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Deficits, Crowding Out and Inflation in Monetarily Sovereign Nations

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Abstract: ***Government deficits are often viewed negatively by politicians, the general public and. They are believed to lead to higher interest rates, inflation, and crowding out of private investment. This paper aims to evaluate the validity of these conventional beliefs about deficits. To do so, a Modern Monetary Theory and Keynesian theoretical framework have been used. These theories have then been analysed in the context of empirical data from the United States and Japan over the last three decades. I find that deficits have not directly led to higher interest rates, crowding out or inflation in these two nations. The findings emphasise the importance for monetarily sovereign governments to prioritise addressing socio-economic issues faced by citizens rather than being overly concerned about deficits on their own. The findings also indicate the need for a more pluralistic approach to macroeconomic policy that involves considering various schools of thought-such as Modern Monetary Theory and Keynesian theory along with mainstream economics. Such a pluralistic approach is likely to offer a more suitable framework for understanding fiscal policy choices and their respective outcomes.***

Keywords: Keynes, Modern Monetary Theory, bond yields, crowding out, debt monetisation

1. Introduction

Any discussion on government policy often invokes fears of deficits, inflation and crowding out. Many governments around the world have turned to debt ceilings or arbitrary spending limits such as those prescribed by the Maastricht Treaty[1] to counter these fears. In light of the increasing distrust of economists and economic theory (Banerjee and Duflo 2019[2]and Desai 2015) [3], it is essential to question the consensus on deficits and the pursuit of such arbitrary spending limits. Consequently, this paper aims to review different schools of economic thought that might offer a better framework to evaluate deficits and their macroeconomic implications (Draghi 2019) [4].

Therefore, this paper uses a Modern Monetary[5] and Keynesian theoretical framework to evaluate deficits. In keeping with the aim of using a pluralistic approach, I also consider theories from mainstream economists in context of the data from Japan and the United States.

Further, my conclusion that deficits do not directly cause higher borrowing costs for governments, inflation, or crowding out reflects the need for policymakers to understand the fiscal capabilities of a monetarily sovereign country, and accordingly focus on the real social issues on hand-not the size of the budget deficit.

It is important to emphasise that these conclusions do not suggest that all countries can spend their way out of problems or that fiscal positions and deficits do not matter. The paper only intends to offer a more comprehensive and empirically supported framework for evaluating the consequences of budget deficits. Lastly, it is important to note that the conclusions from this paper can only be applied directly to monetarily sovereign nations (Wray 2019) [6]

Section 1:-Deficits-A Stock-flow Accounting Perspective

A) Government Spending and Wynne Godley's Sectoral Balances Approach

Before examining the effects of government spending on interest rates, inflation, and bond yields, the mechanism of government spending in a monetarily sovereign economy has been explained from a stock-flow accounting perspective.

To do so, a sectoral balances approach as pioneered by Wynne Godley has been used. This framework is preferred as it does not require any underlying assumptions about the economy and uses accounting identities that must always hold.

We start from the general national income accounting identity:-

$$GDP = C + I + G + NX$$

C refers to consumption
I refers to investment
G refers to government spending
NX refers to net exports
In terms of the income accruing to citizens, we get:-

$$GNP = C + I + G + NX$$

Further,

Subtracting taxes (T)

$$GNP\text{-}T = C + I + G + NX\text{-}T$$

Now,

$$GNP\text{-}T\text{-}C = I + G + NX\text{-}T$$

$$(GNP\text{-}T\text{-}C)\text{-}I = (G\text{-}T) + NX$$

We note that the term (GNP-T-C) represents the saving of the non-government domestic sector, therefore, we can get net saving on the left hand side as:-

$$(S\text{-}I) = (G\text{-}T) + NX$$

Therefore, we get:-

(S-I) + (G-T) + (-NX) = 0 (i)

Or,

Government Financial Balance + Non-Government Financial Balance + Net Exports sums to zero

Consequently, for one sector to run a surplus, at least one other sector must be in a deficit.

Considering the identity above, deficits should be viewed as a consequence of fulfilling the non-government sector's desire to remain in surplus and accumulating net financial assets.

We can further simplify this analysis as shown by Godley to get:-

Government Financial Balance + Non-Government Financial Balance = 0

Therefore,

Government surplus = Non-government deficit

These equations yield to two key conclusions:-

Firstly, it is not possible for the consolidated private sector to be in surplus without a government deficit, i.e.:-*G > T*.

Secondly, the only entity of the three mentioned in the sectoral balances approach that can provide the non-government sector with savings is the government sector, and as shown by equation *(i)*, this requires the government to maintain a deficit.

Furthermore, as (Godley 2019) [7] shows, the desire to maintain a government budget surplus will involve the private sector accumulating debt, which may naturally become unsustainable, because the private sector, unlike monetarily sovereign governments, cannot necessarily meet all its liabilities as they fall due (Greenspan 2011) [8].

Analysing deficits using this approach helps understand why government deficits increase not decrease the stock of financial assets available with the non-government sector, and therefore deficits cannot crowd out non-government consumption and investment. A more detailed discussion on this is deferred to Section *3. A.*

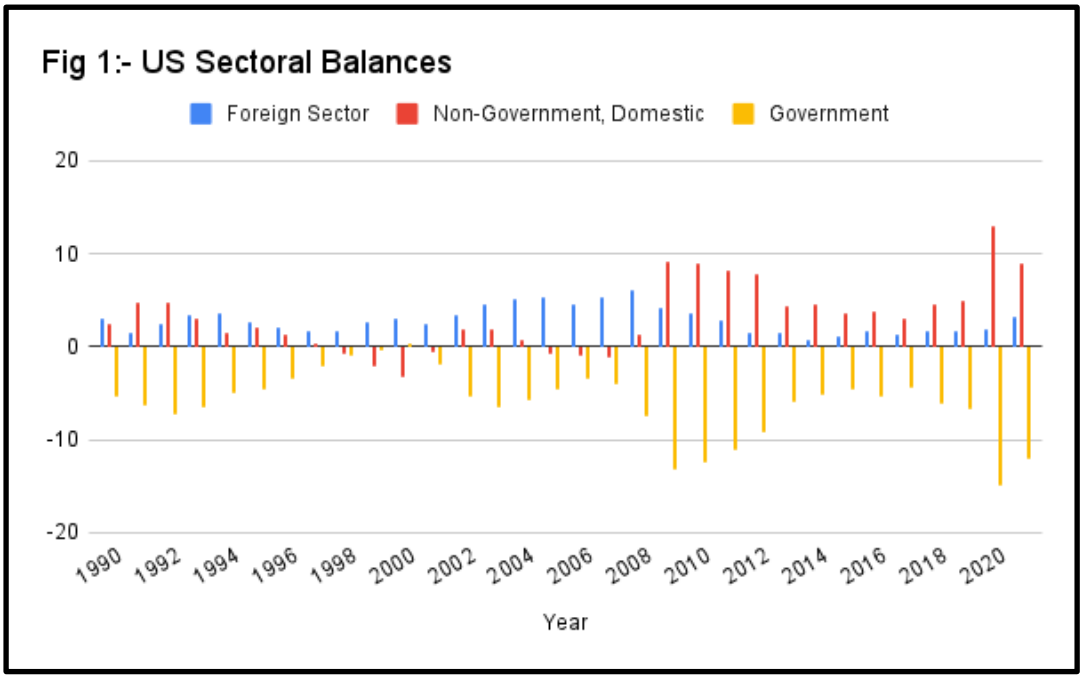

Figure 1: Sectoral Balances for the United States of America, 1990-2021
Source:-Federal Reserve Economic Data

1. B) How Governments Spend

To enable a stock-flow consistent analysis, it is crucial to understand how government transactions occur in practice. In fact, most misconceptions about deficits and their impacts stem from a flawed understanding of government transactions.

Contrary to conventional wisdom, government spending in monetarily sovereign nations does not come out of taxes or proceeds from issues of government bonds.

Federal Governments have cash operating accounts with their respective central banks. For example, the US Treasury's operating cash is maintained in an account at the Federal Reserve Bank of New York[9].

When governments make any expenditure, they do so by debiting the aforementioned accounts at the central bank and crediting bank accounts in the private sector. Any such debits are only made to maintain consistency with the double-entry accounting convention, and do not reduce the

ability of a monetarily sovereign government to spend in the future.

Consequently, if the Federal Government spends $2 million, this leads to an equivalent increase of the reserves in the interbank lending market in the private banking sector.

The same process follows if a government spends by issuing cheques in favour of the recipients.

Modern Monetary Theory (henceforth referred to as MMT) economists have long contended that bonds or taxes do not finance public spending (Kelton 2000) [10], and even mainstream economists have presented similar views (Bernanke 2009) [11]. However, most economic models still assume a government budget constraint and view taxes and bonds as a source of financing for governments.

The insistence on using a government budget constraint is perplexing given that the idea that taxes or bonds are not a source of revenue for monetarily sovereign governments is not a new one either. Economist Beardsley Ruml, who played a prominent role in the Bretton Woods Conference, correctly captured the implications of abandoning currency convertibility when he wrote (American Affairs Journal, 1946) [12]:-

"The necessity for a government to tax in order to maintain both its independence and its solvency is true for state and local governments, but it is not true for a national government. "

"The United States is a national state which has a central banking system, the Federal Reserve System, and whose currency, for domestic purposes, is not convertible into any commodity. It follows that our Federal Government has final freedom from the money market in meeting its financial requirements. Accordingly, the inevitable social and economic consequences of any and all taxes have now become the prime consideration in the imposition of taxes. "

Naturally, the assertion that taxes or bonds do not finance government expenditure would raise questions about the necessity of these operations.

In monetarily sovereign countries, taxes are a tool for redistribution, inflation control, and incentivising or disincentivising the production and consumption of certain goods and services.

On the other hand, the issuance of bonds post government spending allows the central bank to drain the interbank market of excess reserves created by said spending, and thereby ensure that such excess reserves do not drive down the central banks' target rate.

Thus, bond issuance is an ex-post monetary operation that has no implications on how much a government can spend. Bond issuance can be viewed simply as an exchange of assets (reserves to bonds) that help the central bank achieve its target rate.

Section 2:-Deficits and Interest Rate

Conventional wisdom suggests that an increase in deficits and subsequent government borrowing should lead to increased interest rates. This logic is derived from the Loanable Funds Theory, which was heavily criticised by Keynes (Section *3*). The conventional thinking is also in accordance with the IS-LM model and other neoclassical models such as Samuelson (1958) [13] and New Keynesian DSGE models. (Rogoff and Reinhart 2009) [14] present a similar argument. They claim that historical evidence shows high deficits lead to higher yields on government bonds, increased probability of default, slowed economic growth, and so forth. However, their findings are often contested (Nersisyan & Wray 2010) [15] on various grounds, and I argue that they are not applicable to monetarily sovereign nations.

Clearly, the stock-flow accounting and spending mechanism described above do not yield the same assessment. Further, MMT and Keynes' Liquidity Preference Theory also strongly reject the mainstream view on the effect of deficits on government bond yields with strong empirical backing.

2. A) Theoretical Reasoning

Noting from the system of transactions described above, any government expenditure leads to a non-government surplus in the form of excess interbank reserves. The mode of government spending (electronic or physical) is irrelevant in this case because both will have the same effect of raising reserves in the banking system.

Consequently, any government spending should have the effect of increasing the amount of reserves overall in the private sector. Even if government debt is issued to match the spending made, the amount of reserves in the banking sector must remain constant.

In the absence of any ex-post debt issuance, an increase in the supply of bank reserves will naturally drive down the interbank rate.

Clearly, there is no reason to suggest that either the interbank rate or the yield on government debt will rise in response to government spending. Such assertions are simply not supported by the stock-flow consistent framework developed by Godley.

Further, as empirical evidence below shows, higher deficits or government debt do not imply higher interest rates as they have no bearing on the ability of a monetarily sovereign government to service its liabilities. Essentially, such bonds are risk-free and the yield on such bonds, as Keynes argued, is largely a policy variable controlled by the central bank.

2. B) Empirical Evidence

United States

Evidence from the United States shows that both long and short-term interest rates have not risen in response to rising government debt. Mainstream economists have also been converging with the Keynesian and MMT view on the ability of the central banks and monetarily sovereign governments to control yields on government bonds. For

example, (Blanchard 2019) [16] states that as long as the rate of growth of the US economy remains higher than the interest paid on US government debt:-

"issuance of debt without a later increase in taxes, may well be feasible. Put bluntly, public debt may have no fiscal cost. "

While this partly explains why the United States and Japan have not faced high interest rates on their debt, it is also important to note that the central bank of a monetarily sovereign nation can ensure the condition outlined by Blanchard always holds (Fullwiller 2006; Section *2. C*) [17].

Consequently, there is no empirical or theoretical backing to the suggestion that higher debt levels raise interest rates:-

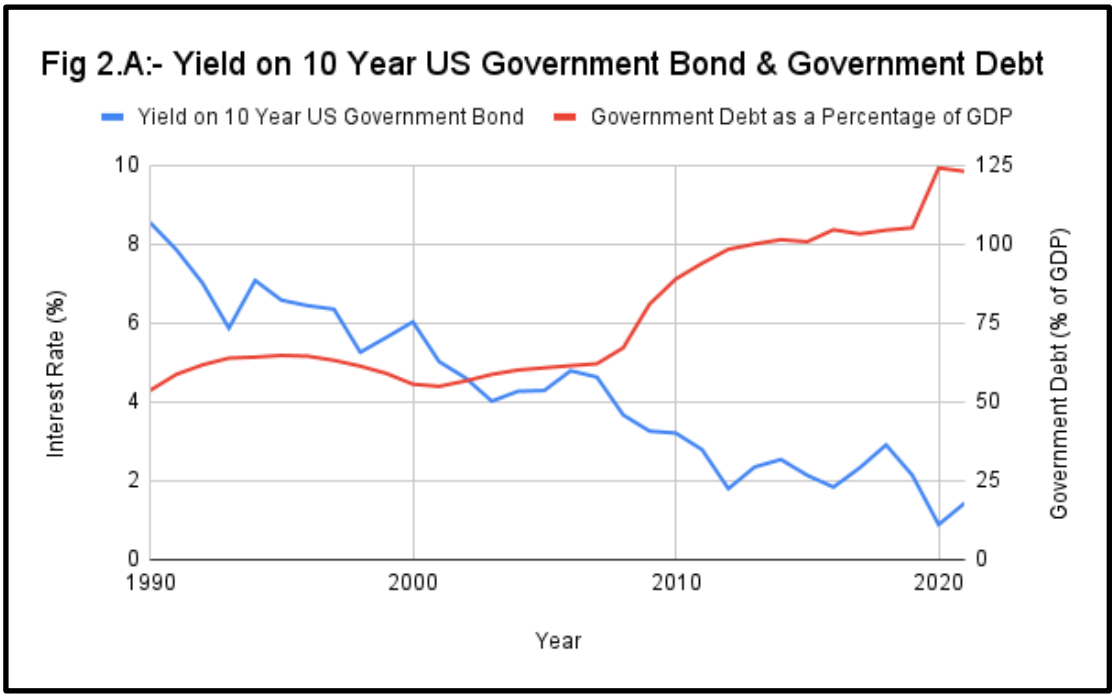

Figure 2A: US Government Fiscal Position (Deficit/Surplus as a Percentage of GDP) & Yield on 10 Year Government Bond, 1990-2021
Source:-Federal Reserve Economic Data

Furthermore, the fiscal position of the government has no definite bearing on the interest rates either:-

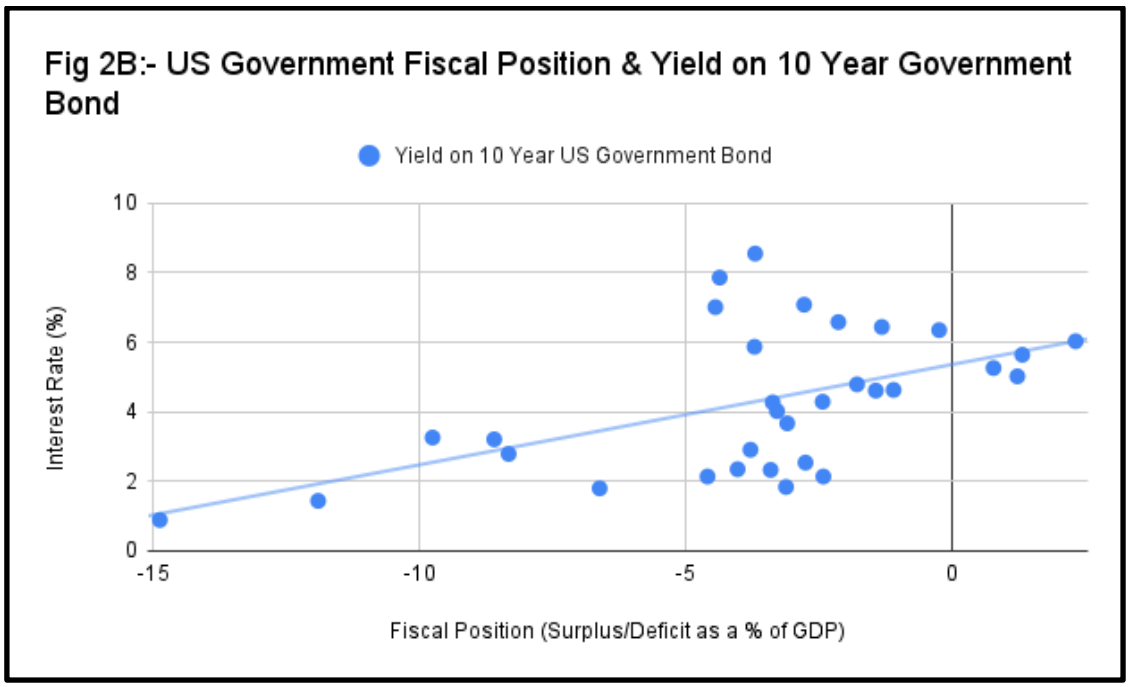

Figure 2B: US Government Debt as a Percentage of GDP & Yield on Ten-Year US Government Bond, 1990-2021, R^2 = 0.281 (controlling for fed funds rate)
Source:-Federal Reserve Economic Data

Note that in *2020*, as the US deficit (as a percentage of GDP) reached its highest level since *1945*, the Fed's loose monetary policy meant that interest rates on a 10-year government bond remained at *0.89%*, the lowest in history. Nor is this a rare occurrence. The Federal Reserve maintained low yields on government bonds during World War II, in the aftermath of the financial crisis, and in the decade leading up to the pandemic as the deficit and government debt rose substantially.

Further, as evidence from Japan and India below shows, this phenomenon cannot be explained by the role of the US Dollar as the reserve currency. The dollar being or not being a reserve currency cannot undermine the monetary sovereignty of the United States.

Japan

As shown by the figure below, Japan's government debt as a percentage of GDP has increased significantly over the years as the government has tried to counter deflationary dynamics. However, interest rates have consistently declined (even turned negative) over the last few years.

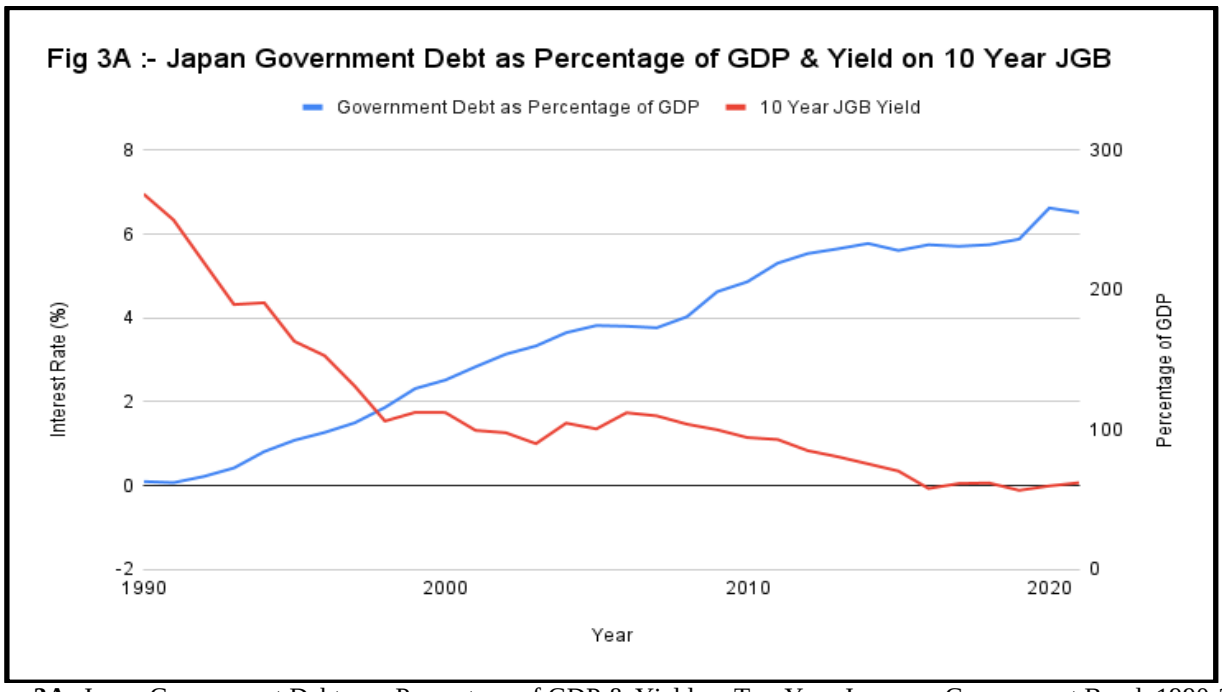

Figure 3A: Japan Government Debt as a Percentage of GDP & Yield on Ten-Year Japanese Government Bond, 1990-2021
Source:-Federal Reserve Economic Data

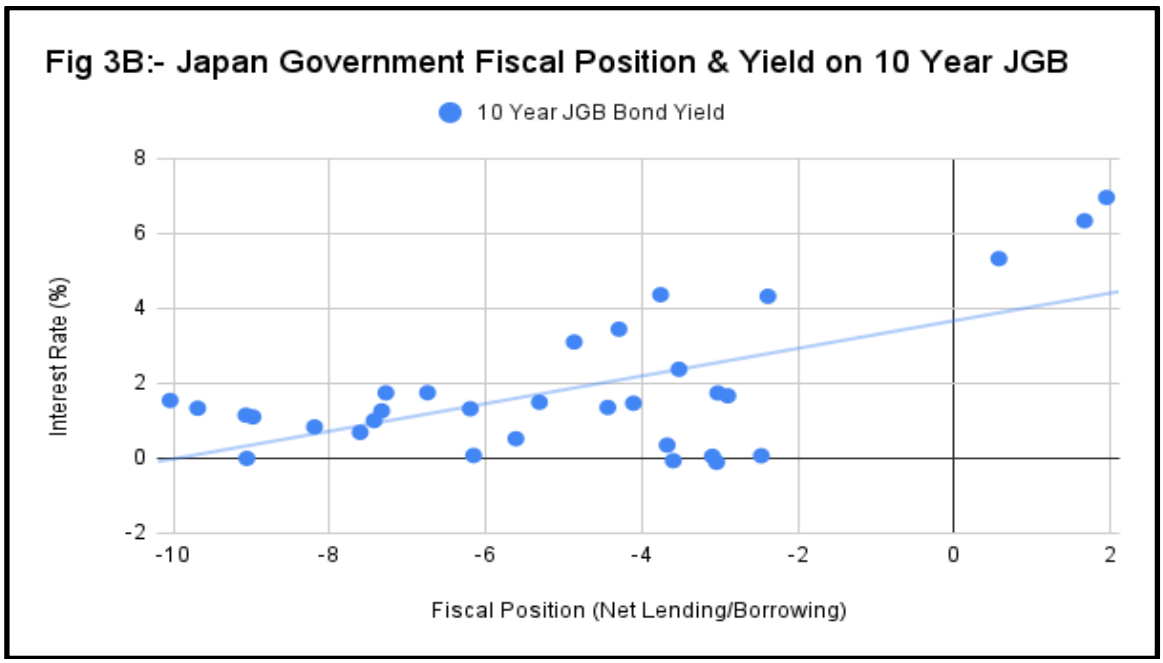

Figure 3B: Japan Government Fiscal Position & Yield on 10 Year JGB, 1990-2021
$R^2 = 0.385$
Source:-Federal Reserve Economic Data

The lower interest rates have largely been caused by action from the Bank of Japan. Noting that bond yields are inversely related to prices, the Bank of Japan has employed Yield Curve Control since September *2016* to control the interest rates on bonds by committing to purchase as many bonds as required to maintain the target yield. Prior to this, the Bank of Japan pursued a Zero Interest Rate Policy (ZIRP) between *2001* and *2006* and again between December *2008* and *2015*. These unconventional monetary policy tools deployed by the Bank of Japan clearly show that the mainstream predictions of yields of government debt rising have not materialised in Japan and the United States. However the results are consistent with both Keynesian theory (discussed further below) and the MMT view of yields on government bonds.

2. C) Yields as a Policy Variable-A Keynesian Perspective

As stated above, conventional theory dictates (with little empirical backing) that as debt levels rise, bond yields should also increase as investors become worried about the ability of the government to repay its debts. However, Keynesian economics has long offered an insight into the main determinants of long-term interest rates and how yields are largely a policy variable.

As (Keynes 1936) [18] argues, the short and long-term interest rates are largely a policy variable controlled by the central bank:-

" [t]he main direct influence of the Banking System is over the short-term rate of interest. "

"How can we be sure that the long-term rate of interest will respond to the wishes of a Currency Authority which will be exerting its direct influence, as it must, mainly on the short-term rate?"

He further noted that,

" [f]or whilst it is reasonable that long-term rates should bear a definite relation to the prospective short-term rates, quarter by quarter over the years to come, the contribution of the current three-monthly period to this aggregate expectation should be insignificant in amount—so one might suppose. "

Keynes cited evidence from (Riefler 1930) [19] who conjectured that changes in long-term interest rates are mainly influenced by the short-term rates set by the Federal Reserve to argue that investors' future expectations are mainly driven by short-term conditions, which explains why short-term rates are the main drivers of long-term rates.

Keynes' and MMT economists' views are also supported by empirical evidence. For example (Akram and Das 2014) [20] use GMM analysis and control for relevant variables to find that short-term rates are the main determinant of long-term rates in monetarily sovereign countries. central banks, thus, exercise primary control over both the long and short-term rates.

United States

To study this, we can note the coevolution of short and long-term interest rates with the Federal Funds Rate set by the Federal Reserve:-

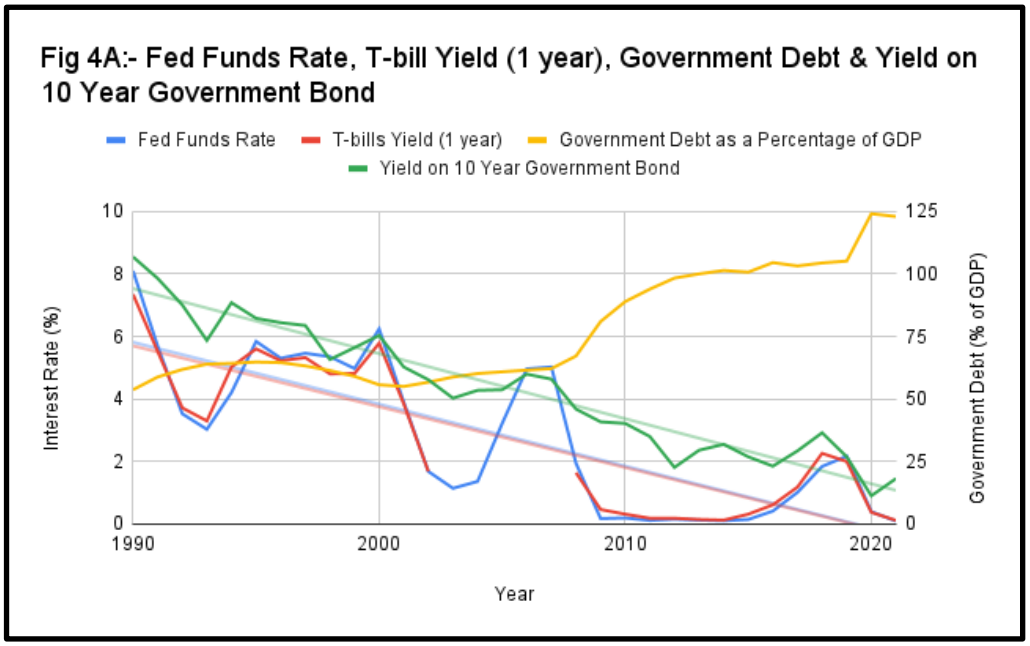

Figure 4A: Fed Funds Rate, T-bill Yield (1 year), Government Debt & Yield on 10 Year Government Bond, 1990-2021, R^2 (controlling for deficit & debt) = 0.988

Further, this correlation holds regardless of fiscal position:-

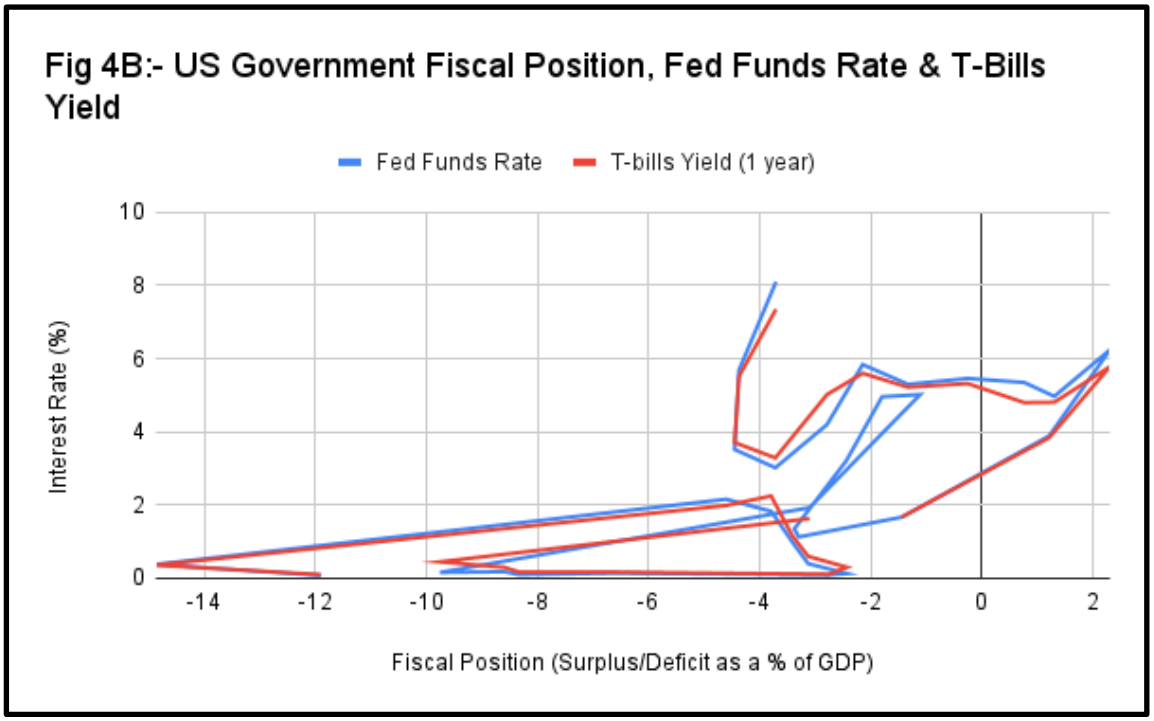

Figure 4B: US Government Fiscal Position, Fed Funds Rate & T-Bills (1-year) Yield, 1990-2021
Source:-Federal Reserve Economic Data

Not only is the experience consistent with Japan (shown below) but also with developing monetarily sovereign nations such as India, as shown by (Akram and Das 2015) [21].

Thus, as stated above, it is incorrect to dismiss these observations by stating that they hold due to the special nature of the US Dollar as the reserve currency. Hence, the argument that MMT is applicable only to developed countries or only the United States does not have sufficient empirical backing.

Japan

Evidence from Japan also validates the claim that interest rates on government bonds can be controlled by the central bank if it wishes to do so, regardless of how high government debt is.

In fact, since*2016*, the BoJ, with its Yield Curve Control Policy has succeeded in maintaining long-term rates in accordance with its policy even as government debt has risen. As Section *4. C* shows this has not led to runaway inflation either. Note that this relationship holds regardless of the fiscal position of the government (figure 7)

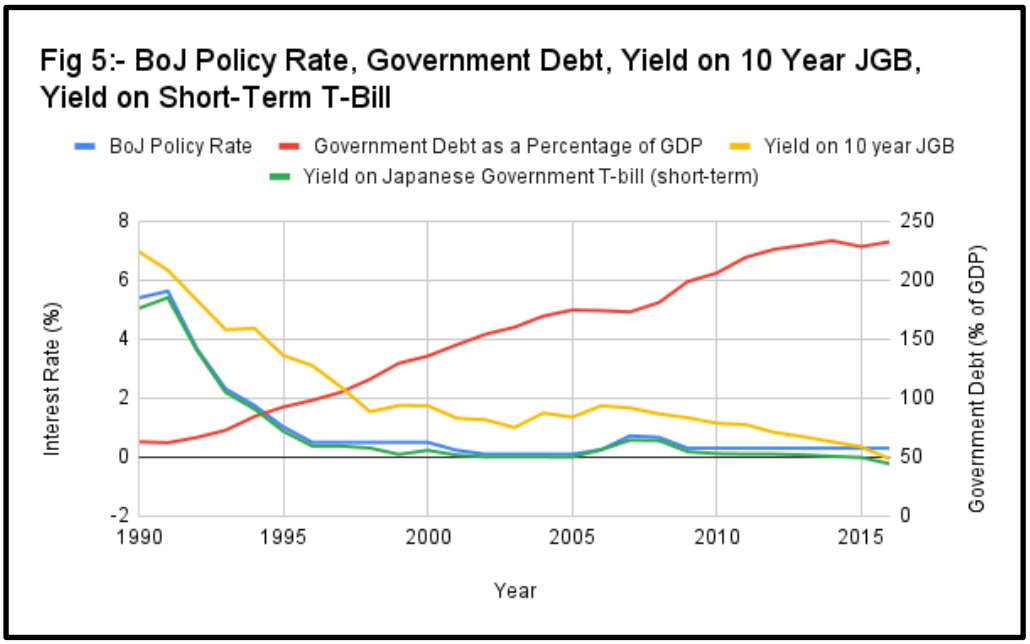

Figure 5: BoJ Policy Rate, Government Debt, Yield on 10 Year JGB, Yield on Short-Term Japanese T-Bill, 1990-2016, R^2 = 0.995
Source:-Federal Reserve Economic Data

Furthermore, as MMT argues, neither is such control of interest rates inflationary nor does it involve the government recklessly "printing money" to finance deficits or the central bank financing deficits through debt monetisation (refer to Section*4. C* for a more detailed discussion).

In conclusion, it is clear that the non-government sector cannot force bond yields to rise even as government deficits or debt increase. In monetarily sovereign nations, it is the government that has control over the cost of public debt and control over what type and quantity of public debt it wishes to offer to the private sector. As MMT argues, the constraint on the government in such nations is only the real resource constraint and not any financial constraint.

Section 3:-Crowding Out

Conventional Theory dictates that as deficits rise, the government competes with the private sector for limited financial resources. Consequently, there is a decline in the amount of loanable funds available and interest rates rise. This conventional view is based on the Loanable Funds Theory. The Loanable Funds Theory suggests that interest rates reflect the cost of consuming goods in the present relative to consuming them in the future. Consequently, low interest rates are assumed to stimulate demand & investment, ultimately leading to an equilibrium (Savings = Investment) in the Loanable Funds market. The theory also assumes that workers and firms would immediately respond to such movements in savings and investment.

As discussed below, such assumptions and the treatment of savings and investment as separate entities has been questioned by Keynes and MMT economists. Further, the Loanable Funds Theory is also not consistent with the data from Japan and the United States.

3. A) Theoretical Reasoning

As noted above, any government expenditure does not come out of the issue of bonds or taxes. Consequently, government expenditures must lead to a unit for unit increase in the funds available with the private sector in the form of bank reserves. This statement is rooted in Godley's stock-flow consistent equations from Section *1*, which means that it is essentially an accounting identity that must always hold.

Taking this analysis further, it is wrong to assume that if government bonds are issued post spending, there will be a decrease in the amount of funds available to the private sector. If the government then converts the excess reserves it created in the first place into government debt, the supply of funds available to the private sector would remain unaffected. Even if the bond issuance converts all the excess reserves created by the government into government debt, there would be no reason for interest rates to rise.

In fact, any government deficit, not accompanied by the issue of debt that drains reserves in the banking system will apply a downward, not upward pressure on interest rates. Therefore, MMT and Godley's equations strongly reject the conventional Crowding Out Theory.

3. B) Keynes and the Loanable Funds Theory

Keynes was not convinced by the Crowding Out Theory either. In his treatise, *The General Theory of Employment, Interest, and Money*, he strongly opposed the Loanable Funds Theory on which the Crowding Out Theory is based:-

"The classical theory of the rate of interest [the loanable funds theory] seems to suppose that, if the demand curve for capital shifts or if the curve relating the rate of interest to the amounts saved out of a given income shifts or if both these curves shift, the new rate of interest will be given by the point of intersection of the new positions of the two curves. But this is a nonsense theory. For the assumption that income is constant is inconsistent with the assumption that these two curves can shift independently of one another. If either of them shifts, then, in general, income will change; with the result that the whole schematism based on the assumption of a given income breaks down … In truth, the classical theory has not been alive to the relevance of changes in the level of income or to the possibility of the level of income being actually a function of the rate of the investment. "

Keynes instead believed aggregate income, not interest rates, was the main determinant of savings. He also noted the fallacy of treating investment and savings as separate entities:-

"Increased investment will always be accompanied by increased saving, but it can never be preceded by it. Dishoarding and credit expansion provides not an alternative to increased saving, but a necessary preparation for it. It is the parent, not the twin, of increased saving. "

Clearly, Keynes' view is in stark contrast to the neoclassical view on savings and investment. Probably influenced by the fact that he was writing after the Great Depression, Keynes believed that investment drove income, which in turn, was the main determinant of savings.

MMT also views Savings and Investments in the Keynesian/Kaleckian[22] way and uses Godley's equations to suggest that the Crowding Out theory actually operates in reverse, where government surpluses reduce the financial savings available to the non-government sector, not deficits.

The evidence on Crowding Out from both the United States and Japan supports the MMT view.

3. C) Empirical Evidence

To analyse this empirically, the relationship between the fiscal position of the American and Japanese governments and the corresponding nominal interest rate has been observed:-

United States

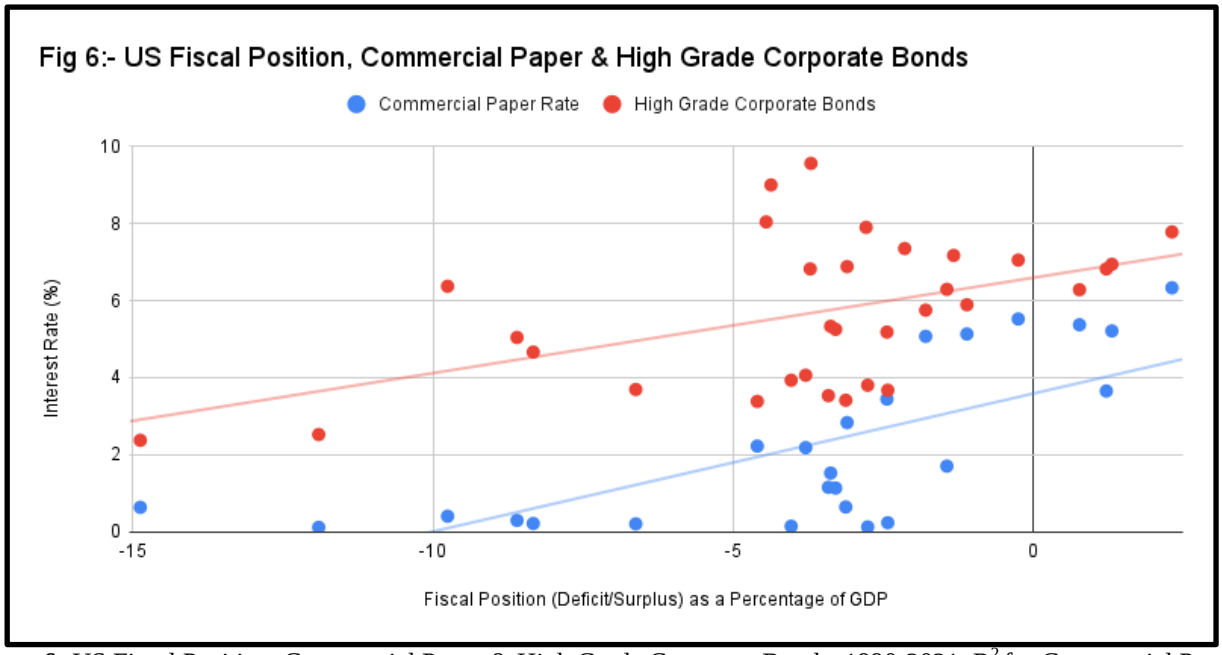

Figure 6: US Fiscal Position, Commercial Paper & High Grade Corporate Bonds, 1990-2021. R^2 for Commercial Paper = 0.503, R^2 for Corporate Bonds = 0.241
Source:-Federal Reserve Economic Data

Clearly, the size of the deficit has not put an upward pressure on interest rates for the private sector.

The lack of a definite relationship between deficits and private sector borrowing rates shows the endogenous nature of budget deficits.

The reason why budget deficits are associated with lower inflation and interest rates is due to the monetary policy followed by these nations and the prevalent macroeconomic conditions that create a larger budget (economic slowdowns that reduce government "revenue"). This endogenous nature has been discussed in more detail below.

Japan

For Japan as well, there has been no crowding out effect:-

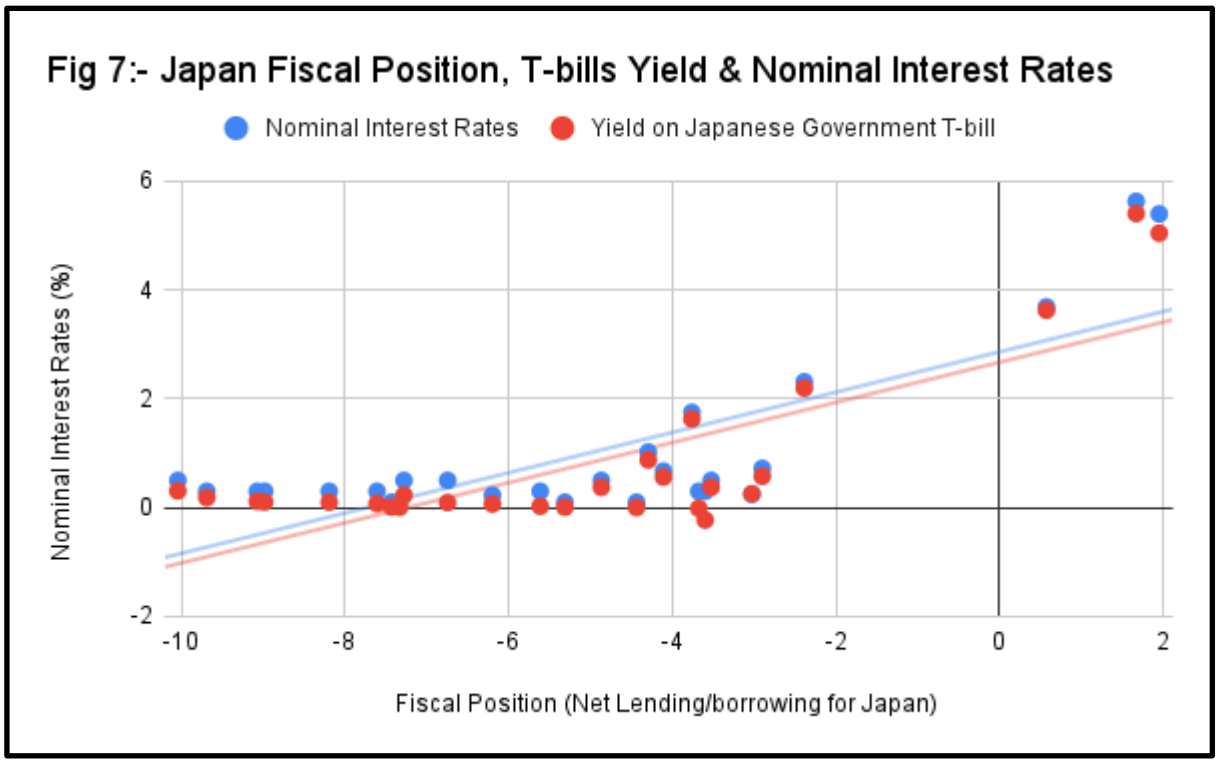

Figure 7: Japan Fiscal Position, T-bills Yield & Nominal Interest Rates, 1990-2016
Source:-Federal Reserve Economic Data

The BoJ has maintained a low policy rate and targeted long term JGBs through its Yield Curve Control Policy even as government debt and deficits have risen substantially (as shown by figures 3 & 5).

Furthermore, from the figure below we can note that the government runs deficits during times of economic slowdown (as a result of lower tax "revenue" and increased expenditure to promote growth) and at such times the central bank also lowers the interest rates. Examples of this policy mix include the period during World War II and the pandemic, where the US treasury's expenditures increased and the Federal Reserve acted to keep rates low to stimulate the economy. For example, during World War II the Federal Reserve formally committed to maintaining a low-interest-rate peg of *3/8* percent on short-term Treasury bills and also implicitly capped the rate on long-term Treasury bonds at *2.5* percent. While such onetime examples do not provide conclusive evidence, the data from the last three decades reconciles with the assertions made above and Keynes' critique of the Loanable Funds Theory:-

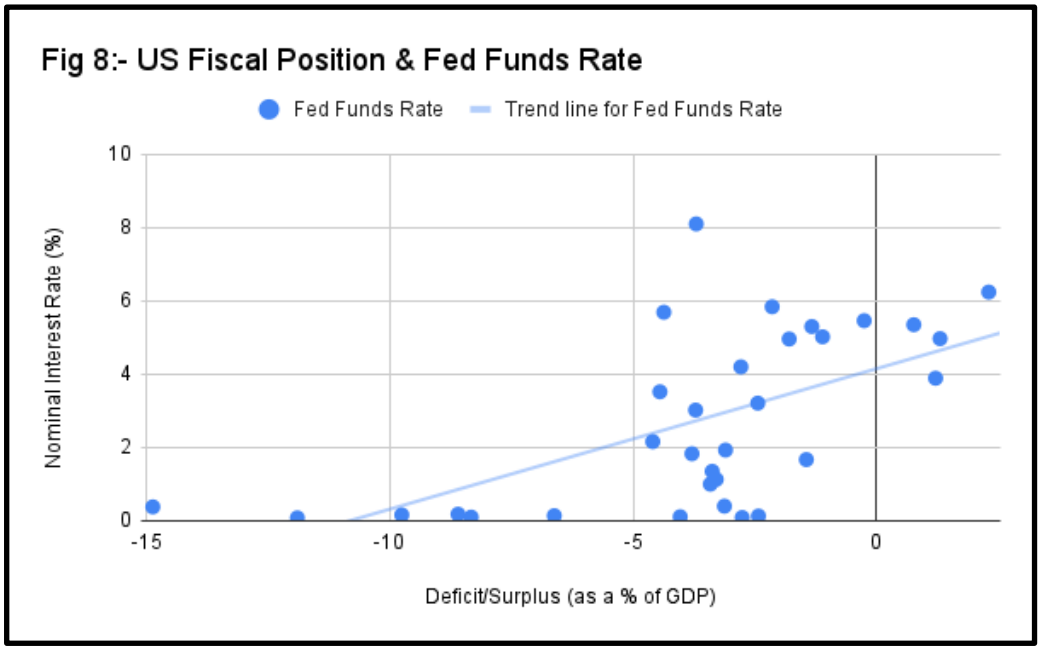

Figure 8: US Fiscal Position & Fed Funds Rate, 1990-2021
Source:-Federal Reserve Economic Data

3. D) Crowding Out and the Flawed Money Multiplier Perspective:-

One of the reasons why the crowding out theory may be assumed in practice is the use of a flawed model of how banks create money. Many dominant models-such as the intermediation of loanable funds (ILF) model-assume that deposits create loans and that reserves are a prerequisite for lending. Another major component of mainstream theory is the money multiplier. The money multiplier mechanism states that the banking system as a whole creates money by accepting deposits, keeping a part of these deposits and lending the remaining to borrowers. The extension of the money multiplier theory is that the central bank can control the monetary base (reserves and cash held by the public) and can alter the reserve ratio to increase or decrease the money multiplier. This assumption about the exogenous nature of money then forms the basis for the Quantity Theory of Money which suggests that by slowing the growth rate of money supply, central banks can control inflation.

However, Post-Keynesian economists have long questioned this model of banking and the ability of central banks to control money supply. Prominent Post-Keynesians including (Augusto Graziani, Basil Moore, Marc Lavoie) [23] and MMT economists argue that banks are not intermediaries that borrow funds from depositors and lend out a proportion to borrowers. Instead, they suggest that banks make loans, which then create deposits which are then backed by reserves. The acquisition of reserves is thus viewed as an ex-post operation that does not have any bearing on the ability of a bank to extend loans.

This view has also recently become commonplace amongst some prominent central banks. For example, (Jakab and Kumhoff 2018) [24]say:-

"In the real world, there is no deposit multiplier mechanism that imposes quantitative constraints on banks' ability to create money in this fashion. The main constraint is banks' expectations concerning their profitability and solvency. "

Naturally, if banks are only constrained by profitability concerns, then the Monetarist view of exogenous money supply and mainstream money multiplier models do not provide an accurate representation of the banking system.

Further, Modern Monetary and Post-Keynesian theory explain why unconventional monetary policy measures such as Quantitative Easing did not increase bank lending (Giansante, Fatouh, Ongena 2020) [25] in the aftermath of the financial crisis. Quantitative Easing involved the central bank purchasing government bonds and other securities (such as Mortgage Backed Securities in the USA) and crediting bank reserves in exchange.

The reason why this injection of reserves did not increase lending was because bank lending was not constrained by a lack of reserves but by solvency and profitability concerns. As MMT says, expanding the monetary base cannot directly lead to increased lending.

The experience from decades of Quantitative Easing clearly shows that the empirical evidence is in the favour of the Post-Keynesians and MMT economists who accurately predicted the failure of Quantitative Easing in increasing bank lending.

The MMT view on banking also leads to some crucial conclusions about the implications of budget deficits. MMT suggests that the process of loaning funds to a borrower does not involve any redistribution of real resources. Instead, banks create their own funding through the act of lending and there is no intermediation whatsoever when new loans are made.

Consequently, a government budget deficit "financed" by the issue of government bonds cannot reduce the amount of funds available to the private sector for lending. Simply put, it is not possible for a government budget deficit to crowd out private investment.

Section 4:-Inflation

4. A) Inflation as the Spending Constraint

To evaluate whether a deficit is too large or not, we cannot rely on arbitrary debt ceilings or schemes such as the Pay As You Go (PAYGO) [26] scheme implemented by the US Congress. Nor can we simply look at the size of the deficit or the other fiscal ratios as evidence of overspending. The size of the federal deficit on its own, as shown above, is irrelevant unless viewed with other macroeconomic aggregates, such as employment and inflation. Using debt-ceilings, deficit limits, and other such schemes undermine the ability of the government to achieve policy objectives. Furthermore, as evidence shows, such limits cannot guarantee inflation control. In fact, I find that there is no statistically significant relationship between deficits and inflation, which means that using debt-ceilings, deficit limits, and other such schemes undermines the ability of the government to achieve policy objectives without guaranteeing control over inflation. As (Tygmoine 2019) [27] argues, inflation provides more conclusive evidence of overspending than nominal increases in the deficit, therefore the aim should be to operate within the inflation constraint, which means keeping government spending consistent with the ability of the real resources in the economy to produce the goods and services demanded.

A good example of why self-imposed spending limits do not work as well as having an inflation constraint is the $787 billion stimulus passed by US Congress in 2009. The stimulus did not lead to inflation despite greatly increasing the size of the deficit because there was a high level of unemployment in the US economy, and consequently, sufficient real resources in the economy to meet the increased demand.

However, mainstream economics suggests that, without exception, deficits are inflationary. As the Money Neutrality Theory posits, any increase in money supply is assumed to be inflationary and have no consequences on real variables such as employment at least in the "long-run". Further, many mainstream economists have raised concerns about the central bank "financing" deficits through the purchase of government bonds in the open market through debt monetisation. As I show below both of these claims are not backed by the data from the United States or Japan. Further, as we show in Section *4. C*, concerns about debt monetisation reflect an incorrect understanding of monetary flows in the economy.

4. B) Empirical Evidence:-Inflation, Deficits, and Debt

United States

As the figure below shows, there is no direct relationship between deficits and inflation. Deficits are often not a result of reckless spending but a result of declining tax "revenues" as a consequence of an economic slowdown. Therefore, in case of such deficits it is highly unlikely that the economy has a shortage of productive real resources to meet demand. Secondly, there is no reason to suggest that any deficit which does not exceed the capacity of the economy to produce the goods and services demanded due to a real resource constraint will inevitably lead to inflation.

The Modern Monetary Theory and Keynesian view on inflation is often dismissed by economists who suggest that the recent inflationary episode was caused due to excessive government stimulus. Here, it is important to point out that neither Keynesian nor Modern Monetary Theory advocate for a larger deficit or increased government spending at all times. Moreover, Modern Monetary Theory is an analytical framework aimed at explaining the economy; there is no fixed policy prescription that can be attributed to MMT.

Further, even claims about the contribution of government spending to the recent inflation are unsubstantiated. As (Stiglitz and Regmi 2023) [28] show, this episode can be blamed on a supply shock as a result of the pandemic, instead of increased government spending which they argue has been below trend, especially during the period when inflation started increasing significantly in the United States.

Lastly, the empirical data from the last three decades suggests no significant relationship between inflation and budget deficits:-

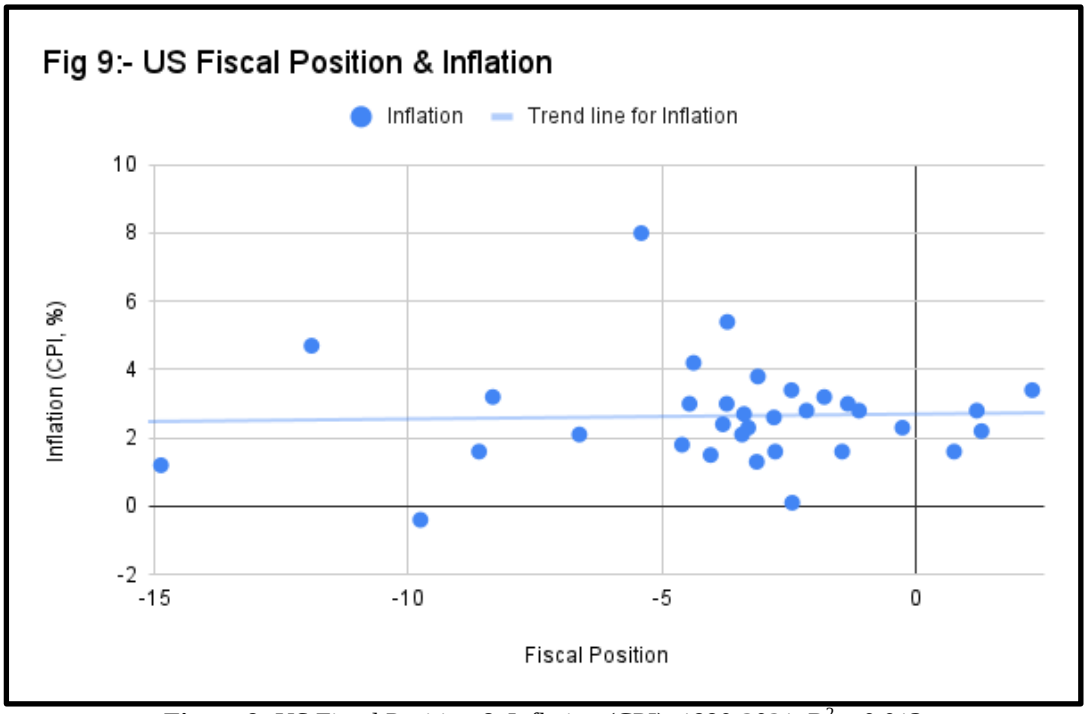

Figure 9: US Fiscal Position & Inflation (CPI), 1990-2021, $R^2 = 0.013$
Source:-Federal Reserve Economic Data

Further, as discussed in Section *3*, government spending leads to an increase in the reserves held in the banking sector. This may imply that government spending increases the monetary base, and thus bank lending, which may ultimately manifest as increased inflation. However, as noted in Section *3. C*, the money multiplier does not exist in practice, and thus government spending doesn't carry an inherent inflationary risk (unless it exceeds the ability of the economy to meet demand under its ***real*** resource constraint).

Japan

Evidence from Japan is also in line with the findings above:-

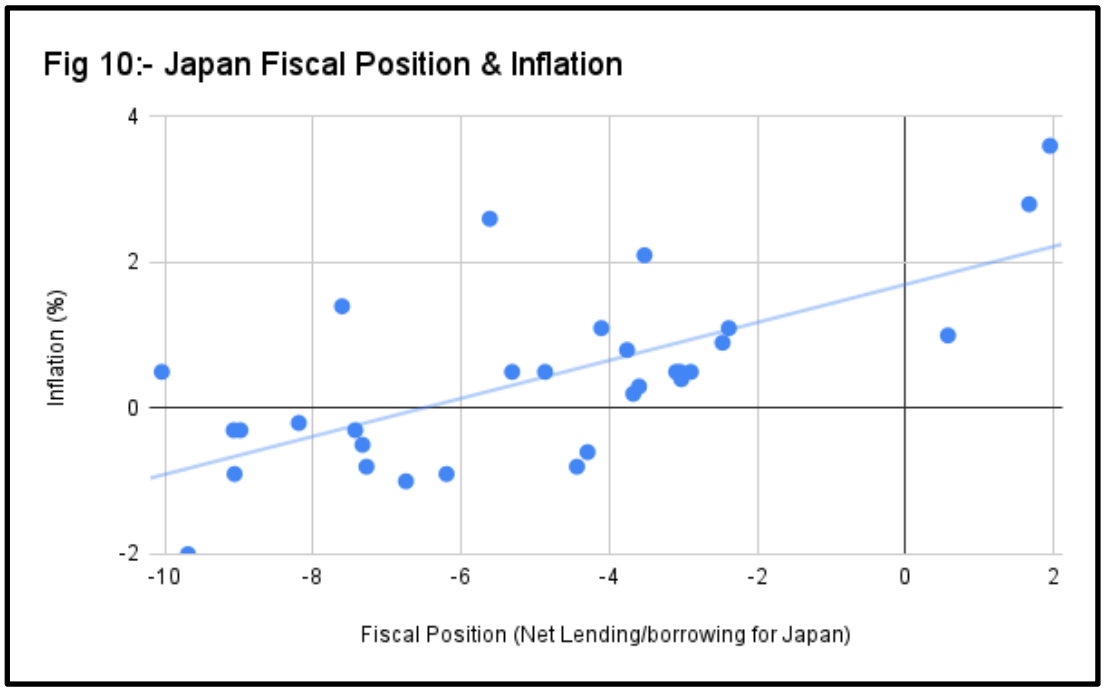

Figure 10: Japan Fiscal Position & Inflation, 1990-2020
Source:-Federal Reserve Economic Data

In fact, the Japanese government and BoJ have been trying to counter deflationary dynamics and increased government spending and debt has not led to accelerating inflation.

4. C) Empirical Evidence:-Inflation and "Debt Monetisation"

Another key finding from the United States is that "debt monetisation" or purchases of government debt by central banks does not have an inherent inflationary effect.

Mainstream economics suggests that such purchases require central banks to "print" money, which increases money supply and ultimately leads to higher inflation as per the Quantity Theory of Money. MMT rejects this view on three bases. Firstly, the Quantity Theory of Money requires velocity of money to be constant, which does not reconcile with empirical evidence. Further, the theory also assumes that the economy is at full employment, which may not necessarily hold. Secondly, governments do not require any prior bond issuance to fund their expenditure. The issuance of debt is merely an ex-post monetary operation aimed at maintaining the short-term target rate set by the central bank. Thirdly, the presence of a target interbank rate set by central banks ensures that debt monetisation, as defined by mainstream economics, is not possible If the government makes an expenditure, the amount of reserves in the banking system will increase and the interbank rate may fall below the central bank's target rate. Consequently, if the central bank further engages in debt monetisation, then the level of reserves in the system will rise even further as it adds government bonds to its balance sheet and the central bank would lose control of the interbank rate.

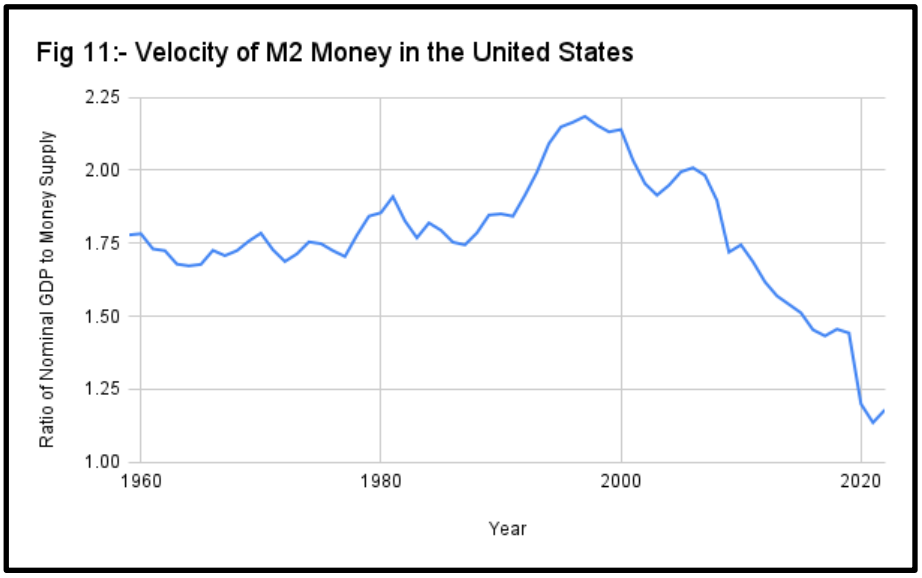

Figure 11: Velocity of M2 Money in the United States, 1959-2022
Source:-Federal Reserve Economic Data

United States

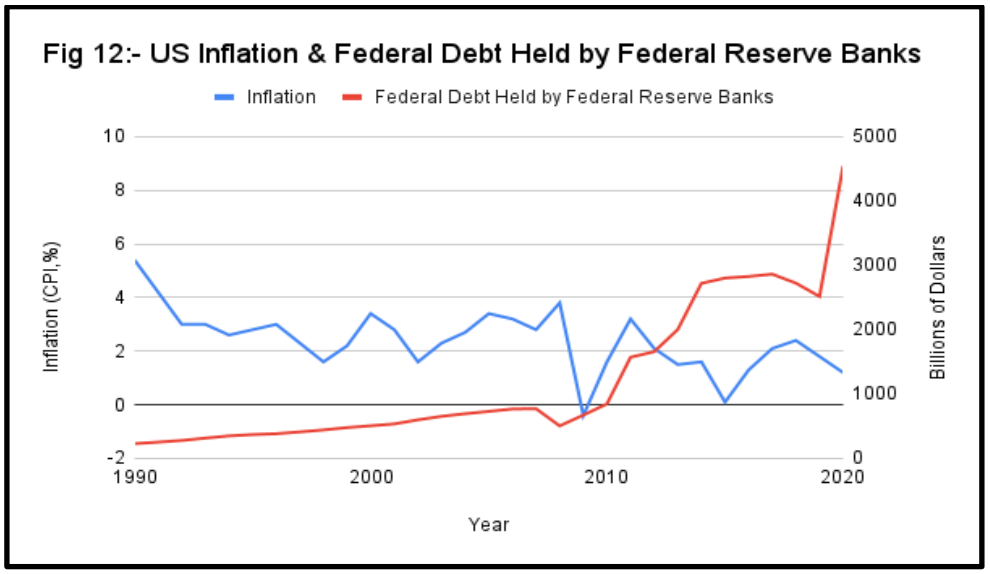

Figure 12: US Inflation & Federal Debt Held by Federal Reserve Banks, 1990-2021
Source:-Federal Reserve Economic Data

Japan

The experience in Japan has been similar to that of the United States. The Bank of Japan with its Yield Control Policy has also engaged in large-scale purchases of JGBs and other assets. Contrary to concerns raised by some economists, this has not led to increased inflation either.

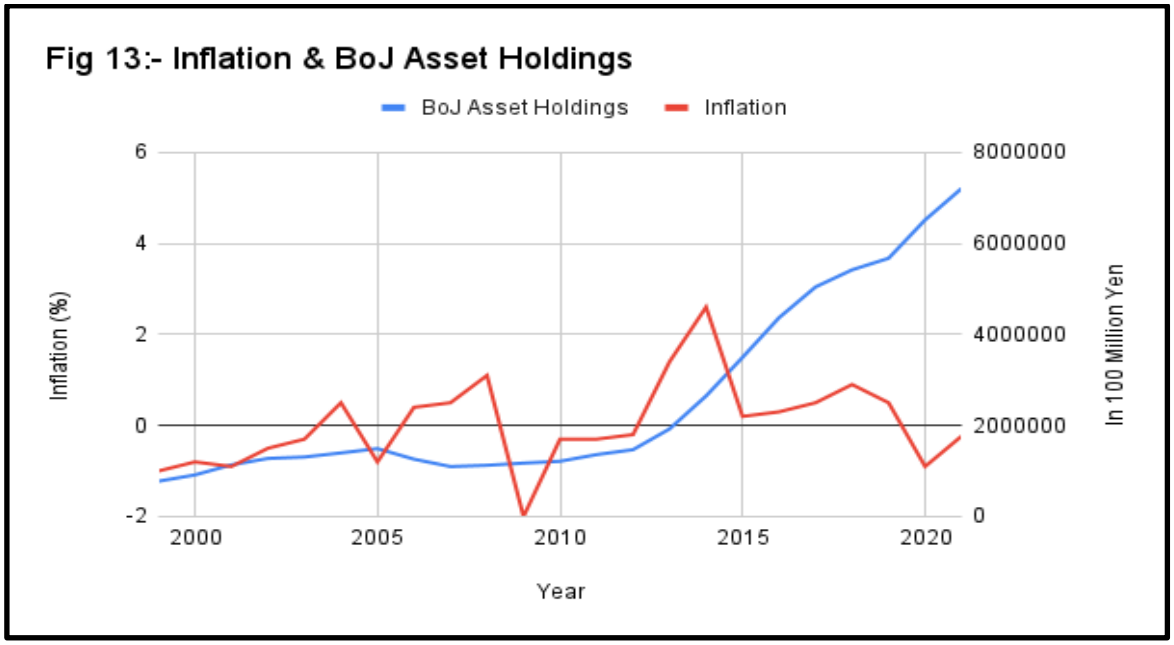

Figure 13: Inflation & BoJ Asset Holdings, 1999-2021
Source: Federal Reserve Economic Data

The reason for this has been explained above. Noting the implications of bond issuance from Section *1. B* itself makes it clear that the central bank would lose control over the short-term interest rate if it purchased government debt without maintaining a level of reserves that are in accordance with its short-term policy rate. Consequently, fears regarding debt monetisation are unfounded and do not represent a correct understanding of modern monetary systems.

2. Policy Implications

Politicians have long imposed limits on government spending due to an over-reliance on the mainstream economic framework, which, as shown throughout this paper, has failed to correctly predict fiscal policy outcomes in monetarily sovereign nations. Consequently, there is an urgent need to adapt a more pluralistic approach to economic policy which incorporates newer analytical frameworks-such as MMT-which have shown to have better predictive accuracy.

Further, as section *2* shows that interest rates and government bond yields are largely a policy variable, which can be controlled in monetarily sovereign countries regardless of the levels of government deficits or government debt levels. While the BoJ has directly targeted yields through its Yield Curve Control Policy since 2016, this conclusion also applies to the United States and India among other monetarily sovereign countries. This also means that the private sector cannot push up government bond yields if they doubt the solvency of the government (Section *2. C*). Therefore, government policy cannot be undermined by bond vigilantes or what investors think about the "fiscal sustainability" of such policies.

Neither does this government "borrowing" crowd out private investment. Stock-flow consistent modelling, coupled with an MMT understanding of how monetary flows take place in an economy and Keynes' strong refutal of the Loanable Funds Theory all show that the conventional Crowding Out Theory is irrelevant in monetarily sovereign nations.

Note that this paper does not intend to argue that all nations can spend their way out of their problems or that governments should always run deficits. Instead, it argues that governments should consider deficits in the context of other macroeconomic aggregates such as inflation, unemployment, growth rates among others. In doing so, policymakers should also focus on the policy problems at hand rather than worrying about unproven crowding out or government insolvency concerns.

In conclusion, the United States and Japan face many pressing challenges-climate change, widening inequality, ageing populations to name a few-solving these issues and achieving the goals of full employment, reducing poverty, sustaining high economic growth, and ensuring inflation doesn't exceed targets should be the ends of fiscal and monetary policy, not the pursuit of "fiscal sustainability" or budget surpluses.

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The author reports there are no competing interests to declare.

Biographical note

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