

Do Enlarged Deficits Cause Inflation: The Historical Perspective

Michael D. Bordo and Mickey D. Levy
Hoover Institution Monetary Policy Working Group
March 10, 2021

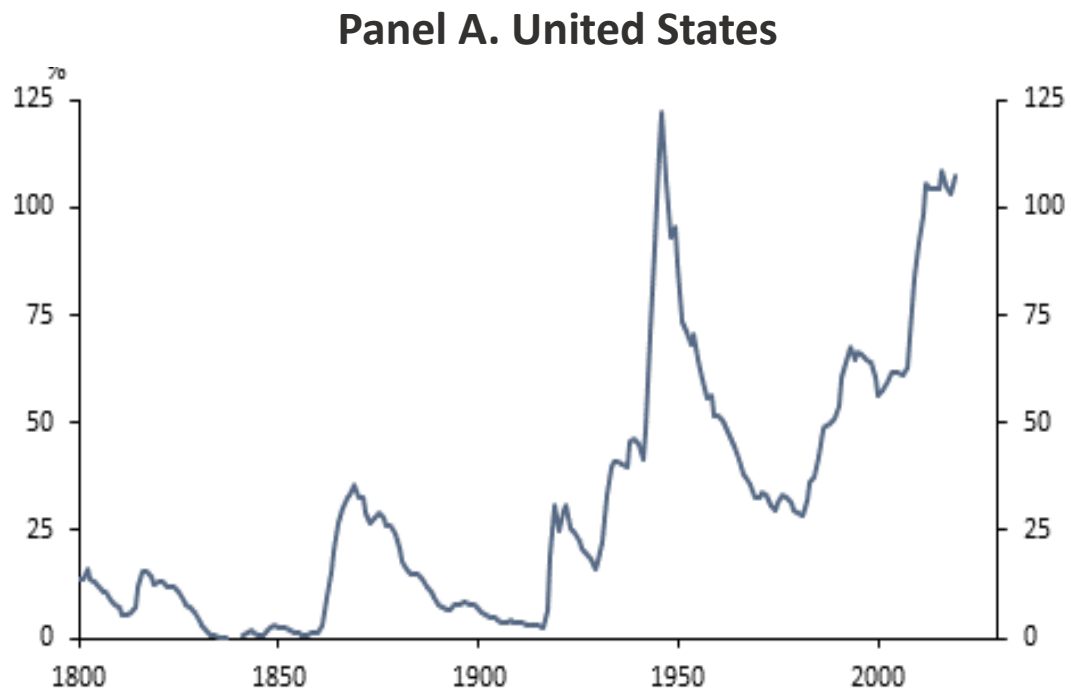
Two-Century Review of Deficits and Inflation

- The current pandemic and policy responses of massive fiscal and monetary expansion has great resonance from history
- We assess historic and modern episodes and find similar themes of deficit financing associated with inflation
- Links between fiscal deficits and inflation are most apparent and pronounced in wartime but occasionally occur in peacetime
- The subdued inflation in the decade since the great financial crisis (2008-2009) despite high deficits and monetary ease was more of an exception rather than the rule

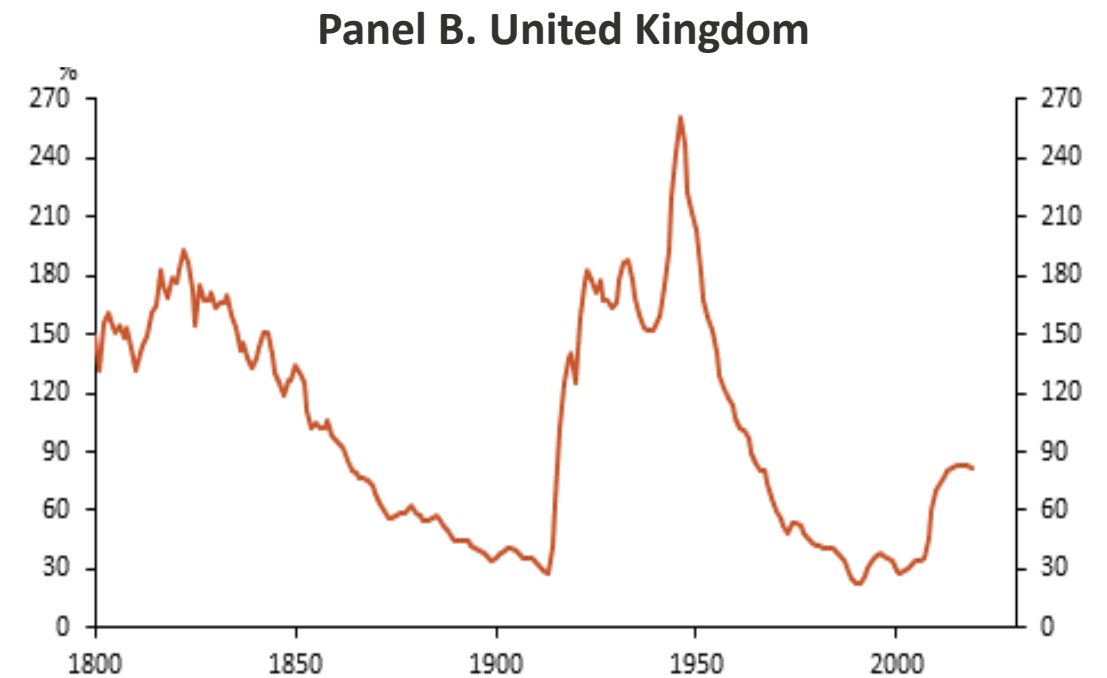
Debt and Inflation in the US and UK

- Figure 1 shows the longer-run record of debt/GDP in the UK and US
- In both, the debt/GDP ratio spiked during major wars and then receded
- The recent runup in US debt during peacetime is the exception to the historic pattern, largely reflecting income support programs (in the US, entitlement spending)
- Figure 2 shows the longer-run record on inflation
- Inflation spiked during wars and receded during peacetimes, with the primary exception being the Great Inflation of 1965-1980

Figure 1. Government Debt (% of GDP)



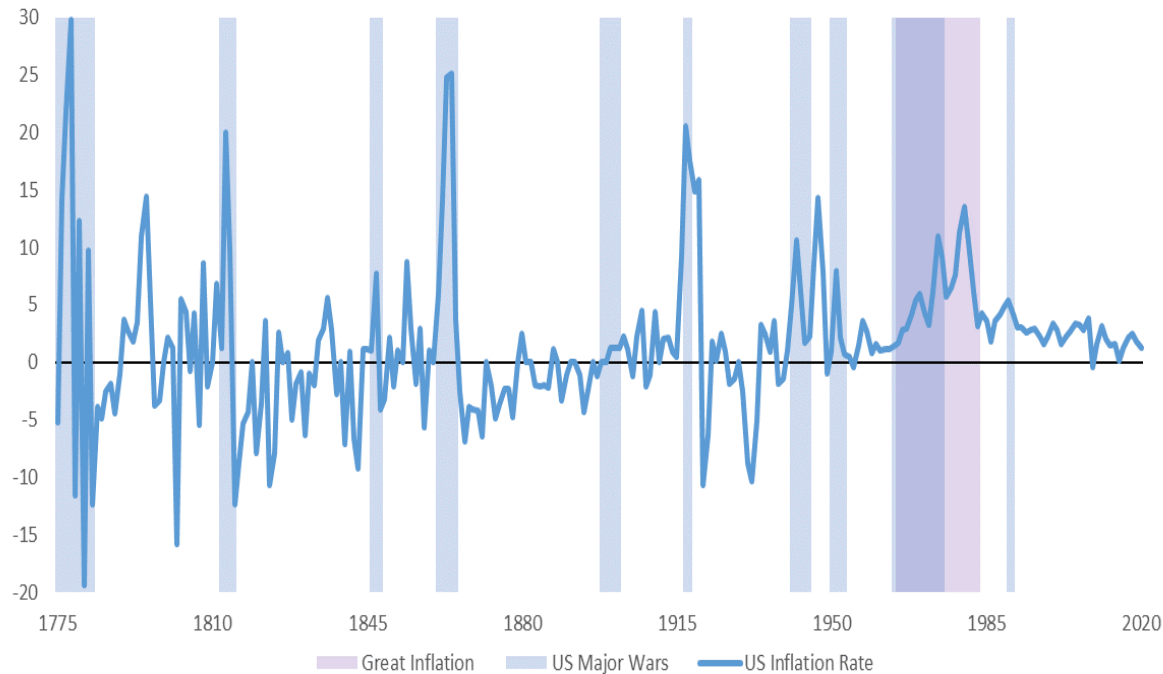
Source: George Hall and Thomas Sargent (2020) "Government Debt and Taxes in Eight U.S. Wars and Two Insurrections" Handbook of Historical Economics. We thank George Hall for providing the data.



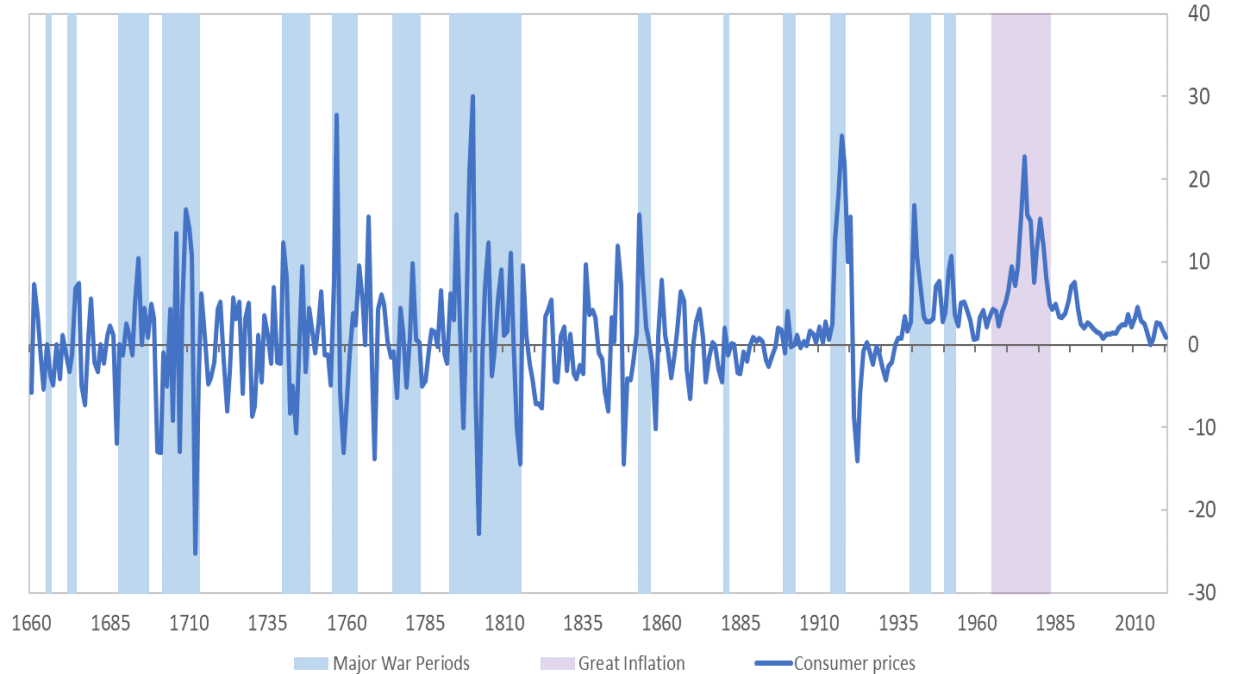
Source: data kindly provided by Ryland Thomas, Bank of England

Figure 2. Inflation (Annual % change)

Panel A. United States 1775-2020



Panel B. United Kingdom 1660 - 2020



Source: Samuel H. Williamson "Annual Inflation Rates in the United States, 1775 - 2020, and United Kingdom, 1265 - 2019," MeasuringWorth, 2021.; https://www.va.gov/opa/publications/factsheets/fs_americas_wars.pdf

Source: Thomas and Dimsdale (2017), ONS

Theoretical Perspectives

- **Early Keynesian Perspectives (Lipsey 1960)** – Excess aggregate demand leads to inflation depending on the slope of the Phillips curve
- Fiscal expansion is inflationary and monetary policy is not especially in the liquidity trap
- **Quantity Theory of Money (Friedman 1956)**-Money financed fiscal expansion leads to inflation amplified by inflationary expectations and rise in velocity
- **Unpleasant Monetarist Arithmetic (Sargent and Wallace 1980)**- With rational expectations and perfect foresight, bond financed fiscal deficits will be accommodated by inflationary increases in high powered money to satisfy the government's long-run consolidated balance sheet
- **Fiscal Theory of the Price Level (Sims, Cochrane, Leeper)**—Bond financed fiscal deficits not fully backed by future taxes lead to fiscal dominance
- Increased debt leads to a wealth effect raising expenditure and the price level restoring fiscal equilibrium

History: Early Wars in the Eighteenth Century: Sweden, American Revolution, French Revolution

- **Sweden** (Fregert and Jonung 1996) The Riksbank, the first modern CB, financed the fiscal deficit in the Russian war 1745 and the Seven Years leading to a doubling of the price level
- **American Revolutionary War (Rockoff 2016)** Unable to raise taxes or issue bonds Congress finances three quarters of G by issuing continentals as early example of the inflation tax
- **French Revolution** (White 1995) Revolutionaries finance European wars with **assignats**- notes backed by the value of seized Church properties
- Assignats never redeemed and led to a hyperinflation 1795

History: Wars in the Nineteenth Century: Napoleonic War, US Civil War

- **Napoleonic Wars 1797-1815 (Bordo and White 1991)**—Bank of England (BoE) suspended specie convertibility and accommodated short-term T bills
- Early example of gold standard as a contingent rule (Bordo and Kydland 1995)
- BoE note issue led to 10% inflation, seigniorage financed 10% of the fiscal deficit
- Government ran fiscal surpluses after war, BoE retired notes and specie standard restored in 1821
- **US Civil War 1861-65** –Federal government suspended specie convertibility January 1862 and issued Greenbacks leading to a 25% p.a rate of inflation
- After the war, Federal government ran fiscal surpluses and retired the Greenbacks resuming convertibility in 1878
- The Confederacy financed 60% of the war with fiat M leading to hyperinflation

History: World War I UK, US

- The unprecedented scale of WWI led to massive fiscal expansion by the European belligerents: debt/GDP UK=140%, France=200%
- CBs acted as engines of inflation pegging short-term rates at low levels to facilitate government finance
- UK inflation at 25% p.a.
- U.S.: shorter involvement, debt/GDP =35% and inflation at 12% p.a
- After the war, gold convertibility was restored by monetary and fiscal retrenchment

History: WWII the U.S.

- WWII financed like WWI. G/Y rises to 32% , D/Y to 120%. Financed by taxes (42%), bonds, (34%), seigniorage (24%)
- Fed accommodated the Treasury, lost independence de facto, pegged short-term interest rate at 3/8%, long-term at 2 1/2%
- Inflation with controls at 4.5%
- After the war, fears of repeating the post WWI deflation led the Fed to maintain rates peg and follow expansionary M policy, leading to 11.5% inflation 1945-48
- Fed independence restored in February 1951 with Treasury Accord, interest rate peg ends
- Debt/GDP reduced to low levels through 1974 by inflation, growth, fiscal surpluses and financial repression

Peacetime Episodes: France in the 1920s

- The losers in WWI (Germany, Austria, Hungary) had fiscal disasters and hyperinflations (Sargent 1980)
- France, a winner and in better political shape than the central powers, had a fiscal stalemate and high inflation for 7 years, a case of fiscal dominance
- After WWI, France had high $D/Y=140\%$, $G-T/Y$ at 50% and 35% inflation
- Political impasse in French parliament about how to finance the recovery led the Banque de France to absorb short-term T bills, adding to inflation
- Fiscal balance was restored in a political compromise by Raymond Poincare raising T, cutting G and borrowing US\$ from JP Morgan to allow it to return to gold at an 80% devaluation

Peacetime Episodes: Recovery from the Great Contraction in the U.S. 1933-36

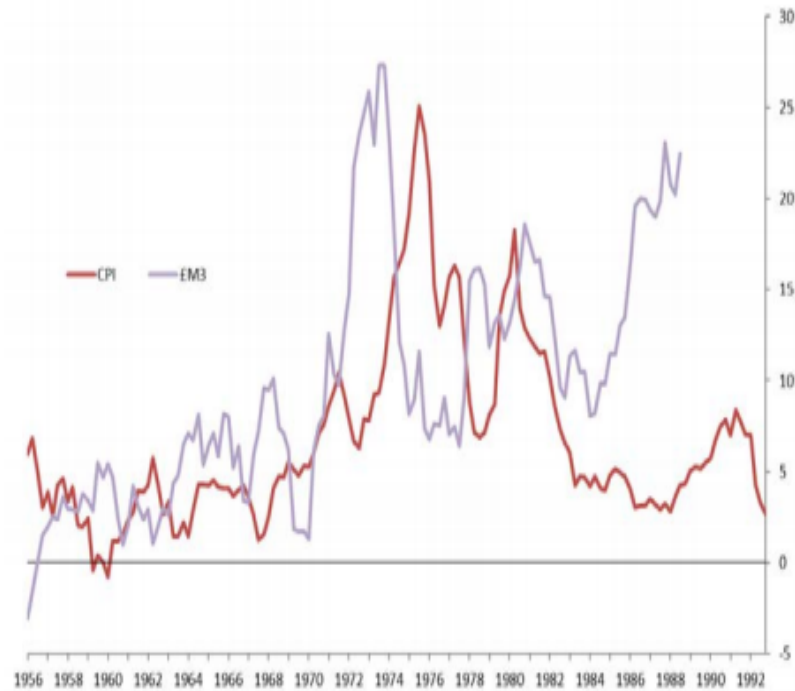
- Friedman and Schwartz (1963) explain the recovery beginning in 1933 to the Banking Holiday in March, FDR devaluing the dollar by 60%, leading to an increase in the MGS and raising P
- Jacobson, Leeper and Preston (2019) argue based on the FTPL that the inflation in the 1930s is best explained by FDR's unexpected (off regular budget) issue of unbacked fiscal expenditures (New Deal) along with a passive Fed
- This increased nominal gross debt which led to an increase in consumption and rising prices

Peacetime Episodes 1965-1980: The Great Inflation in the UK

- UK inflation experience among worse in G10, characterized by fiscal dominance—PSBR (G-T) accommodated by the BoE (See Figures 3 and 4)
- UK Treasury followed expansionary fiscal policy to raise economic growth in the 1960s—**GO Policy** which led to inflation
- Policies justified by Keynesian/Phillips curve view and Kaldor (1966) view that expansionary M/F policy could raise *trend* economic growth
- Expansion M/F policies hit the Bretton Woods pegged e constraint, leading to a BoP crisis. Rescue by IMF, G10, US lead to a recession—**Stop Policy**
- UK leaves BWS in 1972 and unlimited constraint on Go policy leads to overdrive M/F policies (Barber boom) and +20% inflation
- Ends with currency crisis and IMF rescue/conditionality in 1976

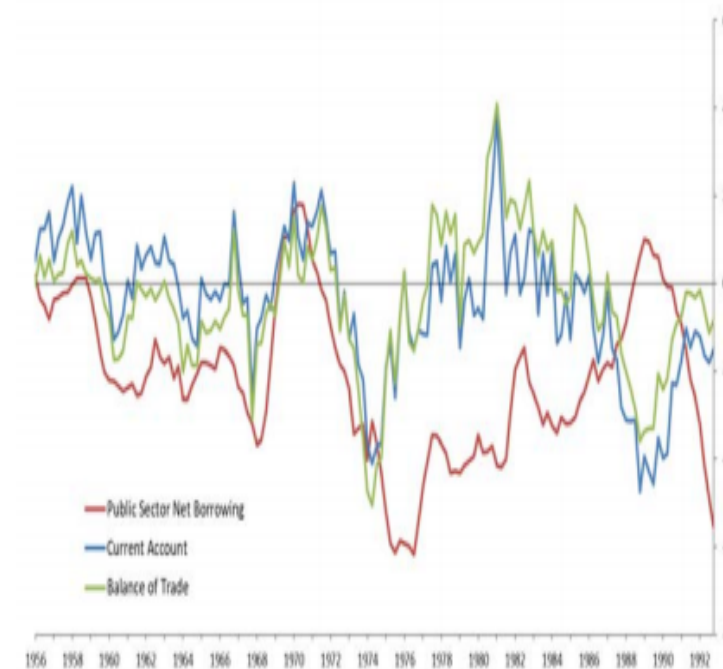
UK: Money, Inflation and Current Account and PSBR Imbalances in 1970s

Figure 13. UK Money Growth and CPI Inflation (% change on 4 qtrs. earlier)



Source: Data from Michael Bordo, Oliver Bush and Ryland Thomas (2019) "UK Monetary and fiscal Policy Interactions in the Great Inflation" Bank of England

Figure 14. UK Current Account and Public Sector Net Borrowing (% of GDP)



Source: Data from Michael Bordo, Oliver Bush and Ryland Thomas (2019) "UK Monetary and fiscal Policy Interactions in the Great Inflation" Bank of England

The US Great Inflation during 1965-1980

- Following over a decade of very low inflation, inflation and inflationary expectations rise and become embedded
- Surge in spending (Great Society programs + Vietnam War) and accommodative monetary policy generate excess demand
 - Martin-led Fed: fiscal dominance + submission to LBJ demands
- Phillips Curve and dominant priority of lowering unemployment rate
- Burns: facilitates Nixon; views inflation as cost-push, labor unions; favored incomes policies & wage and price controls; ends gold standard
- Tentative efforts to constrain inflation overwhelmed by concerns about unemployment: Burns' "anguish of central banking"
- Rising inflation, lack of credible Fed strategy culminated in currency crisis

Similarities of the US and UK Great Inflation

- Flawed analytical framework: heavy reliance on Phillips Curve, cost-push, demand pull and regulations, including incomes policies and price controls
- Highest priority on unemployment relative to inflation
- Ignorance on monetary policy
- Misguided policies: UK's "go for growth", US's wage and price controls
- Sharp accelerations in aggregate demand (NGDP growth >20% in UK, 10% in US) while incomes policies and regulations constrained supply
- High inflation and poor economic performance, loss of credibility of government generates currency crises and elicits political regime shift
- Monetary & economic medicine imposed by Thatcher and Volcker/Reagan; short-run pains adjusting to lower inflation; Great Moderation follows

Great Financial Crisis and Aftermath

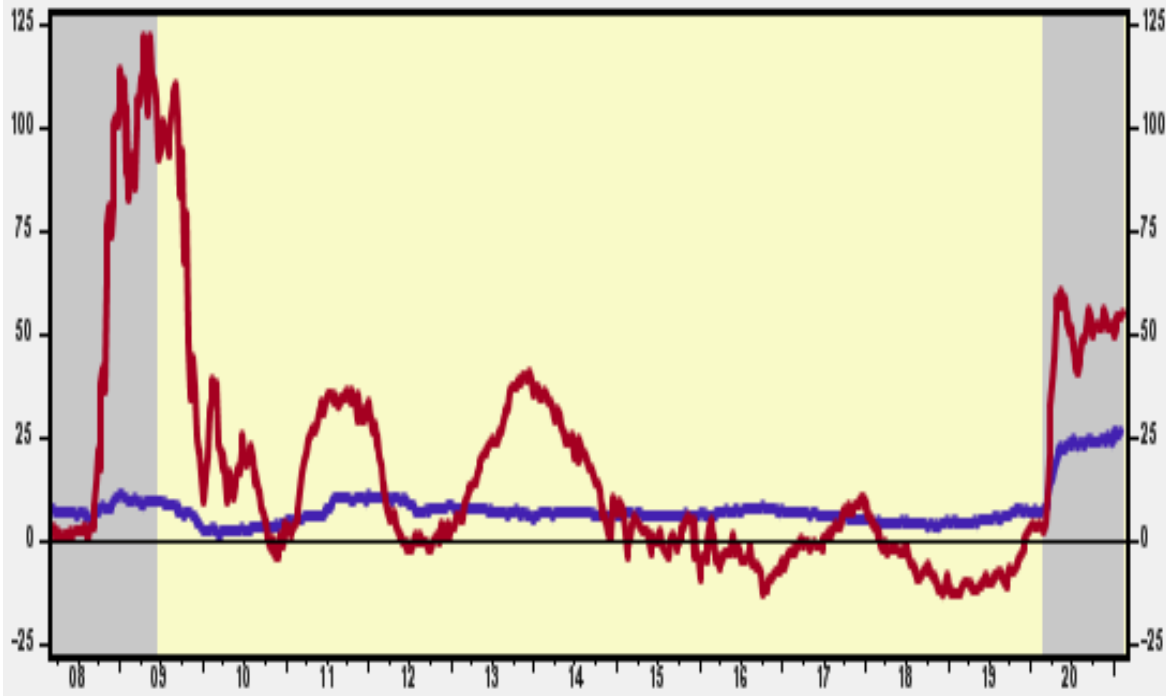
- Debt-financed housing bubble + short-term funding dysfunction evolves into severe financial crisis
- Fed responds slowly during buildup and then aggressively in late-2008
- Combined government response (bailouts, fiscal deficit spending, monetary ease) involved joint venture of Congress, Treasury and Fed
- ARRA of 2009 = \$780 bil, 4.9% of GDP; TARP actual outlays \$410 bil
 - Banking system crippled and constrained
- Fed at ZLB and QEI help to end crisis; Fed extends emergency measures & QEIII in 2012 is direct Fed attempt to lower unemployment rate
- QEs boost bank reserves but excess reserves slosh around in financial system and do not stimulate economy (NGDP growth 4%)
- Moderate recovery with subdued inflation (real 2.25%, inflation 1.75%)

Pandemic of 2020: Aggressive Fiscal Deficit Spending and Emergency Monetary Ease

- Negative shock generates sharp contraction (9% of GDP) and immediate and unprecedented fiscal and monetary responses
- Fiscal: CARES Act, \$3 trillion (13% of GDP), additional \$900 bil (4% of GDP) in December 2020; current legislation will add \$1.9 T more (9% of GDP)
- Monetary: zero rates, massive QE of Treasuries & MBS, LOLR facilities; Fed signals continuation of expansive policies
- Administration and Fed prioritize maximum inclusive employment and favor higher inflation
- Fiscal transfers support income and spending, and generate excess savings
- Surges in reserves (MB, +54%), M2 (+24%)
- Speed of recovery exceeds expectations, but labor markets lag GDP

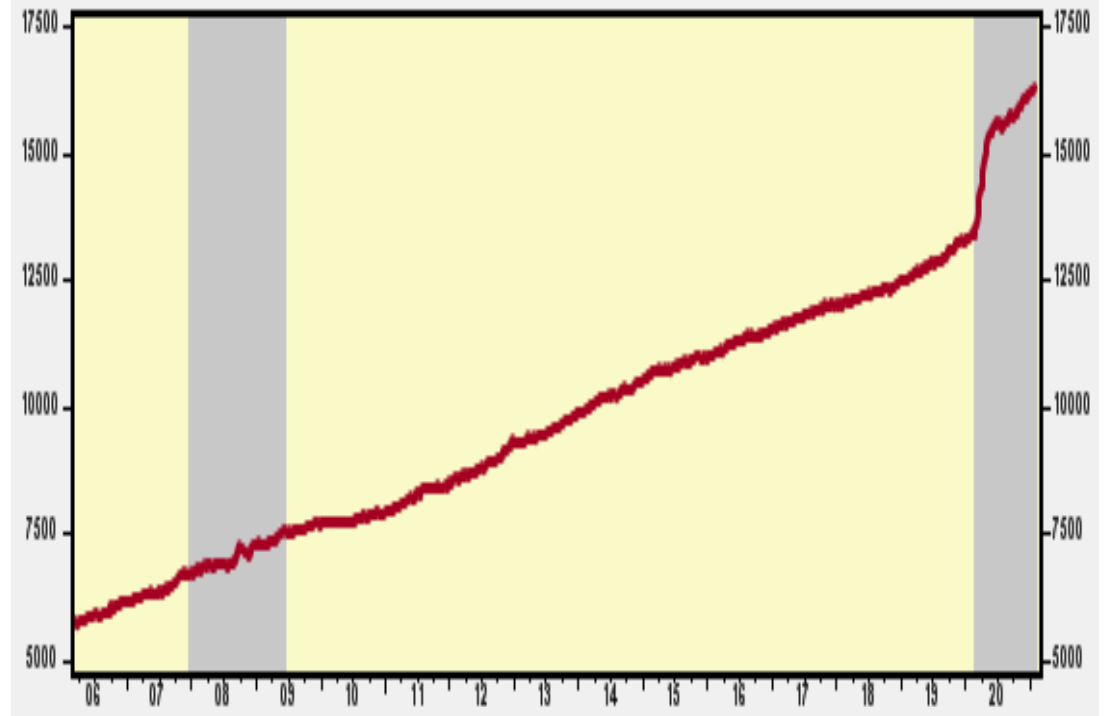
Charts on Deficits, Money Supply and Bank Deposits

Monetary Base
% Change - Year to Year
Money Stock: M2
% Change - Year to Year



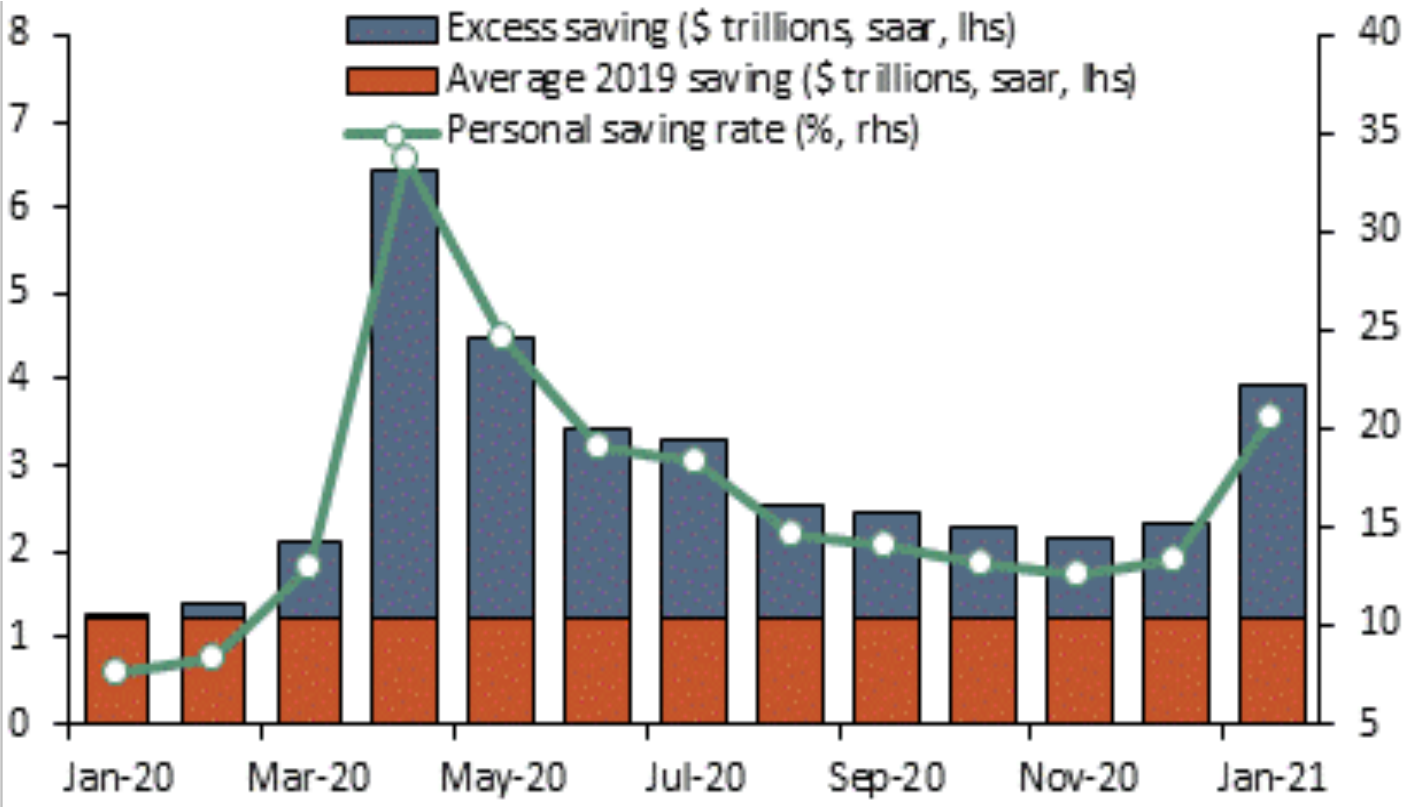
Source: Haver Analytics, Federal Reserve Board

Deposits: All Commercial Banks
EOP, SA, BIL, \$



Source: Federal Reserve Board/Haver Analytics

Jump in Personal Savings



Differences Between Pandemic and GFC

Highlight Risks of Inflation

- Negative health shock & government shutdowns vs financial crisis
- Deficit spending (25%/GDP) larger than GFC (relative to contraction GDP)
- Monetary: larger and open-ended QE, expanded LOLR
- Surge in M2 and “excess” savings did not occur following GFC; excess reserves not put to work in economy following GFC
- Will fiscal & monetary policies stimulate and generate excess demand? Aggregate demand set to surge; will it be sustained?
 - Banking system in far better shape now than after GFC
 - Fed’s new strategic framework favors higher inflation, no pre-emptive tightening
 - New strategy to be tested if historical deficit-inflation holds true
 - More deficit spending legislation on horizon
- Risks: excessive aggregate demand generates higher inflation & expectations; risks to sustained economic expansion and financial stability; Fed credibility and independence

Conclusions and Policy Lessons

- Wartime histories of deficit financing and accommodating central banks generally resulted in inflation
- Peacetime deficit spending and monetary accommodation have also resulted in inflation if excess aggregate demand allowed to persist
 - Usually involved incomes policies, price controls and regulations
- 1965-1980 episodes in UK & US highlight risks of misguided policies & inflationary expectations, loss of central bank credibility
- Risks of inflation currently to upside if monetary and fiscal policies actually stimulate (unlike post-GFC); last decade may prove exception to historic link

Policy Lessons

- Avoid war
- Be cautious of sustained monetary accommodation of deficits; avoid fiscal dominance
- Maintain central bank independence and keep inflationary expectations anchored
- Avoid regulations that purport to contain inflation; they don't work
- Pursue pro-growth policies, mind how government spending allocates national resources, and unwind excessive policies following crises
- Heed the lessons of history

Market-Based Inflationary Expectations

