rightarrow \neq mb$$

$$\rho_{mb,rgdp} = +0.960 \qquad mb \Rightarrow rgdp(F = 4.259^{**}) \quad \text{and} \quad rgdp \Rightarrow \neq mb$$

$$\rho_{m,c} = +0.989 \quad m \Rightarrow \neq c \quad \text{and} \quad c \Rightarrow m(F = 8.757^{***})$$

$$\rho_{m,i} = +0.968 \quad m \Rightarrow i(F = 6.478^{***}) \quad \text{and} \quad i \Rightarrow \neq m$$

$$\rho_{m,ta} = +0.697 \quad m \Rightarrow ta(F = 3.371^{**}) \quad \text{and} \quad ta \Rightarrow m(F = 4.519^{**})$$

$$\rho_{m,e} = -0.625 \quad m \Rightarrow e(F = 3.416^{**}) \quad \text{and} \quad e \Rightarrow \neq m$$

$$\rho_{m,rgdp} = +0.984 \qquad m \Rightarrow rgdp(F = 5.034^{***}) \quad \text{and} \quad rgdp \Rightarrow \neq m$$

(2) NR (2015:12-2020:12):

$$\rho_{i_{FF},c} = +0.584 \quad i_{FF} \Rightarrow \neq c \quad \text{and} \quad c \Rightarrow i_{FF}(F = 2.732^{*})$$

$$\rho_{i_{FF},i} = +0.502 \quad i_{FF} \Rightarrow i(F = 21.519^{***}) \quad \text{and} \quad i \Rightarrow \neq i_{FF}$$

$$\rho_{i_{FF},ta} = +0.111 \quad i_{FF} \Rightarrow ta \ (F = 6.286^{***}) \quad \text{and} \quad ta \Rightarrow \neq i_{FF}$$

$$\rho_{i_{FF},e} = +0.139 \quad i_{FF} \Rightarrow \neq e \quad \text{and} \quad e \Rightarrow \neq i_{FF}$$

$$\rho_{i_{FF},rgdp} = +0.731 \qquad i_{FF} \Rightarrow rgdp\,(F = 18.122^{***})\ \ \text{and}\ \ rgdp \Rightarrow i_{FF}\,(F = 2.738^{*})$$

$$\rho_{mb,c} = -0.209 \quad mb \Rightarrow\neq c \qquad \text{and}\ \ c \Rightarrow mb\,(F = 6.583^{***})$$

$$\rho_{mb,i} = -0.031 \quad mb \Rightarrow i\,(F = 27.395^{***})\ \ \text{and}\ \ i \Rightarrow mb\,(F = 8.465^{***})$$

$$\rho_{mb,ta} = -0.279 \quad mb \Rightarrow\neq ta \ \ \text{and}\ \ ta \Rightarrow\neq mb$$

$$\rho_{mb,e} = +0.297 \quad mb \Rightarrow e\,(F = 5.393^{***})\ \ \text{and}\ \ e \Rightarrow\neq mb$$

$$\rho_{mb,rgdp} = -0.439 \qquad mb \Rightarrow rgdp\,(F = 24.772^{***})\ \ \text{and}\ \ rgdp \Rightarrow mb\,(F = 8.321^{***})$$

$$\rho_{m,c} = +0.594 \quad m \Rightarrow c\,(F = 2.911^{*})\qquad \text{and}\ \ c \Rightarrow m\,(F = 10.133^{***})$$

$$\rho_{m,i} = +0.738 \quad m \Rightarrow i\,(F = 16.826^{***})\ \ \text{and}\ \ i \Rightarrow\neq m$$

$$\rho_{m,ta} = -0.314 \quad m \Rightarrow ta\,(F = 8.792^{***})\ \ \text{and}\ \ ta \Rightarrow m\,(F = 3.180^{**})$$

$$\rho_{m,e} = +0.281 \quad m \Rightarrow\neq e \ \ \text{and}\ \ e \Rightarrow\neq m$$

$$\rho_{m,rgdp} = +0.357 \qquad m \Rightarrow rgdp\,(F = 15.633^{***})\ \ \text{and}\ \ rgdp \Rightarrow\neq m$$

Note: $\rho_{m,c}$ = correlation coefficients between m and c, $mb \Rightarrow e(F))$ = causality test between mb and e (mb causes e and F-statistic in parenthesis), $mb \Rightarrow\neq ta$ = no causality between mb and ta.

Source: See, Table A1.