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The Debate Over Monetary Financing: A Revival

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Abstract

Over the past two decades, numerous economies witnessed a revival of monetary financing- the financing of government expenditure through a permanent increase in the monetary base. This unconventional monetary policy returned to the central bank's arsenal due to two unprecedented economic crises: the Global Financial Crisis of 2008 and the COVID-19 pandemic. And, was aided by conventional monetary policies yielding insignificant effects on mounting sovereign debt and deflationary spirals. Thus, comprehending the implications of monetary financing is vital at this juncture. Critics of monetary financing argue that it results in inflation and/or hyperinflation and decreases central bank independence. On the other hand, proponents make the case for its effect on reducing sovereign debt and rescuing economies facing deflationary spirals. This paper finds that monetary financing can be an efficacious mechanism for financing government expenditure, provided central bank independence is high and it is a period of economic crisis as the negative consequences of lower central bank independence and inflation are equated by implementing a rigid framework.

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1 Introduction

The debate over the financing of government expenditure has confounded policymakers and economists alike for decades (McCallum 1985).[1] Since the Keynesian revolution, financing via fiscal means, the funding of government expenditure through revenue generated from taxes and borrowing, has taken precedence over its monetary counterparts, which imply central bank participation (Brehon and Winkler 2016).[2] However, since the onset of the COVID-19 pandemic, numerous countries have adopted monetary financing (MF), an unconventional monetary policy that entails money creation to finance government expenditure, again due to unprecedented economic hardships and climbing government deficits- provoking the discussion of MF of government expenditure.[3] For instance, the Bank of England matched 99.5% of government debt incurred due to COVID-19, covering €412 of €413 Billion, by purchasing it (Malone 2023).[4] This paper will reason that MF can be an efficacious mechanism for financing government expenditure, provided central bank independence is high and it is a period of economic crisis. Section 2 will examine the disadvantages of MF, Section 3 will present its advantages, Section 4 will conclude, and will be followed by the notes, appendix, and references.

However, it is vital to comprehend the monetary framework for using MF before discussing its demerits and merits.[5] MF can be implemented, but is not restricted to, in the following manners dependent upon the specific monetary policy objectives and

[1]Please see Bell 1998 for a quantitative framework for understanding government expenditure. Also, see McCallum 1985 for a review of the debate over fiscal and monetary finance.

[2]Also, see Challoumis 2020 for a discussion on the basic principles of The Keynesian Economic Theory.

[3]While these countries don't specify their policies as MF, these policies are the closest approximation to the definition of MF in the modern world. Monetary financing refers to the process by which a central bank provides funding to the government by creating new money. Please see Turner 2015 for a discussion on the role of MF in fiscal deficits. Also, please see Table 1 for a detailed discussion on the differences and similarities of conventional and unconventional monetary policies.

[4]Please see Adrian et al. 2021 for a discussion on how developing economies have used asset purchase programs to reduce financial stress caused by the COVID-19 pandemic. Also, please see De Grauwe 2020 for a discussion on using MF for COVID-19-induced fiscal deficits in the euro zone.

[5]The "process of using MF" refers to the monetary framework via which MF finances government expenditure.

institutional framework of the central bank:

1. Government debt is purchased by the central bank, which holds the debt instrument until it expires and then purchases new debt. All interest payments proceed back to the government via the transfer of the bank's annual profit (See footnote 6).

2. The government offers debt, which the central bank purchases and then converts to non-redeemable debt.

3. The central bank directly credits the treasury.[6]

These aforementioned policy tools act similarly to permanently increase the monetary base (MB) and expand the central bank's balance sheet (Turner 2015).[7] However, transferring the newly created money to citizens can differ through tax cuts, stimulus checks, or an increase in public expenditure (DeLong et al. 2012).[8]

Establishing the difference between Quantitative Easing (QE) and MF is also integral to constructing the case for MF. In essence, QE affects a temporary increase in the MB; whereas MF applies a permanent one (Benford et al. 2009).[9] Occasionally QE policies are introduced which later turn into MF policies; hence, this essay presumes that, unless specified, QE policies divert into MF policies (Lawson and Feldberg 2020; Agur et al. 2022; Turner 2015).[10]

[6]In most cases this practice is deemed illegal due to the fact that most countries have laws that prohibit central banks from lending money directly to treasuries. For example, Article 123 of the TFEU or US Code Title 12, unless it is the central bank's annual profit (López Escudero 2022).

[7]Please note that in this case, monetary base refers to the total money supply which includes M0 and M2.

[8]During the COVID-19 pandemic the U.S. government passed the CARES Act which provided for stimulus payments to citizens- this serves as an example of direct stimulus provided to citizens (Act 2020).

[9]Please see Table 2 for a greater comparison between QE and MF in varying contexts.

[10]Most QE policies are extended beyond the set and perceived time horizon. As mentioned before, monetary policies fitting the textbook definition of MF are rare in the modern world. Thus, to create a compelling argument it is essential to consider QE policies as MF ones (Lawson and Feldberg 2020).

2 Disadvantages

MF has multiple disadvantages, the greatest of which are inflation or hyperinflation and the loss of central bank independence (CBI).

2.1 Central Bank Independence

CBI is fundamental to a central bank achieving its monetary policy objectives and regulating the economy without political influence.[11] For example, the Federal Reserve Act of 1913, which instituted the Federal Reserve System, stipulates that the Federal Reserve's Board of Governors must make monetary policy decisions independently of political influence (Meltzer 2010).[12] However, since the 2008 Global Financial Crisis (GFC), CBI has significantly declined (De Haan and Eijffinger 2016) because the GFC necessitated a closer relationship between the treasury and central bank (Jakob et al. 2018).[13] Displayed below is a letter expressing many economists' apprehensions regarding the relationship between the Federal Reserve and the U.S. Treasury that influenced CBI during the crisis:

> *"Central bank independence has been shown to be essential for controlling inflation. Sooner or later, the Fed will have to scale back its current unprecedented monetary accommodation. When the Federal Reserve judges it time to begin tightening monetary conditions, it must be allowed to do so without interference."*
>
> *- Open Letter to U.S. Congress, signed by 386 economists, July 20, 2009*

[11]Central bank independence predominantly refers to the practice of delegating monetary policy decisions to unelected officials and minimizing the government's influence (De Haan and Eijffinger 2016). Also, please see Wachtel and Blejer 2020 for a review on the reduction of CBI after GFC.

[12]Other examples include the Bank of England Act of 1998, the Bank of Japan Act of 1998, and the Treaty on the Functioning of the European Union. All the aforementioned passages of laws protect CBI by creating strict mandates for central banks to follow and create independent governance structures that are free of political influence (Berger, De Haan, and Eijffinger 2001).

[13]For example, in the United States the Federal Reserve and the Treasury worked together on Term Asset-Backed Securities Loan Facility and Troubled Asset Relief Program to provide capital injections and liquidity to banks during the GFC (Nguyen, Enomoto, et al. 2009). The government treasury is responsible for fiscal policy, and the central bank is responsible for monetary policy.

Moreover, empirical literature has exhibited that there may be political pressure on the central bank - where the ultimate threat is to remove the central bank's independence - notably if politicians dissent from the central bank's policies (De Haan and Eijffinger 2016).[14] Havrilesky 1993 and Ehrmann and Fratzscher 2011 illustrate that politicians, on average, prioritize short-term political objectives over long-term economic stability.[15] As a result, political pressure can impede CBI by compelling it to act in the politicians' best interest rather than its mandate (Dincer and Eichengreen 2013).[16] MF increases said pressure as politicians trust the central bank to finance their legislature.[17]

2.2 Inflation

The main argument against MF is its potential to lead to inflation or, in some cases, hyperinflation.[18] As MF increases MB, the supply of goods and services remains constant. Thus, the demand for goods and services may increase, increasing prices (Friedman and Schwartz 2008). In summary, MF increases aggregate demand without impacting supply.[19] In a quantitative theory of money perspective, the money supply is positively correlated to inflation (Fisher 1911).[20] The theory is described as follows:

$$MV = PT$$

[14]Please see Fischer 1995 for a historic perspective on CBI and its impact in different contexts.

[15]Please see De Haan and Eijffinger 2016 for a comprehensive review on recent research surrounding the political economy of monetary policy-making, both by economists and political scientists.

[16]A central bank's mandate typically includes maintaining price stability and promoting maximum employment, aiming to keep inflation under control while fostering a healthy level of economic growth.

[17]As the government will rely on the central bank for financing its expenditure, more cooperation is implied. Fiscal dominance refers to a situation where a government's fiscal policy decisions, such as spending and taxation, take precedence over monetary policy decisions made by a central bank, such as efforts to curb inflation or reduce unemployment rates (Kumhof, Nunes, and Yakadina 2010).

[18]Inflation refers to the sustained increase in the general level of prices of goods and services in an economy over a period of time (Keynes 1937). Hyperinflation is defined as a period in which the monthly inflation rate exceeds 50%, or in which prices double within three years or less (Cagan 1991).

[19]There is now more money in the economy to buy the same number of goods and services thus the producers increase prices to profit from the surplus liquidity, resulting in inflation.

[20]The quantitative theory of money seeks to explain the relationship between the supply of money in an economy and the level of prices while considering the velocity of money and real value of aggregate transactions.

Where:

- M is the total amount of money in circulation in the economy.
- V is the velocity of money.
- P is inflation.
- T is the real value of aggregate transactions.

Typically, the velocity of money and the real value of aggregate transactions are assumed to be constants. Therefore, the total amount of money in circulation is positively related to the general price level. Indicating that a permanent increase in MB will increase inflation.

In Zimbabwe, for example, through the years 2007-08, inflation rates rose to 231,000,000 due to the country's adoption of MF (Hanke and Kwok 2009).[21] Underlying this tragedy were deep-rooted fiscal concerns. In 2005–08, budget deficits were in the range of 25–45 percent of GDP (Agur et al. 2022). Due to low CBI between the treasury and the Reserve Bank of Zimbabwe, the government requested the central bank to finance the deficits.[22] As the years progressed, the budget deficit increased, and the MB followed this trend as the central bank continued financing the deficits.[23] Exacerbating this trend was the rising velocity of money: as soon as payments in Zimbabwe dollars were received, they would quickly be exchanged for foreign currency. By April 2009, the Zimbabwean Dollar was discontinued and replaced by other currencies (McIndoe-Calder 2018).

[21]Please see Figure 1 for Zimbabwe's inflation chart from the year 1985 to the year 2007.

[22]The Reserve Bank of Zimbabwe had been financing deficits since the 1990s (Agur et al. 2022). The majority of the debt was acquired due to the Fast Track Land Reform Programme, the government's decision to intervene in the second war with the Democratic Republic of Congo, and the paying of huge unbudgeted bonuses for independence war veterans in 1997 (McIndoe-Calder 2019).

[23]Moreover, Figure 1 also demonstrates the relationship between an increase in the monetary base and the corresponding increase in inflation through a purely quantitative perspective.

Similarly, in the 2010s, the Venezuelan government depended heavily on MF to sponsor its social programs, subsidies, and other expenditure, particularly in the context of falling oil prices and declining tax revenues (Hanke 2017).[24] In July 2015, inflation exceeded 100% and by October 2017 it surpassed the rate of 50% per month, which, using the Cagan 1991 definition, is hyperinflation. By the end of 2017, the annual inflation rate was 2585%.[25] While the Central Bank of Venezuela stopped reporting data in 2016, multiple literatures concluded that MF was in play because government debt wasn't rising; however, MB was significantly rising (Levingston 2014).[26] As a result, the corresponding increase in inflation can be attributed to MF.

Likewise, empirical analysis by Agur et al. 2022 found that a 10% increase in MB is associated with an increase in inflation by about 1.5 percentage points on impact and in the subsequent year. However, this analysis only considers factors from a quantitative theory of money perspective.[27] Nonetheless, this literature reinforces the consensus that MF correlates with increased inflation as demonstrated by the Venezuelan and Zimbabwian experience, and by extension holds the quantitative theory of money to be true.

3 Advantages

On the other hand, MF encompasses various advantages including increased flexibility, reduced governmental debt, and inflation management.

[24]Venezuela heavily relies on oil exports, which account for approximately 95% of its export earnings. The decline in oil prices has severely affected the country's ability to generate revenue (Nelson 2018).

[25]Please see Table 3 for a holistic review of Venezuela's economic indicators through the years 2008-17.

[26]In January 2016, the BCV published its last official inflation data, which showed an inflation rate of 180.9% for that year. However, after that point, the BCV stopped releasing official inflation figures. Please see Table 3 for the data associated with M2 and government debt growth.

[27]Please see Figure ??. To learn more about the determinants of the study please refer to Agur et al. 2022.

3.1 Increased Flexibility

Historically, MF has been deployed during an unprecedented economic crisis due to its ability to expand the central bank's arsenal to regulate the economy when conventional monetary policies (CMP) have insignificant effects.[28] Supportingly, Galı 2020 reports that MF benefits the economy more than CMPs during an economic crisis.[29] This can be attributed to its ability to increase aggregate demand without impacting debt or instilling Ricardian equivalence (Gabor et al. 2021).[30] As a result, the addition of MF to the central bank's arsenal allows for increased flexibility in policy choices, specifically in times of economic crisis (Laeven and Valencia 2010).

During GFC, the U.S. Federal Reserve engaged in MF to increase aggregate demand to stimulate the economy. Figure 3 demonstrates the sudden increase in M0 during 2008.[31] And, studies report that the corresponding result was an increase in aggregate demand (Taylor 2009). Likewise, more recently, many countries responded to the COVID-19 pandemic by using MF measures- most notably, the U.K. via the Bank of England. At a special Monetary Policy Committee meeting, it was concluded that:

> *"The impact of COVID-19 on public finances will be made more manageable by the Treasury and Bank of England utilising monetary financing."*
>
> *- Monetary Policy Committee Meeting, 2020* [32]

[28]For example, various monetary policy proposals were set forth by Phillips and Minsky 2016 and Robertson 2009 during the aftermath of the GFC to stimulate the economy. Please see Table 1 for a detailed comparison between conventional monetary policies and unconventional monetary policies.

[29]Specifically, Galı 2020 reports that MF is actually more effective when the economy is close to the Zero Lower Bound (ZLB). This will be discussed further in the remainder of the essay.

[30]Ricardian Equivalence refers to the theory that consumers will increase their amount of savings assuming a later increase in taxes will surface to fund the resulting deficit (Ricardo 1821).

[31]M0 or "narrow money" refers to the total physical currency in circulation and the reserves held by banks.

[32]The complete statement is as follows: "The impact of COVID-19 on public finances will be made more manageable by the Treasury and Bank of England utilizing monetary financing. During the coronavirus crisis, quantitative easing (QE) has served as an indirect form of monetary financing, and the Bank of England has offered to undertake direct monetary financing through the government's Ways and Means 'overdraft' facility at the central bank. The government should take full advantage

They acted on this statement by buying bonds worth 200,000,000 sterling from the U.K. Treasury (Altig et al. 2020). This newly created money was then used to finance government expenditures related to COVID-19 policies.[33] The utilization of MF in times of crisis voices its advantageous flexibility and immediate impact.

3.2 Reduced Debt

No net increase in government debt is a key theory forcing proponents to make a case for MF. Especially, given the context of the highest debt-to-GDP ratios that have emerged recently. Global debt is calculated to be 250% of global GDP.[34] Financing via MF theoretically allows a government to stimulate the economy without a corresponding increase in debt (Rule 2015). However, in practice, this theory doesn't hold because MF takes place through purchasing government debt instruments by the central bank (Curdia and Woodford 2011). Thus, the government still reports an increase in debt. Nonetheless, MF can be identified by examining the central bank's balance sheet (Orphanides 2016).[35] Figure 5 demonstrates the total assets on the Federal Reserve's balance sheet and the U.S. Treasury's balance it holds. Through analyzing the figure at key points such as the COVID-19 pandemic and GFC it can be inferred that the U.S. government utilized MF as both the treasury balance and total assets increased (Stone, Ishi, and Fujita 2011). In essence, as the Federal Reserve is a part of the U.S. government its government debt is internal (Carlson et al. 2020). Thus the net debt didn't increase. Making it a valuable tool to add to a central bank's arsenal as it avoids increasing debt or introducing Ricardian equivalence effects if its counterpart higher taxation was to be introduced.

of the conditions for monetary financing to reduce Britain's debt burden. Especially with the right institutional checks, there is little reason to fear excessive inflation or other adverse effects. Attempting to 'pay back' monetized debt through austerity would be unnecessary and counterproductive (Money 2020)."

[33]The U.K. government introduced COVID-19 policies to support the economy, including the Coronavirus Job Retention Scheme and the Bounce Back Loan Scheme (Elgin, Basbug, and Yalaman 2020).

[34]Please see Figure 4 to view the fluctuation of global debt levels from the years 2005 to 2020.

[35]A central bank's balance sheet is a financial statement that provides a overview of the assets, liabilities, and capital that a central bank holds. It largely represents the central bank's holdings and obligations, reflecting its monetary policy operations and other activities (Hawkins 2003).

3.3 Manage Inflation

As established in Section 2.2, excessive MF increases inflation. While this consensus entails numerous impediments it is also an invaluable tool in fighting deflation.[36] In a deflationary environment, the real value of debt increases as the money borrowed has more purchasing power than when it was initially borrowed.[37] This puts unprecedented pressure on sovereign debt and risks default (Bernanke et al. 2002).

Since 1995, Japan has faced repeated spirals of deflation- up-to negative 2%.[38] To combat this the Bank of Japan has introduced various expansionary monetary policies, such as QE and MF (Wieland 2010). Figure 7 demonstrates the exponential increase in Japan's MB as inflation crossed the ZLB.[39] While the policy yielded mixed results it has been called upon in such deflationary environments (Girardin and Moussa 2011). Once again, making MF an invaluable tool to add to a central bank's arsenal.

4 Conclusion

To conclude, MF entails numerous consequences that can be positive or negative. However, the negative consequences of lower central bank independence and inflation can be equated by implementing the following conditions:

1. The central bank remains independent of political influence by establishing a rigid framework that defines the quantity and time-frame of deployment for MF, hindering the prospectus of fiscal dominance.

2. The economic environment which allows the use of MF is one that is marked by

[36]Deflation refers to a sustained and general decrease in the overall price level of goods and services within an economy over time. When deflation occurs the purchasing power of money increases, meaning that each unit of currency can buy more goods and services (Burdekin and Siklos 2004).

[37]Other consequences of deflation include risks of economic stagnation, debt deflation spirals, increased real interest rates, and negative feedback loops (Fleckenstein, Longstaff, and Lustig 2017).

[38]Please see Figure 6 for the annual percent change in the inflation rate of Japan through 1980 to 2022.

[39]In this particular case, Figure 7 displays inflation as the Consumer Price Index or CPI.

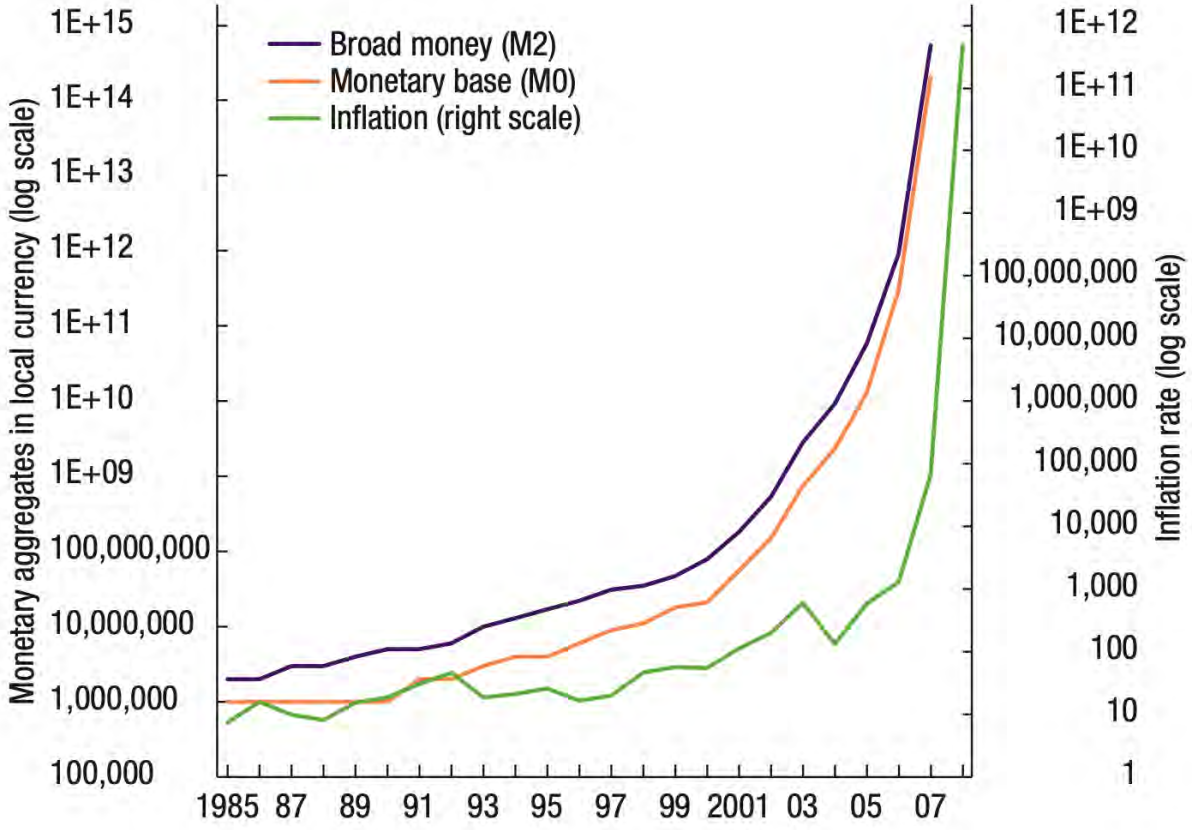
deflation and/or a recession. And, where conventional monetary policy measures have had insignificant effects.[40]

Coupled together, these conditions construct a normative framework outlining the economic conditions in which MF could be deployed. That being said, it is important to note the volatile history of deploying MF in central bank frameworks such as Zimbabwe's, where fiscal indiscipline caused hyperinflation and hindered CBI.

[40]As demonstrated in Japan, the use of MF when the economy has arrived at the ZLB results in minor consequences upon the rate of inflation and serves a pure stimulus to increase aggregate demand.

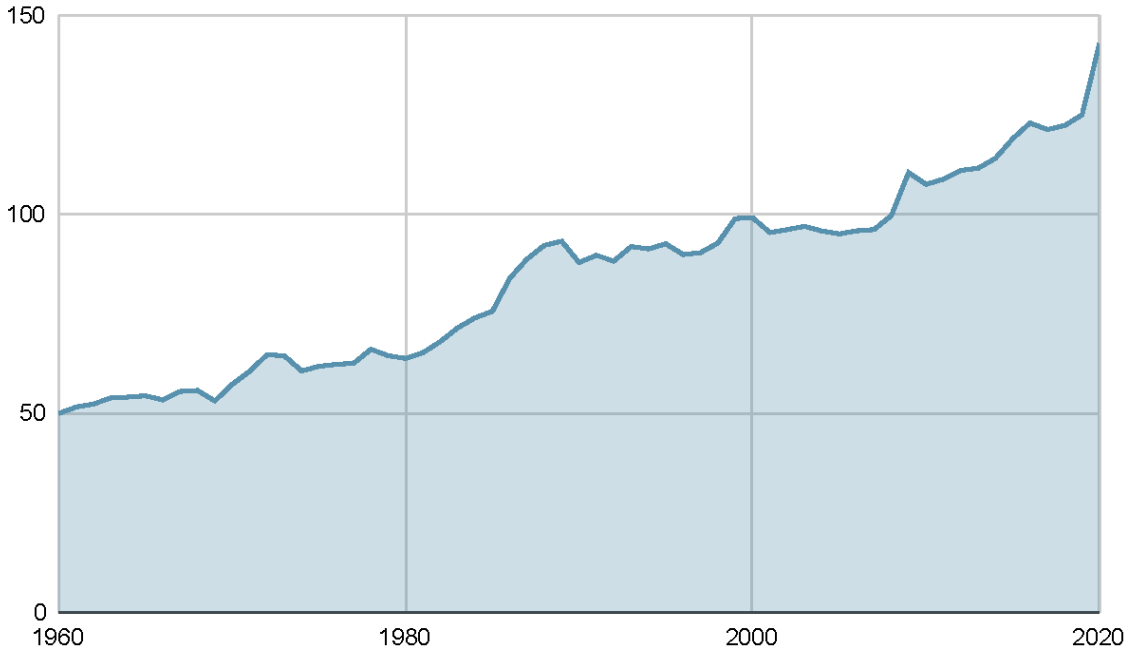
Appendix

Figure 1: Monetary Finance and Hyperinflation in Zimbabwe *(Annual Percent Change)*



Source: Agur et al. 2022

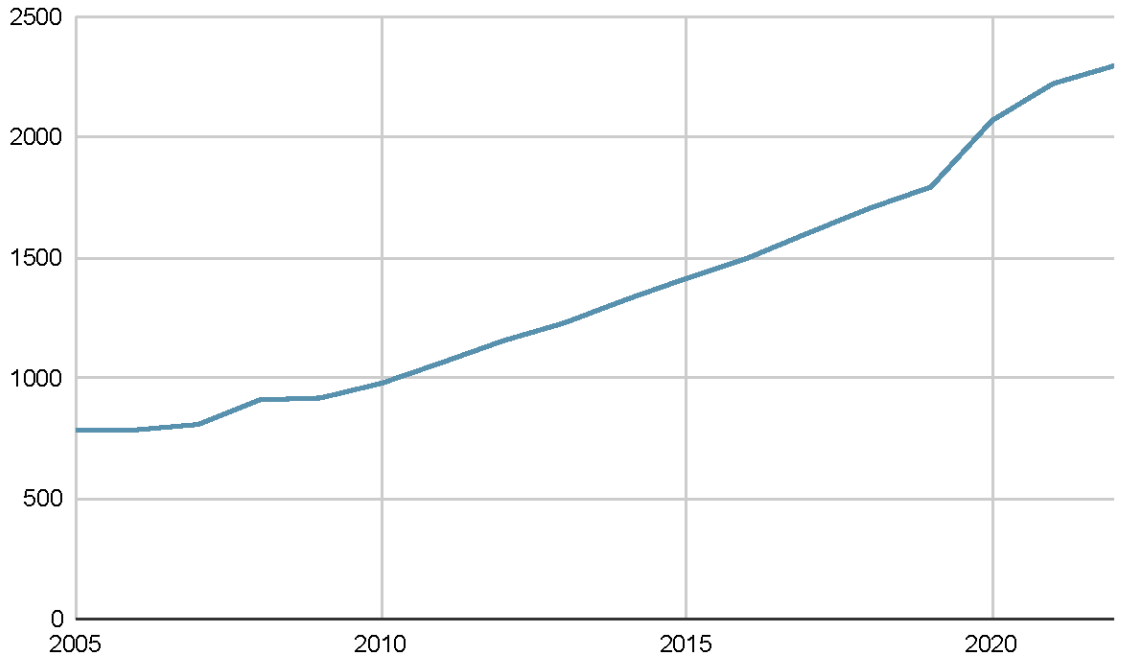
Figure 2: Total World M3, 1960- 2020 *(Percent of GDP)*



Source: OECD, World Bank, and author's calculations

Note: M3 or "broad money" includes currency, deposits with an agreed maturity of up to two years, deposits redeemable at notice of up to three months and repurchase agreements, money market fund shares/units and debt securities up to two years.

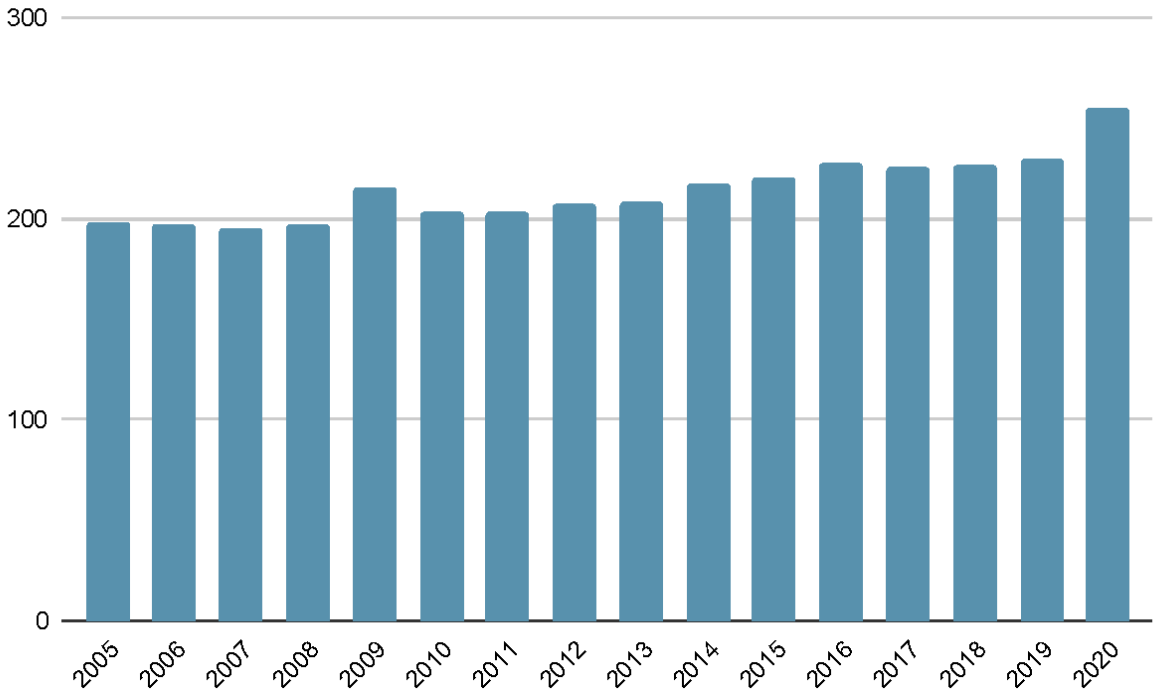
Figure 3: M0 in the United States, 2005- 2022 *(Billions of Dollars)*



Source: Board of Governors of the Federal Reserve System

Note: M0 or "narrow money" refers to the total physical currency in circulation and the reserves of commercial banks. Physical currency includes all coins and banknotes issued by the central bank that are in the hands of the public, while reserves refer to the deposits that banks hold with the central bank.

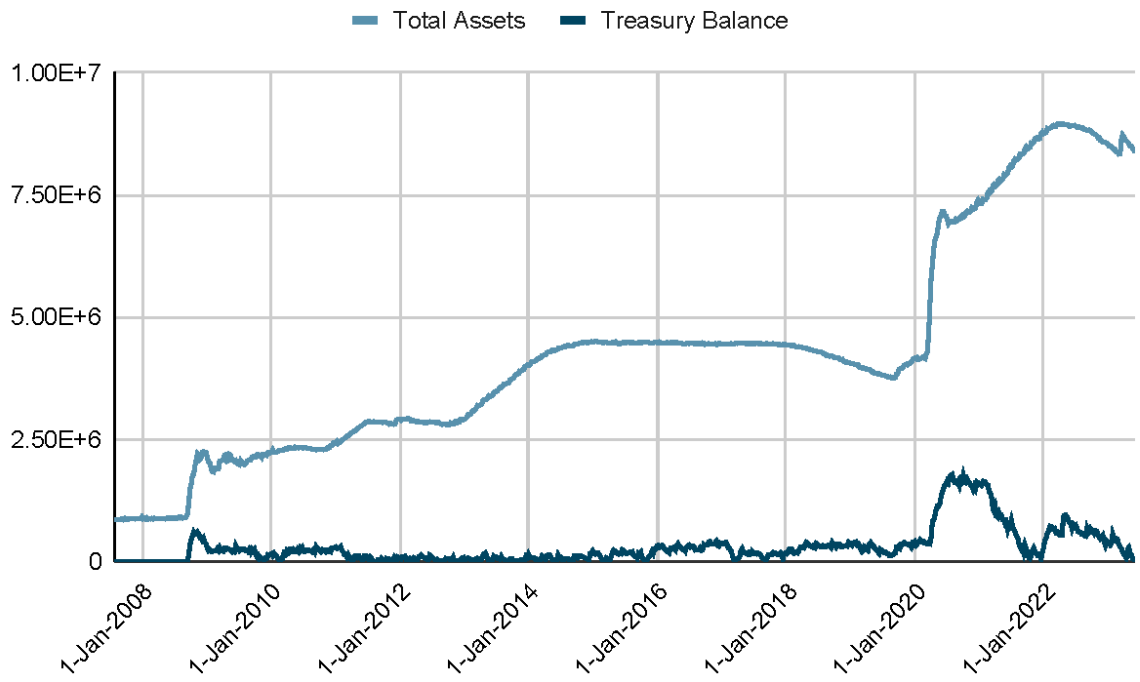
Figure 4: Total Global Debt, 2005- 2020 *(Percent of GDP, weighted averages)*



Source: IMF Global Debt Database, 2020

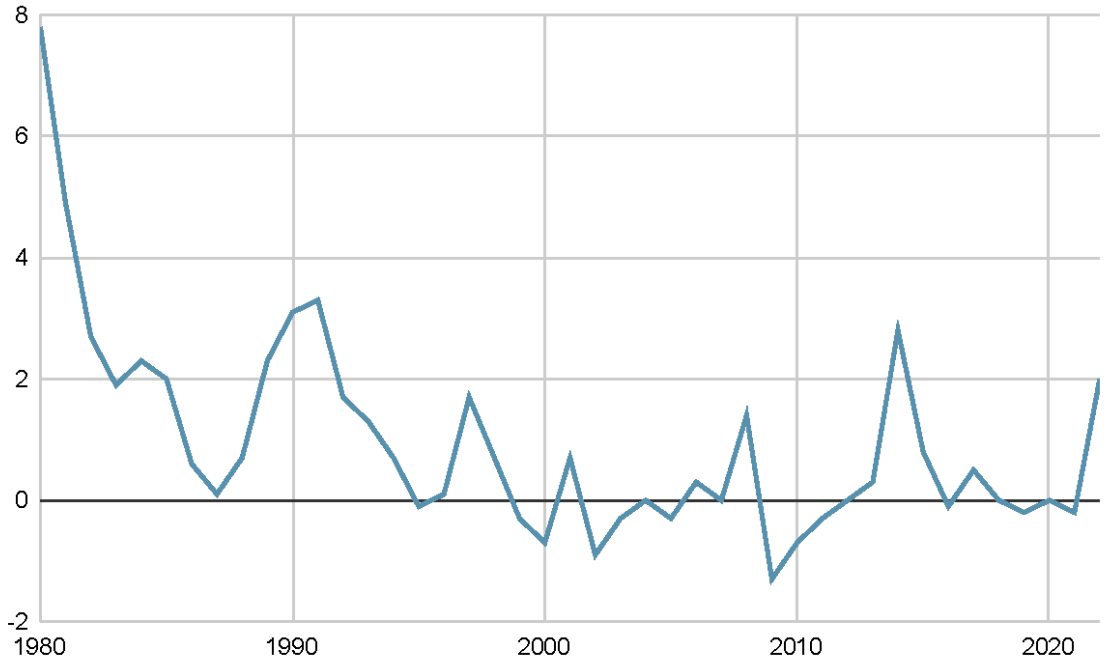
Note: The figure accounts for both private and public debt. Private debt includes Household Debt and Non-financial Corporate Debt. Also, the GDP referenced is the total world GDP.

Figure 5: Total Assets of the Federal Reserve and Treasury Balance, 2007- 2023 *(Millions of Dollars)*



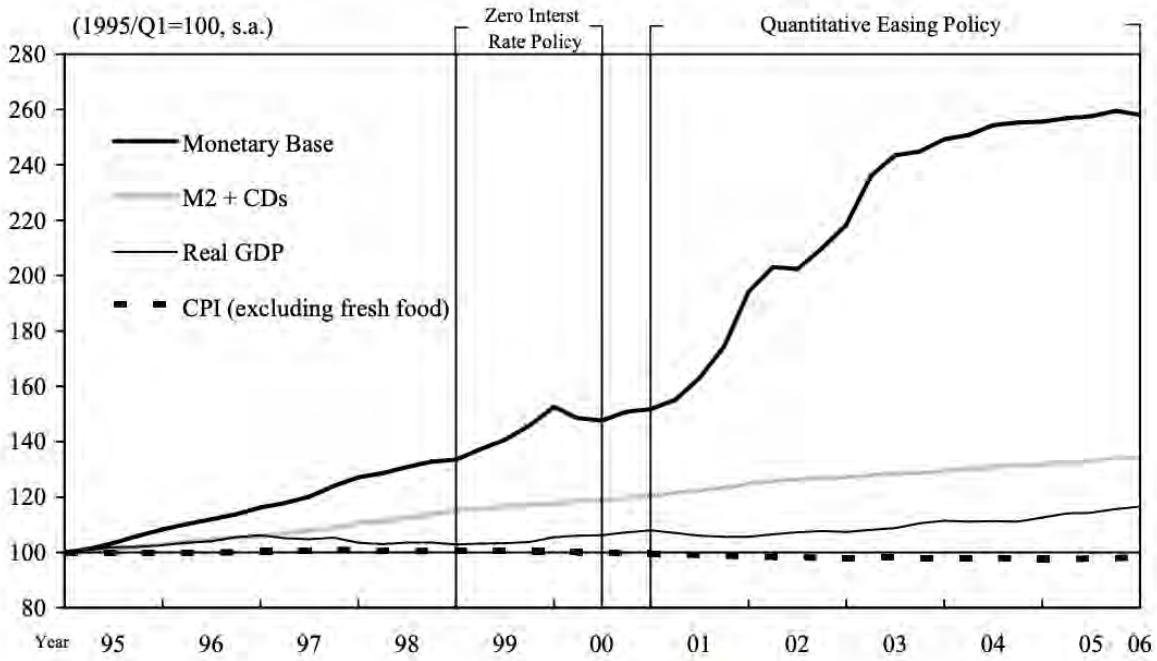
Source: Board of Governors of the Federal Reserve System, Daily Treasury Statement(s), and author's calculations

Figure 6: Inflation Rate in Japan, Average Consumer Prices, 1980- 2022 *(Annual Percent Change)*



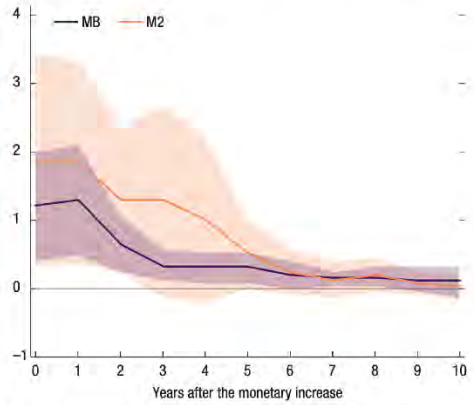
Source: IMF Global Inflation Database, 2023

Figure 7: Japan's Quantitative Monetary Indicators, *1995 - 2006*

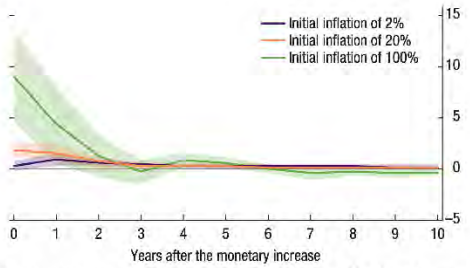


Source: Ugai et al. 2007

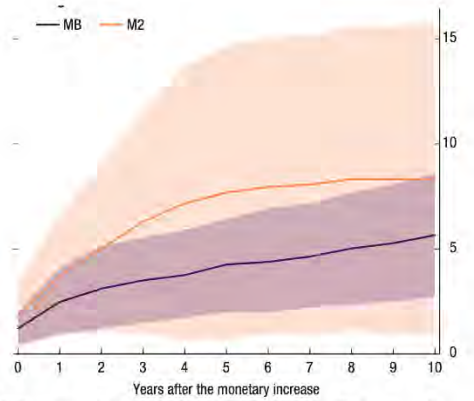
Figure 8: Monetary Growth and Inflation *(Percentage points)*



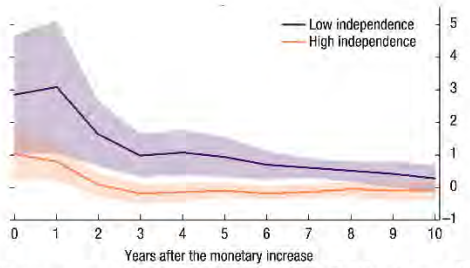
(a) Change in Inflation after a 10 Percent Increase in MB



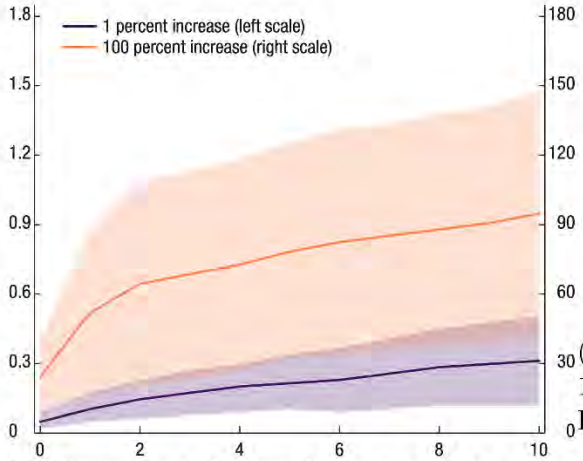
(b) Percentage Point Change in Inflation after a 10 Increase in MB Conditional on the Initial Inflation Level



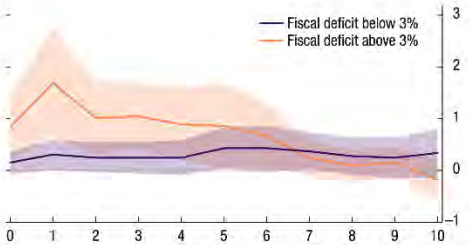
(c) Change in the Price Level after a 10 Percent Increase in MB



(d) Percentage Point Change in Inflation after a 10 percent Increase in MB Conditional on Central Bank Independence



(e) Change in Inflation after a 1 and 100 Percent Increase in the Monetary Base



(f) Percentage Point Change in Inflation after a 10 Percent Increase in MB Conditional on Fiscal Balance

Source: Agur et al. 2022

Table 1: Differentiation Between Conventional and Unconventional Monetary Policies (CMP and UMP)

	Interest Rate	Open Market Operations	Reserve Requirements	Discount Rate
Conventional	Adjust short term interest rate	Buy or sell government securities	Hike or lower reserve requirements	Hike or lower the discount rate
Unconventional	Using forward guidance	Large scale asset purchases	Lend money directly to banks	Introduce negative discount rates

Note: CMP are based on traditional economic theories such as the Quantity Theory of Money and the Phillips Curve. They refer to the traditional tools used by central banks to manage the economy, while UMP refers to the tools used by central banks in lower frequency, most notable during unprecedented economic crisis. Interest rate manipulation refers to the ability of the central bank to change short term interest rates to influence borrowing costs, this is considered a CMP. In situations where interest rates approach ZLB, central banks can use forward guidance to influence longer-term interest rates by making public statements about future interest rate policy to help anchor expectations and influence behavior, this is considered a UMP. Open market operations can affect the money supply and interest rates to influence aggregate demand. Central banks require commercial banks to hold a certain % of their deposits as reserves, which affects the amount of money banks have available to lend. Lowering reserve requirements, which is a CMP, can stimulate borrowing and investment. However, central banks can also directly lend money to these banks to increase lending which is considered a UMP. Discount rates refer to the interest rate the central bank charges banks to lend money. CMP dictates lowering interest rates to stimulate the economy where as UMP can involve negative interest rates ti create a greater emphasis on increasing aggregate demand through lending (Kumar, Rao, and Subramanian 2021).

Table 2: Conceptual Differences Between Quantitative Easing (QE) and Monetary Financing (MF)

	Goals	Monetary Base	Inflation Targeting	Risks
Quantitative Easing	Macroeconomic stimulus	Temporary increase	Yes	Inflation
Monetary Financing	Macroeconomic stimulus	Permanent increase	No	Inflation or hyperinflation
	Crisis prevention	Permanent increase	Maybe	Inflation or hyperinflation

Note: The table divides the use of MF into two distinct sections due to its use in different institutional contexts. The goals referred to in the table acknowledges the conditions in which either QE or MF are/can be implemented. Macroeconomic stimulus is the goal/condition of the monetary policies in situations where these policy levers are introduced to increase aggregate demand and the economy is in nominal condition. Whereas, crisis prevention is a goal/condition where MF is implemented because of increased economical hardships like the COVID-19 pandemic or the GFC. Both the monetary policies involve an increase in the monetary base; however, QE involves a temporary one. Inflation targeting can take place when using MF during a crisis if the economy is reaching or has reached the effective lower bound (ELB). Both the aforementioned policies involve inflation risks. However, inflation risks associated with MF are of greater consequence.

Table 3: Economic Indicators for Venezuela *(Annual Percent Change)*

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Real GDP Growth	4.8	3.3	1.5	4.2	5.5	1.3	3.9	6.2	-16.6	-14.0
Inflation (% Annually)	30.9	25.1	27.2	27.6	20.1	56.1	68.5	180.9	274.4	2585.8
M2 Growth (%)	28.8	33.2	28.6	32.7	43.6	54.3	66.0	97.7	163.6	1121.4
M2 Growth in Real Terms (%)	191.2	186.8	185.1	219.3	293.8	318.0	312.0	219.6	154.6	70.3
GDP/M2	3.54	3.02	3.45	3.05	2.28	1.86	1.51	1.52	2.70	2.01
Government Revenue (% of GDP)	31.4	24.6	21.2	27.9	25.1	28.1	30.3	19.2	14.7	14.5
Government Expenditure (% of GDP)	31.9	29.3	30.2	37.9	37.3	35.0	42.7	35.0	34.1	40.6
Government Debt	14.0	18.2	29.0	25.1	27.5	32.9	28.5	29.6	N.A.	N.A.

Source: Pittaluga, Seghezza, and Morelli 2021

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Table 4: Total Debt Issued by the United States, Japan, Greece, Zimbabwe, and Venezuela Central Governments, 2003- 2021 *(Percent of GDP, weighted averages)*

Country	2003	2006	2009	2012	2015	2018	2021
Greece	58.6	64.2	86.7	103.1	105.2	107.5	128.1
Japan	160	174	198.7	226.1	228.4	232.3	262.5
United States	100.23	104.72	126.75	162.19	182.19	199.91	212.4
Venezuela		39.4	58.7	38.3	47.5	51	66.9
Zimbabwe	56	25.7	27.6	58.4	129.8	174.5	240.5

Source: IMF Global Debt Database, 2023

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